CATALOG 104

NEWARK ELECTRONICS

58 years of publication

ALL PRODUCTS LISTED ARE STOCKED

Over 100,000 electronic devices through your nearest Newark facility

190 major product lines

Over 750 pages of product information for industrial electronics

Completely indexed by product and brand name . . . many valuable cross-references

Material arranged by product category for quick reference

Computerized price, delivery and order entry service

A fully stocked Newark warehouse is as near as your phone. Newark locations coast to coast

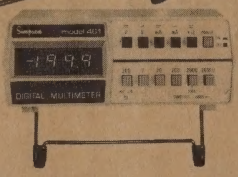
TABLE OF CONTENTS

	Pages
1 Integrated Circuit Price List	6-13
2 Discrete Device Price List	14-27
3 Semiconductor Specification	28-114
4 Receiving and Industrial Tubes	115-120
5 Resistors	124-138
6 Potentiometers	139-168
7 Capacitors	169-223
8 Switches and Timers	224-290
9 Relays	291-366
10 Fuses and Breakers	367-37[illegible]
11 Connectors, Barrier Strips, Spacers, Test Leads	376-481
12 Interconnect Devices, P.C. Supplies, Sockets	482-51[illegible]
13 Wire and Cable	513-567
14 Transformers and Power Supplies	568-594
15 Indicator Lights and Lamps	595-617
16 Tools, Hardware, Chemicals	618-647
17 Racks and Cabinets, Fans	675-693, 655-659
18 Batteries	663-667
19 Test Equipment, Meters	694-729
20 Audio	730-739
21 Product Index	741-7[illegible]
Mfrs. Index	[illegible]

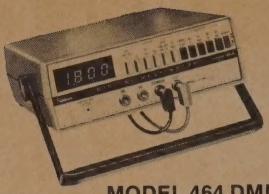
Newark Electronics stocks the complete Simpson Line

DIGITAL MULTIMETERS

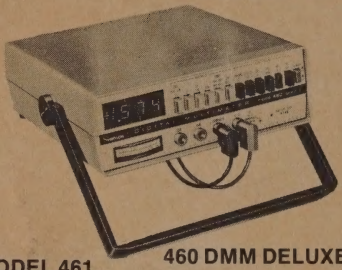
NEW MODEL 462
AUTORANGING
COMPACT DMM



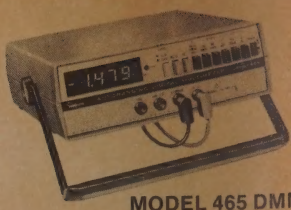
POPULAR MODEL 461



MODEL 464 DMM



460 DMM DELUXE



MODEL 465 DMI

360-2 DIGITAL V

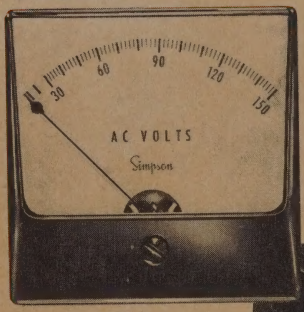
VOMs

260-6 VOM

260-6XL
VOM

160 HANDI-VOM

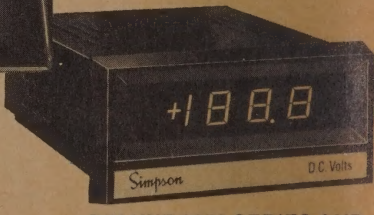
WIDE VUE



MODEL 3623XA
EDGEWISE CONTROLLERS

ANALOG AND DIGITAL PANEL METERS, METER RELAYS AND CONTROLLERS

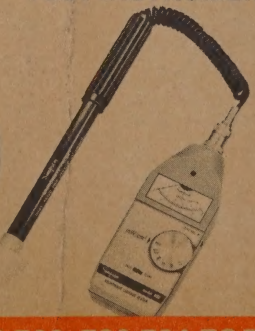
OVER 2,000 SIZES,
RANGES, TYPES



DELUXE 2850 SERIES AND
LOW-COST 2860 SERIES

TEST INSTRUMENTS

ODEL 296
-CLAMP VOM



MODEL 380M
MICROWAVE
LEAKAGE
TESTER

MODEL 886
SOUND LEVEL METERS

MODEL 452 DUAL TRACE SCO

SEE PAGES 694-700, 720-724 FOR THE COMPLETE SIMPSON LISTING

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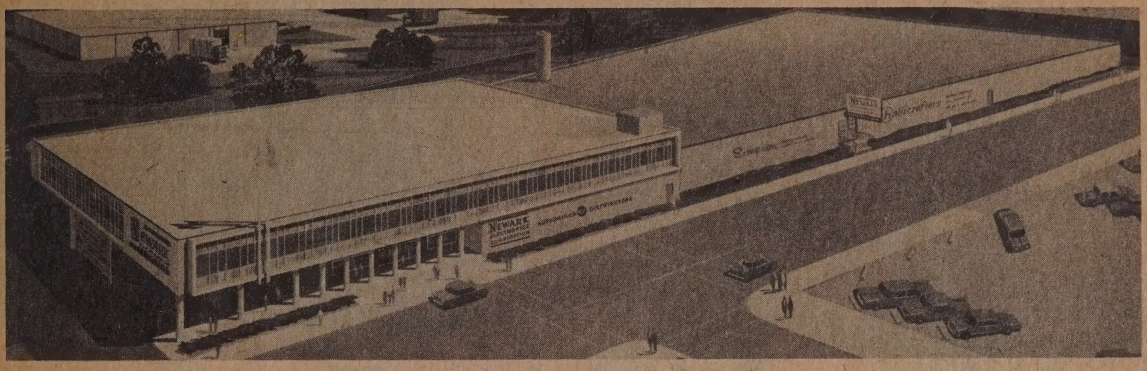
NEWARK ELECTRONICS

An Enterprise of Premier Industrial Corporation

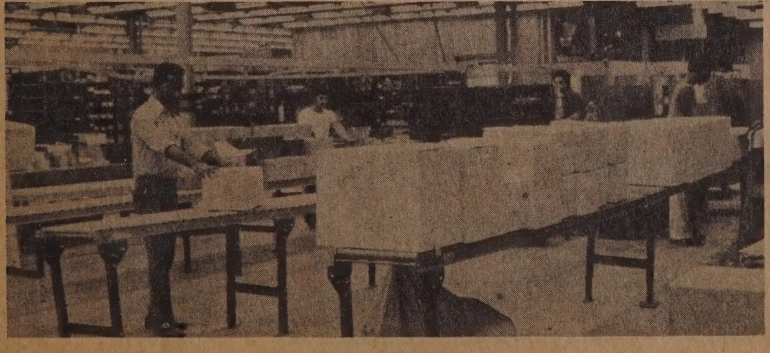
CATALOG 104



All products listed are stocked!

Over 100,000 electronic devices available from 190 leading manufacturers.

Your Newark Catalog is a complete directory and guide which lists high quality electronic components available from 190 internationally recognized manufacturers. Newark provides you with one-stop shopping for all of your requirements. You don't have to call to determine if we stock catalog items. If we list it, we stock it!



Select the components you need, and contact the Newark facility nearest you for prompt shipment from stock.

Our main warehouse and regional warehouses in major market areas contain a multi-million dollar inventory of electronic components and equipment. This means that you get off-the-shelf deliveries of leading brand-name products promptly.

You get what you need from Newark, including important value-added services like connector and switch assembly.

We also have product specialists in important component areas like semiconductors and connectors, to provide in-depth technical back-up to our sales force—and to you. All the people at Newark are dedicated to serving your needs promptly, courteously, and efficiently.

MAKE NEWARK YOUR FIRST AND ONLY CALL

NEWAR

Newark—your local broad line distributor has a location near you to provide in-depth, one stop shopping service for everything you need.

Electronic Components

Test Equipment

Cabinetry Items

Tools

Wire & Cable

Hardware

Newark stocks nearly everything you might need, and can also provide NOT-IN-CATALOG (NIC) items from listed Manufacturers on a special order basis.

Our 58th year

WEST

Los Angeles Area
4747 W. Century Blvd.
Inglewood, CA. 90304
(213) 678-0441

Riverside, CA.
9262 Magnolia Ave.
Riverside, CA. 92503
(714) 354-9330

Orange County, CA.
1744 W. Katella Ave.
Orange, CA. 92667
(714) 997-9572

San Diego
11722 Sorrento Valley Rd.
San Diego, CA. 92121
(714) 481-1251

San Francisco Area
1155A Chess Dr.
Foster City, CA. 94404
(415) 572-8300

Oakland, CA.
7700 Edgewater Dr.
Oakland, CA. 94621
(415) 632-7522

Sacramento
2100 Marconi Ave.
Sacramento, CA. 95821
(916) 920-3774

Portland, OR.
16416 S.W. 72nd Ave.
Portland, OR. 97223
(503) 620-1614

Seattle Area
13256 N.E. 20th St.
Bellevue, WA. 98005
(206) 641-9800

Phoenix Area
1650 W. Alameda Dr.
Tempe, AZ. 85282
(602) 968-7441

Boise
1111 S. Orchard St.
Boise, ID. 83705
(208) 342-4311

Salt Lake City
396 Ironwood Dr.
Salt Lake City, UT. 84115
(801) 484-8611

Denver
2170 S. Grape St.
Denver, CO. 80222
(303) 757-3351

Arvada, CO.
8141 West I-70
Arvada, CO. 80002
(303) 423-7941

SOUTHWEST

El Paso, TX.
4120 Rio Bravo St.
El Paso, TX. 79902
(915) 533-2486

Dallas Area
707 Easy St.
Garland, TX. 75042
(214) 494-5911

San Antonio, TX.
4438 Centerview Dr.
San Antonio, TX. 78228
(512) 736-1738

Corpus Christi, TX.
4410 Dillon Lane
Corpus Christi, TX. 78415
(512) 855-3971

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Houston, TX. 77036
(713) 782-4800

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Pasadena, TX. 77502
(713) 477-0286

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Port Arthur, TX. 77640
(713) 722-9306

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2025 S. Nicklas St.
Oklahoma City, OK. 73128
(405) 682-4418

Tulsa
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Tulsa, OK. 74145
(918) 622-5833

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Omaha, NE. 68114
(402) 392-1221

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336 Hoover St., N.E.
Minneapolis, MN. 55413
(612) 331-6350

St. Paul, MN
1935 West County Rd. B-2
St. Paul, MN. 55113
(612) 631-2683

Kansas City Area
8363 Quivira Rd.
Lenexa, KS. 66215
(913) 492-6000

Iowa
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Cedar Rapids, IA. 52404
(319) 362-1171

Quad Cities Area
2435 Kimberley Rd.
Bettendorf, IA. 52722
IA (319) 359-3711
IL (309) 794-0693

St. Louis Area
320 Brooks Dr.
Hazelwood, MO. 63042
(314) 731-1204

Madison, WI.
6414 Copps Ave.
Madison, WI. 53716
(608) 221-4738

Milwaukee Area
3415 N. 127th St.
Brookfield, WI. 53005
(414) 781-2450

Green Bay
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Green Bay, WI. 54303
(414) 494-1400

Springfield, IL.
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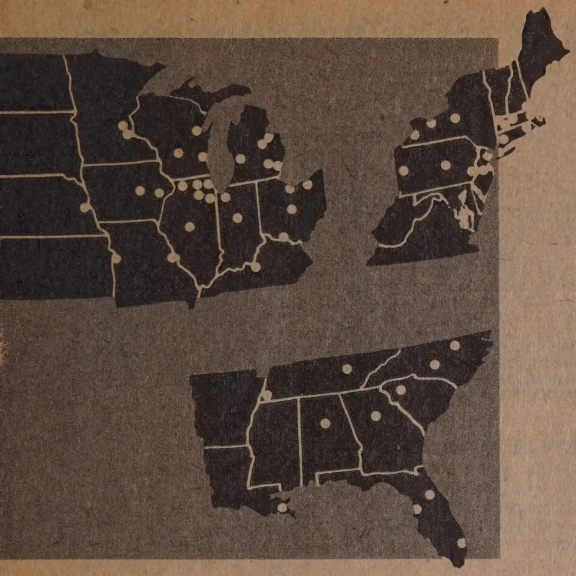
Springfield, IL. 62704
(217) 787-9972

Rockford, IL.
2606 Broadway St.
Rockford, IL. 61108
(815) 229-0225

Chicago
500 N. Pulaski Rd.
Chicago, IL. 60624
(312) 638-4411

International sales and service

We can handle your electronic needs anywhere in the world. Our international sales office, located in our Chicago headquarters building, may be reached by phone, TELEX or Cable.
See page 752



Chicago–Metro
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AMF O'Hare
Chicago, IL. 60666
(312) 638-3330

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Hickory Hills, IL. 60457
(312) 430-3232

Park Ridge, IL.
1580 Northwest Highway
Park Ridge, IL. 60068
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8315 Virginia St.
Merrillville, IN. 46410
(219) 738-2787

Indianapolis
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Indianapolis, IN. 46278
(317) 298-7070

Grand Rapids, MI.
3506 Roger Chaffee Blvd., S.E.
Grand Rapids, MI. 49508
(616) 241-6681

Saginaw, MI.
3159 Christy Way
Saginaw, MI. 48603
(517) 799-0480

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(313) 967-0600

Oak Park, MI.
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Oak Park, MI. 48237
(313) 968-2950

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Cincinnati, OH. 45246
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Columbus, OH. 43220
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(504) 888-5174

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Memphis, TN. 38118
(901) 365-8060

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Knoxville, TN. 37919
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Birmingham, AL. 35209
(205) 942-4044

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Louisville, KY. 40223
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Atlanta, GA. 30329
(404) 321-0413

Richmond
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Richmond, VA. 23288
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Charlotte, N.C. 28212
(704) 535-5650

Greensboro, N.C.
2301 W. Meadowview Rd.
Greensboro, N.C. 27407
(919) 292-7240

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150 Executive Center Dr.
Greenville, S.C. 29615
(803) 288-9610

Tampa
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Tampa, FL. 33609
(813) 879-7700

Orlando
999 Woodcock Rd.
Orlando, FL. 32803
(305) 896-8350

Fort Lauderdale Area
7520 N.W. Fifth St.
Ft. Lauderdale, FL. 33317
(305) 587-2372

EAST

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510 Parkway View Dr.
Pittsburgh, PA. 15205
(412) 787-7740

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1401 Cedar Crest Blvd.
Allentown, PA. 18104
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Cornwells Hts, PA. 19020
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Beltsville, MD. 20705
(301) 937-5085

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Ellicott City, MD. 21043
(301) 461-2300

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4511 Harlem Rd.
Snyder, N.Y. 14226
(716) 839-5460

Rochester
3000 S. Winton Rd.
Rochester, N.Y. 14623
(716) 473-6600

Syracuse, N.Y.
202 Twin Oaks Dr.
Syracuse, N.Y. 13206
(315) 437-6611

New Jersey–N.Y. City
303 Monroe Ave.
Kenilworth, N.J. 07033
(201) 272-8410

Edison, N.J.
146 Route One
Edison, N.J. 08817
(201) 572-2103

South New Jersey Area
North Park Dr. & Airport Hwy.
Pennsauken, N.J. 08109
(609) 663-9490

Long Island Area
430 Merrick Rd.
Valley Stream, N.Y. 11580
(516) 561-7720
(212) 343-6842

Connecticut
112 Cottage Grove Rd.
Bloomfield, CT. 06002
(203) 243-1731

Worcester, MA.
90 Madison St.
Worcester, MA. 01608
(617) 757-4515

Methuen, MA.
236 Pleasant St.
Methuen, MA. 01844
(617) 688-1837

Boston Area
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Woburn, MA. 01801
(617) 935-8350

Brookline, MA. 1
167 Corey Rd.
Brookline, MA. 02146
(617) 738-5100

Springfield, MA.
66 Industry Ave.
Springfield, MA. 01104
(413) 785-5851

Providence R.I. Area
2500 Post Rd.
Warwick, R.I. 02886
(401) 738-4010

Computerized On-Line Inventory Management System

To assure you fast and accurate service, Newark has one of the most extensive and sophisticated computerized order entry and Inventory Management Systems of any electronic component distributor.

Our computerized, ON-LINE SYSTEM makes a key series of reports available to every Newark sales person providing the latest information as to stock status, resale prices and open purchase orders. Thus, your Newark sales person can determine in a matter of seconds exactly what we have on hand in every Newark warehouse, when more products will arrive and how much it costs.

When you place an order with Newark, it is transmitted immediately to our automated Main Warehouse or our nearest Stocking Branch. Most orders are filled the same day they are received!

IT'S CONVENIENT AND PLEASANT TO DO BUSINESS WITH

Wherever you are located, Newark can provide fast, efficient service for your electronic component requirements. A list of facilities is on pages two and three.

PRICES

Catalog prices are net, F.O.B. shipping point. Prices shown in this catalog are based upon the manufacturer's suggested resale prices where published for the quantities ordered as of the catalog preparation date. They are subject to change without notice. Orders are filled at the prices in effect at the date of shipment and these prices may vary from those shown herein, depending upon the price changes.
For up to the minute prices and for prices on quantities in excess of those shown, contact the Newark branch nearest you. Prices do not include any federal, state or local taxes.

OPEN ACCOUNTS FOR INDUSTRIAL CUSTOMERS

Orders are accepted for open account billing from well-rated firms, institutional and school accounts and government agencies. Firms without a published rating may apply for credit by submitting trade and bank references. Terms of payment are net, 10th and 25th of the month. Past due accounts subject to late payment charge of 1½% per month.

MINIMUM BILLING

Minimum billing is $25.00 for the total amount of any order. On non-catalog items; minimum billing is $25.00 per item.

LARGE QUANTITY QUOTATION OR BIDS

Newark will quote on quantities in excess of the maximum amounts shown in the catalog. Contact your nearest Newark branch for current prices and delivery.

WARRANTY

SINCE THE SELLER, NEWARK ELECTRONICS, DOES NOT CONTROL THE USE OF ITS PRODUCTS, THERE ARE NO EXPRESS WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. SELLER DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE. SINCE SELLER CANNOT CONTROL THE MANNER OR USE OF ITS PRODUCTS AFTER THEIR SALE, SELLER WILL NOT BE RESPONSIBLE FOR ANY CONSEQUENTIAL OR INDIRECT DAMAGES. SINCE SELLER IS ONLY ACTING AS A DISTRIBUTOR OF PRODUCTS MANUFACTURED BY OTHER COMPANIES, SELLER EXPRESSLY LIMITS ITS LIABILITIES TO ANY GUARANTEES EXTENDED BY THE MANUFACTURER, WHICH GUARANTEES SELLER WILL PASS THROUGH TO THE CUSTOMER. RATHER SELLER WILL, AT ITS OPTION, EITHER REPLACE THE GOODS SOLD OR REFUND THE PURCHASE PRICE.

NON-CATALOG ITEMS

Merchandise not listed in our catalog, if available from our regular suppliers, may be subject to minimum order quantities and/or special handling charges. Shipment is made as quickly as deliveries are received from our source. Special order products are sold on a non-returnable basis.

RETURNS

Returns must be accompanied by a "Return Authorization." Authorization may be obtained from the Newark facility in your area. Returns may be subject to a restocking charge.

ORDERING AND SHIPPING INFORMATION

UNITED PARCEL SERVICE

United Parcel Service (UPS) handles shipments to the 48 states and island of Oahu in Hawaii. To calculate UPS charges, use the Parcel Post Zip Code/Zone chart below to determine your area zone. Then use the U.P.S. rate chart. Any fraction of a pound takes the next higher pound rate. Maximum weight per package, 50 pounds. Maximum size, 108 inches in length and girth combined. The minimum charge for a package over 84 inches in length and girth combined is for 25 pounds. Maximum weight of all packages to one consignee in one day, 100 pounds. Rates are subject to change without notice.

Weight not to exceed lbs.	ZONES						
	1-2	3	4	5	6	7	8
1	$.82	$.84	$.87	$.90	$.94	$.99	$1.04
2	.89	.93	.99	1.05	1.14	1.23	1.34
3	.97	1.02	1.11	1.20	1.34	1.47	1.64
4	1.04	1.11	1.23	1.35	1.53	1.72	1.94
5	1.11	1.20	1.35	1.50	1.73	1.96	2.23
6	1.19	1.30	1.47	1.66	1.93	2.20	2.53
7	1.26	1.39	1.59	1.81	2.12	2.45	2.83
8	1.34	1.48	1.71	1.96	2.32	2.69	3.13
9	1.41	1.57	1.83	2.11	2.52	2.93	3.43
10	1.48	1.66	1.95	2.26	2.71	3.17	3.72

Weight not to exceed lbs.	ZONES						
	1-2	3	4	5	6	7	8
11	$1.56	$1.76	$2.08	$2.42	$2.91	$3.42	$4.02
12	1.63	1.85	2.20	2.57	3.11	3.66	4.32
13	1.71	1.94	2.32	2.72	3.31	3.90	4.62
14	1.78	2.03	2.44	2.87	3.50	4.15	4.92
15	1.85	2.12	2.56	3.02	3.70	4.39	5.21
16	1.93	2.22	2.68	3.18	3.90	4.63	5.51
17	2.00	2.31	2.80	3.33	4.09	4.88	5.81
18	2.08	2.40	2.92	3.48	4.29	5.12	6.11
19	2.15	2.49	3.04	3.63	4.49	5.36	6.41
20	2.22	2.58	3.16	3.78	4.68	5.60	6.70

Weight not to exceed lbs.	ZONES						
	1-2	3	4	5	6	7	8
21	$2.30	$2.68	$3.29	$3.94	$4.88	$5.85	$7.00
22	2.37	2.77	3.41	4.09	5.08	6.09	7.30
23	2.45	2.86	3.53	4.24	5.28	6.33	7.60
24	2.52	2.95	3.65	4.39	5.47	6.58	7.90
25	2.59	3.04	3.77	4.54	5.67	6.82	8.19
30	2.96	3.50	4.37	5.30	6.65	8.03	9.68
35	3.33	3.96	4.98	6.06	7.64	9.25	11.17
40	3.70	4.42	5.58	6.82	8.62	10.46	12.66
45	4.07	4.88	6.19	7.58	9.61	11.68	14.15
50	4.44	5.34	6.79	8.34	10.59	12.89	15.64

ZIP CODE/ZONE CHART Use Your Zip Code To Find Your Parcel Post Or UPS Zone

Zip Code Prefixes	Zone
006-009	8
010-046	5
047	6
048-098	5
100-129	5
130-132	4
133-139	5
140-179	4
180-199	5
200-215	4
216	5
217	4
218-219	5
220-232	4
233-238	5
239-274	4
275-279	5
280-282	4
283-285	5
286-289	4
290-292	5
293	4
294-295	5
296-297	4
298-299	5
300-303	4
304	5
305-307	4
308-329	5
330-334	6
335-338	5
339-349	6
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360-361	5
362	4
363-369	5
370-389	4
390-396	5
397	4
400-406	3
407-409	4
410	3
411-419	4
420	3
421-422	4
423-424	3
425-426	4
427-438	3
439	4
440-443	3
444-447	4
448-456	3
457	4
458-459	3
460-462	2
463-464	1
465-469	2
470-472	3
473	2
474-478	3
479	2
480-489	3
490-491	2
492	3
493-495	2
496-499	3
500-504	3
505	4
506-507	3
508-519	4
520	2
521-526	3
527-539	2
540	4
541-547	3
548	4
549	3
550-558	4
559	3
560-574	4
575-579	5
580-581	4
582-589	5
590-591	6
592-593	5
594-599	6
600-605	1
606	Local
607-609	1
610-619	2
620-636	3
637-649	4
650-652	3
653-675	4
676-679	5
680-689	4
690-699	5
700-715	5
716-717	4
718	5
719-729	4
730-739	5
740-744	4
745	5
746	4
747-748	5
749	4
750-778	5
779-785	6
786-787	5
788	6
789-796	5
797-799	6
800-812	5
813-819	6
820-823	5
824-825	6
826-828	5
829-834	6
835-839	7
840-849	6
850-854	7
855-863	6
864	7
865-880	6
881	5
882-883	6
884-889	5
890-899	7
900-933	7
934	8
935-938	7
939-951	8
952-953	7
954-955	8
956-961	7
962-969	8
970-994	7
995-999	8

Use the first 3 digits of your Zip Code to determine your Parcel Post Zone. Example: If your Zip Code is 16606, use the first 3 numbers (166), and refer to the chart above for your Zone, which is 4.

NEWARK ELECTRONICS

CASH ORDERS

Use your own purchase orders or stationery. Print or type name and full address. Be sure to clearly indicate stock numbers, quantity, manufacturer's type number and description. Remit full amount including the cost of postage and insurance—any excess will be refunded. **Mail orders must be at least $25.00. Non-catalog items—$25.00 minimum per item.** We ship the most economical way. Remit by money order or check, not cash or stamps.

C.O.D. SHIPMENTS

25% deposit required. On parcel post C.O.D. shipments, the Post Office charges a collection fee and a money order fee. Save money by sending full remittance.

APO AND FPO SHIPMENTS

APO and FPO shipments may be made by Parcel Post. Priority mail service is advisable. Maximum weight: 70 lbs. Maximum size: 100 inches (length plus girth). Zone 5 rates apply to APO and FPO New York locations and Zone 8 rates to APO and FPO San Francisco locations.

IF YOU WRITE US . . .

When writing to us regarding Open Account orders please give your purchase order number and our invoice number. If you are returning a cash order include the packing copy from your shipment or one of your invoice copies, as well as your instructions.

METHOD OF SHIPMENT

All terms are F.O.B. shipping point

UNITED PARCEL SERVICE. UPS serves the 48 states and the island of Oahu in Hawaii. See page 4.

AIR SHIPMENT—EXPRESS MAIL. If requested, we will ship air freight or UPS air, shipping charges collect, or by Express Mail, which is next day postal service between major cities. Consult your local facility for rates.

TRUCK. For heavy shipments, Common Carrier truck is most economical. Charges are F.O.B. shipping point.

SHIPMENT DAMAGE

Merchandise we ship is carefully packed or pre-packaged by our suppliers in compliance with carrier requirements. Claims for loss or damage in transit must be made with the carrier by the customer.

Concealed Loss or Damage. Does not become apparent until shipment is unpacked. Make a request for inspection by the carrier's agent and file claim with the carrier.

Visible Loss or Damage. Any external evidence of loss or damage must be noted on the freight bill or carrier's receipt and signed by the carrier's agent. Failure to do this will result in the carrier refusing to honor the claim. Newark is not responsible for damage incurred in transit. The transportation company rates cover insurance and they will settle damage and loss claims.

PARCEL POST RATE CHART

Weight 1 lb. and not to exceed	Local Zone	Up to 150 miles 1-2	150 to 300 miles 3	300 to 600 miles 4	600 to 1,000 miles 5	1,000 to 1,400 miles 6	1,400 to 1,800 miles 7	Over 1,800 miles 8
2	$1.15	$1.35	$1.39	$1.56	$1.72	$1.84	$1.98	$2.22
3	1.23	1.45	1.53	1.73	1.86	2.04	2.24	2.61
4	1.29	1.56	1.65	1.82	2.00	2.23	2.50	3.00
5	1.36	1.66	1.77	1.92	2.14	2.43	2.77	3.39
6	1.42	1.71	1.84	2.01	2.28	2.62	3.03	3.78
7	1.47	1.76	1.90	2.11	2.41	2.82	3.29	4.17
8	1.51	1.80	1.97	2.20	2.55	3.02	3.56	4.56
9	1.54	1.85	2.03	2.29	2.69	3.21	3.82	4.95
10	1.57	1.89	2.10	2.39	2.83	3.41	4.08	5.34
11	1.60	1.94	2.17	2.50	3.00	3.65	4.42	5.73
12	1.64	1.98	2.22	2.56	3.09	3.77	4.57	6.12
13	1.67	2.02	2.27	2.63	3.17	3.89	4.72	6.41
14	1.70	2.05	2.32	2.69	3.25	3.99	4.86	6.62
15	1.73	2.09	2.36	2.74	3.33	4.09	4.99	6.80
16	1.76	2.13	2.41	2.80	3.40	4.19	5.11	6.98
17	1.79	2.16	2.45	2.85	3.47	4.28	5.23	7.15
18	1.82	2.20	2.49	2.91	3.54	4.37	5.34	7.31
19	1.86	2.23	2.53	2.96	3.61	4.46	5.45	7.47
20	1.89	2.27	2.58	3.01	3.67	4.54	5.55	7.62
25	2.04	2.51	2.89	3.46	4.26	5.31	6.46	8.28
30	2.20	2.86	3.31	3.98	4.93	6.18	7.56	8.85
35	2.80	3.22	3.74	4.51	5.61	7.06	8.66	10.06
40	2.96	3.56	4.16	5.03	6.28	7.93	9.76	11.36
50	3.27	4.26	5.01	6.08	7.63	9.68	11.96	13.96

PARCEL POST RATES

Find the weight of your merchandise in the "Weight" column of chart at left. Pay the amount shown for Parcel Post delivery to your zone. A fraction of a pound is charged as a full pound. Packages weighing over 40 pounds are shipped by Truck or UPS.

INSURANCE FOR PARCEL POST

To protect you, we insure all Parcel Post shipments privately. Fees are shown below. In the event of loss or damage, adjustments are fast and easy.

Liability	Insurance Fee
$5.00 to $15.00	$0.56
$15.01 to $50.00	0.85
$50.01 to $100.00	1.10
$100.01 to $150.00	1.40
$150.01 to $200.00	1.75

PRIORITY MAIL (HEAVY PIECES)

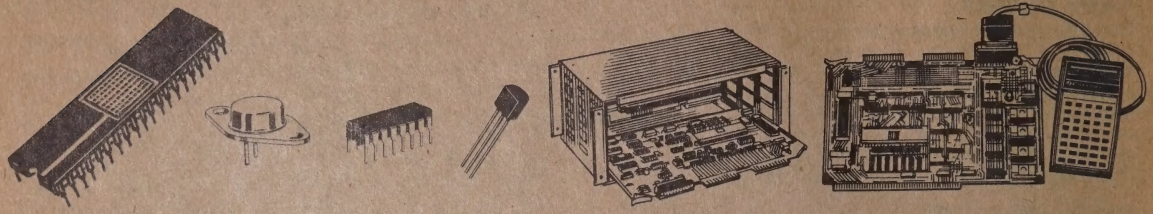
The Postal Service offers Priority Mail handling for pieces from 12 oz. to 70 lbs. Maximum size, 100 inches length and girth combined. Any parcel measuring over 84 inches in length plus girth is chargeable at a 15 pound minimum rate.

PRIORITY MAIL RATES

Over 12 oz. up to (pounds)	Zones 1, 2, 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
1.0	$1.71	$1.81	$1.88	$1.97	$2.06	$2.25
1.5	1.86	1.96	2.07	2.21	2.34	2.50
2.0	1.99	2.12	2.27	2.44	2.61	2.83
2.5	2.11	2.27	2.46	2.68	2.89	3.16
3.0	2.23	2.42	2.65	2.91	3.17	3.50
3.5	2.35	2.58	2.84	3.15	3.45	3.83
4.0	2.47	2.73	3.03	3.38	3.73	4.16
4.5	2.59	2.89	3.22	3.62	4.01	4.50
5	2.72	3.04	3.42	3.85	4.29	4.83
6	2.96	3.35	3.80	4.32	4.84	5.50
7	3.20	3.66	4.18	4.79	5.40	6.16
8	3.44	3.96	4.56	5.26	5.96	6.83
9	3.69	4.27	4.95	5.73	6.51	7.49
10	3.93	4.58	5.33	6.20	7.07	8.16
Add per lb.	.24	.31	.38	.47	.56	.67

All Rates Subject to Change Without Notice

NEWARK SEMICONDUCTOR MASTER INDEX



1

MOTOROLA

Page

Optoelectronics 28
System Development Equipment & Options
M6800 Development Systems 48
EXORciser Peripherals 47
Micromodules 49, 50
Microprocessors 51
Memories 43
Cardcages, Chassis, & Power Supplies 51
Integrated Circuits
LS Low Power Schottky 42
CMOS 44
Linear Integrated Circuits 45, 46
Zener & Avalanche Regulator Diodes 29
SCR's, Triacs 33, 34
Rectifiers 35, 36
Transistors
Switchmode Power Transistors 30
Power Darlingtons 30
Power Switching Transistors 30
Silicon Power Transistors 31, 32
Small Signal Metal Transistors 37, 38
Plastic-Encapsulated Small Signal Transistors 39, 40
Field Effect Transistors 40
RF Power Transistors 40
Multiple Transistors 41
Small Signal Darlington Transistors 41
MiniBloc Hybrid Semiconductors 38
Subsystem Products
Power Supplies 52
Solid State Relays 52
Input/Output Modules 52

TEXAS INSTRUMENTS

Economy Thyristors 53
NPN-PNP Silicon Power Transistors 54, 55
Silicon Transistors 56, 57
Transistors & Diodes 59
Linear Circuits 60, 61
Matched, Unmatched Duals 59
Fiberoptic Data Link 58
Optoelectronics 62, 63
TM 990 Micromodules & Ampl Prototyping System 64
Microprocessor & Memory Chips 65
Series 74LS Low Power Schottky-Clamped Digital TTL Logic and Memory 66

GENERAL ELECTRIC

Optoelectronics 77
Silicon Rectifiers 78
Triacs and Triac Triggers 79
Silicon Controlled Rectifiers 80, 81
Power Modules 82
Silicon Small Signal Transistors 83
Silicon Power Transistors 84
Silicon Power Pac Transistors 85
Unijunctions & Silicon Switches 86
GE-Mov Metal Oxide Varistors 87

INTERNATIONAL RECTIFIER

Page

Semiconductor Fuses 88
Zener Voltage Regulators 89
Silicon Power Transistors 90, 91
Monolithic Darlingtons 91
Silicon Controlled Rectifiers 92
Silicon Rectifiers 93
Power Schottky Diodes 93
Molded Circuit Assemblies 94
Z-Mov Metal-Oxide Varistors 94
Selenium Rectifiers (Transient Suppressors) 95

RCA

Microprocessors 67
NPN Silicon Power Transistors 68, 69
PNP Silicon Power Transistors 69
NPN Monolithic Darlington Transistors 69
Triacs
Sensitive Gate 70
General Purpose 70, 71
400 Hz 71
Zero Voltage Switch 71, 72
SCR's 82
COS/MOS Integrated Circuits 74
Linear Integrated Circuits 75, 76
Rectifiers 73

LANSDALE

High Power Diffused Base Transistors 100
High Power Alloy Transistors 100

MONSANTO

Discrete LED Lamps 96
Displays 97
Optoisolators and Infrared Devices 98

SOLAREX

Photovoltaic Solar Cells 106

SPRAGUE

Integrated Circuits 99

MIDTEX

Microprocessor I/O Modules 104, 105

CRYDOM

Solid State Relays 102
Input/Output Modules 102, 103

UNITED STATES CRYSTAL CORP.

Microprocessor Crystals 103

IDI

Germanium Power Transistors 101
Germanium Switching Transistors 101
General Purpose Amplifiers 101
Plastic SCR's 101

NEW TYPES STOCKED AS SOON AS RELEASED

INTEGRATED CIRCUITS

Type	Mfr	1-24	Page
CA324G	RCA	.76	75
CA339G	RCA	.69	76
CA555CG	RCA	.52	76
CA555G	RCA	.42	76
CA723E	RCA	.47	76
CA723T	RCA	i74	76
CA741CG	RCA	.34	—
CA741CS	RCA	.58	—
CA741CT	RCA	.49	—
CA741G	RCA	.34	—
CA741S	RCA	1.38	—
C1741T	RCA	1.10	—
CA747CG	RCA	.79	—
CA747CT	RCA	.99	—
CA747G	RCA	1.17	—
CA748CS	RCA	.74	—
CA748CT	RCA	.66	—
CA1458S	RCA	1.11	—
CA1558T	RCA	1.50	—
CA3000	RCA	3.80	76
CA3001	RCA	5.55	76
CA3002	RCA	3.71	76
CA3004	RCA	3.71	76
CA3005	RCA	2.48	76
CA3006	RCA	5.80	76
CA3007	RCA	5.35	76
CA3010	RCA	.89	75
CA3010A	RCA	1.07	75
CA3011	RCA	1.47	76
CA3012	RCA	1.82	76
CA3015	RCA	2.14	—
CA3015A	RCA	3.05	—
CA3018	RCA	1.05	75
CA3018A	RCA	1.75	75
CA3019	RCA	1.07	75
CA3020	RCA	2.56	76
CA3020A	RCA	3.26	76
CA3021	RCA	3.14	76
CA3022	RCA	2.64	76
CA3023	RCA	2.56	76
CA3026	RCA	1.35	—
CA3028A	RCA	1.25	76
CA3028B	RCA	1.66	76
CA3029	RCA	.81	75
CA3029A	RCA	.98	75
CA3030	RCA	1.82	75
CA3030A	RCA	2.72	75
CA3033	RCA	4.79	75
CA3033A	RCA	8.09	75
CA3035	RCA	2.48	—
CA3035VI	RCA	2.48	—
CA3036	RCA	3.35	75, 76
CA3037	RCA	2.80	75
CA3038	RCA	4.29	75
CA3038A	RCA	5.78	75
CA3039	RCA	1.07	75
CA3040	RCA	3.15	76
CA3045	RCA	4.50	75
CA3045F	RCA	1.21	—
CA3046	RCA	.96	75
CA3047	RCA	2.61	75
CA3047A	RCA	4.79	75
CA3048	RCA	4.04	—
CA3049T	RCA	2.40	—
CA3050	RCA	3.71	75
CA3051	RCA	2.72	75
CA3052	RCA	3.14	76
CA3053	RCA	.81	76
CA3054	RCA	1.25	—
CA3058	RCA	5.80	—
CA3059	RCA	3.20	—
CA3060AD	RCA	5.78	75
CA3060E	RCA	3.25	75
CA3065	RCA	2.31	—
CA3070	RCA	3.47	—
CA3072	RCA	3.38	—
CA3075	RCA	2.31	—
CA3076	RCA	2.64	—
CA3078AS	RCA	3.50	75
CA3078AT	RCA	3.50	75
CA3078S	RCA	1.75	75
CA3078T	RCA	1.75	75
CA3079	RCA	1.63	—
CA3080	RCA	.97	75
CA3080A	RCA	3.22	75
CA3080E	RCA	.79	—
CA3081	RCA	1.49	75
CA3082	RCA	1.49	—
CA3083	RCA	1.57	—
CA3084	RCA	2.95	75
CA3085	RCA	.98	—
CA3085A	RCA	2.39	—
CA3085B	RCA	6.52	—
CA3086	RCA	.68	75
CA3088E	RCA	2.31	—
CA3089E	RCA	2.85	—
CA3091D	RCA	10.70	75
CA3093E	RCA	1.85	75
CA3094AS	RCA	1.63	76
CA3094AT	RCA	1.63	76
CA3094BT	RCA	2.29	76
CA3094S	RCA	.90	76
CA3094T	RCA	.90	76
CA3096AE	RCA	2.05	75
CA3096E	RCA	1.87	75
CA3097E	RCA	1.75	75
CA3099E	RCA	1.63	—
CA3100S	RCA	2.10	75
CA3100T	RCA	2.10	75
CA3102E	RCA	2.75	—
CA3118AT	RCA	2.31	75
CA3130AE	RCA	3.32	75
CA3130AS	RCA	4.15	75
CA3130AT	RCA	4.15	75
CA3130BS	RCA	13.95	75
CA3130E	RCA	1.25	75
CA3130S	RCA	1.39	75
CA3130T	RCA	1.39	75
CA3132EM	RCA	4.29	76
CA3140AE	RCA	2.00	75
CA3140AT	RCA	2.50	75
CA3140E	RCA	.36	75
CA3140S	RCA	.80	75
CA3140T	RCA	.80	75
CA3146AE	RCA	2.31	75
CA3146E	RCA	1.62	75
CA3160AE	RCA	1.68	75
CA3160AS	RCA	2.10	75
CA3160AT	RCA	2.10	75
CA3160BS	RCA	13.95	75
CA3160BT	RCA	13.95	75
CA3160F	RCA	1.33	75
CA3160S	RCA	1.48	75
CA3160T	RCA	1.48	75
CA3161E	RCA	1.57	—
CA3162E	RCA	5.36	—
CA3183AE	RCA	2.48	75
CA3183E	RCA	2.06	75
CA3600E	RCA	3.50	75
CA3724G	RCA	1.75	75
CA3725G	RCA	2.90	75
CA6741T	RCA	1.95	—
CD2500E	RCA	4.62	—
CD2501E	RCA	4.62	—
CD2503E	RCA	4.95	—
CD4000AE	RCA	.31	74
CD4000UBE	RCA	.31	74
CD4001AD	RCA	3.99	74
CD4001AE	RCA	.31	74
CD4001AF	RCA	.63	74
CD4001BD	RCA	3.99	74
CD4001BE	RCA	.31	74
CD4001BF	RCA	.63	74
CD4001UBE	RCA	.31	74
CD4002AE	RCA	.31	74
CD4002AF	RCA	.63	74
CD4002UBE	RCA	.31	74
CD4004AE	RCA	2.36	74
CD4006AE	RCA	1.50	74
CD4007AD	RCA	3.19	74
CD4007AE	RCA	.31	74
CD4007AF	RCA	.63	74
CD4008AE	RCA	1.22	74
CD4008BE	RCA	1.22	74
CD4009UBE	RCA	.84	74
CD4010BE	RCA	.84	74
CD4010BK	RCA	6.38	74
CD4011AD	RCA	3.99	74
CD4011AE	RCA	.31	74
CD4011AF	RCA	.63	74
CD4011BD	RCA	3.99	74
CD4011BF	RCA	.63	74
CD4011UBE	RCA	.31	74
CD4012AE	RCA	.31	74
CD4012AF	RCA	.63	74
CD4012BD	RCA	3.99	74
CD4013AD	RCA	5.73	74
CD4013AE	RCA	.72	74
CD4013AF	RCA	.94	74
CD4013AK	RCA	5.73	74
CD4013BE	RCA	.72	74
CD4013BF	RCA	.94	74
CD4014AE	RCA	1.33	74
CD4015AE	RCA	1.33	74
CD4015AF	RCA	2.00	74
CD4016AD	RCA	6.24	74
CD4016AE	RCA	.72	74
CD4016AF	RCA	.94	74
CD4016BE	RCA	.72	74
CD4017AE	RCA	1.33	74
CD4017AF	RCA	2.00	74
CD4018AD	RCA	11.17	74
CD4018AE	RCA	1.33	74
CD4018AF	RCA	2.00	74
CD4019AE	RCA	.76	74
CD4019AF	RCA	2.17	74
CD4020AE	RCA	1.42	74
CD4020AF	RCA	2.12	74
CD4021AE	RCA	1.33	74
CD4022AE	RCA	1.25	74
CD4022AF	RCA	1.87	74
CD4023AD	RCA	4.18	74
CD4023AE	RCA	.31	74
CD4023AF	RCA	.63	74
CD4023BF	RCA	.63	74
CD4023UBE	RCA	.31	74
CD4024AD	RCA	8.70	74
CD4024AE	RCA	1.00	74
CD4024AF	RCA	1.49	74
CD4024AT	RCA	10.88	74
CD4025AE	RCA	.31	74
CD4025AF	RCA	.63	74
CD4025UBE	RCA	.31	74
CD4026AE	RCA	2.58	74
CD4027AE	RCA	.72	—
CD4027AF	RCA	1.08	—
CD4027BE	RCA	.72	—
CD4028AE	RCA	1.18	74
CD4028AF	RCA	1.76	74
CD4029AE	RCA	1.71	74
CD4029AF	RCA	4.48	74
CD4030AD	RCA	4.58	74
CD4030AE	RCA	.84	74
CD4030AF	RCA	1.46	74
CD4031AE	RCA	3.31	74
CD4031BF	RCA	9.96	74
CD4033AD	RCA	14.50	74
CD4033AE	RCA	2.08	74
CD4034AE	RCA	2.92	74
CD4035AE	RCA	1.58	74
CD4038AE	RCA	1.59	74
CD4039AE	RCA	3.34	—
CD4040AE	RCA	1.33	74
CD4040AF	RCA	2.00	74
CD4041AE	RCA	1.26	74
CD4042AE	RCA	1.08	74

Key	Mfr.
MOT	Motorola Motorola—HEP
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr	1-24	Page
CD4042AF	RCA	1.62	74
CD4042BE	RCA	1.08	74
CD4043AE	RCA	1.33	74
CD4043BE	RCA	1.33	74
CD4044AE	RCA	1.25	74
CD4044BE	RCA	1.25	74
CD4045AE	RCA	2.10	74
CD4046AD	RCA	9.43	74
CD4046AE	RCA	1.92	47
CD4047AD	RCA	7.25	74
CD4047AE	RCA	1.36	74
CD4047BE	RCA	1.36	74
CD4048AE	RCA	.84	74
CD4049AD	RCA	5.73	74
CD4049AE	RCA	.74	74
CD4049AF	RCA	.97	74
CD4049UBE	RCA	.74	74
CD4050AE	RCA	.74	74
CD4050AF	RCA	.97	74
CD4050BE	RCA	.74	74
CD4051BE	RCA	1.00	74
CD4052BE	RCA	1.00	74
CD4053BE	RCA	1.00	74
CD4053BF	RCA	1.49	74
CD4054BE	RCA	2.51	74
CD4055BE	RCA	2.79	74
CD4056BE	RCA	2.79	74
CD4059AD	RCA	19.50	74
CD4059AE	RCA	6.00	74
CD4060AE	RCA	1.68	74
CD4060AF	RCA	3.68	74
CD4060BE	RCA	1.68	74
CD4063BE	RCA	1.66	74
CD4053BF	RCA	3.53	74
CD4066AE	RCA	.84	—
CD4066AF	RCA	2.55	—
CD4067BE	RCA	6.01	74
CD4068BD	RCA	5.09	74
CD4068BE	RCA	.31	74
CD4068BF	RCA	.63	74
CD4069UBE	RCA	.31	74
CD4070BD	RCA	5.17	74
CD4070BE	RCA	.31	74
CD4070BF	RCA	.63	74
CD4071BD	RCA	5.09	74
CD4071BE	RCA	.31	74
CD4072BD	RCA	5.09	74
CD4072BE	RCA	.31	74
CD4073BD	RCA	5.09	74
CD4073BE	RCA	.31	74
CD4075BD	RCA	5.09	74
CD4075BE	RCA	.31	74
CD4075BF	RCA	.63	74
CD4076BD	RCA	9.02	74
CD4076BE	RCA	1.50	74
CD4076BF	RCA	2.25	74
CD4077BD	RCA	5.17	74
CD4077BE	RCA	.31	74
CD4078BE	RCA	.31	74
CD4078BF	RCA	.63	74
CD4081BD	RCA	5.09	74
CD4081BE	RCA	.31	74

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr	1-24	Page
CD4081BF	RCA	.63	74
CD4082BE	RCA	.31	74
CD4085BE	RCA	1.06	74
CD4085BF	RCA	2.55	74
CD4086BE	RCA	1.06	74
CD4086BF	RCA	2.55	74
CD4089BD	RCA	9.02	74
CD4089BE	RCA	2.29	74
CD4089BF	RCA	5.22	74
CD4093BD	RCA	6.53	74
CD4093BE	RCA	.64	74
CD4093BF	RCA	.83	74
CD4094BD	RCA	8.23	74
CD4094BE	RCA	2.77	74
CD4094BF	RCA	2.89	74
CD4095BE	RCA	1.56	74
CD4096BE	RCA	1.56	74
CD4097BE	RCA	3.77	74
CD4098BD	RCA	9.30	74
CD4098BE	RCA	1.50	74
CD4098BF	RCA	2.82	74
CD4099BE	RCA	2.67	74
CD4099BF	RCA	2.89	74
CD4502BE	RCA	1.42	74
CD4508BD	RCA	10.74	74
CD4508BE	RCA	3.54	74
CD4510BE	RCA	1.42	74
CD4511BE	RCA	2.00	74
CD4514BD	RCA	12.97	74
CD4514BE	RCA	4.20	74
CD4515BE	RCA	4.20	74
CD4516BD	RCA	8.03	74
CD4516BE	RCA	1.42	74
CD4518BE	RCA	1.42	74
CD4520BD	RCA	7.39	74
CD4520BE	RCA	1.42	74
CD4527BE	RCA	2.53	74
CD4527BF	RCA	3.90	74
CD4532BE	RCA	2.09	—
CD4555BE	RCA	.84	74
CD4556BE	RCA	.84	74
CD40100BE	RCA	3.11	74
CD40102BE	RCA	2.85	74
CD40103BE	RCA	2.85	74
CD40104BE	RCA	1.31	74
CD40105BE	RCA	1.31	74
CD40107BE	RCA	1.19	74
CD40108BE	RCA	5.20	74
CD40109BE	RCA	1.19	74
CD40181BE	RCA	3.42	74
CD40182BE	RCA	1.33	74
CD40192BD	RCA	5.22	74
CD40192BE	RCA	1.74	74
CD40193BD	RCA	5.22	74
CD40194BE	RCA	1.50	74
CD40257BE	RCA	1.83	74
CDP18S020	RCA	249.00	67
CDP1802CD	RCA	19.95	67
CDP1802D	RCA	24.75	67
CDP1822DL-1	RCA	19.35	—
CDP1822DL-3	RCA	17.35	—
CDP1822DL-8	RCA	15.50	67
CDP1822SCD	RCA	15.50	67
CDP1822SD	RCA	19.35	67
CDP1824CD	RCA	7.75	67
CDP1852CD	RCA	8.25	67
CDP1853CD	RCA	5.64	67
CDP1853D	RCA	6.84	67
CDP1854CD	RCA	13.25	67
CDP1854D	RCA	15.75	67
CDP1856CD	RCA	5.50	67
CDP1857CD	RCA	5.50	67
CDP1858CD	RCA	5.64	67
CDP1858D	RCA	6.84	67
CDP1859CD	RCA	5.64	67
CDP1859D	RCA	6.84	67
CDP1861CD	RCA	10.25	—
GEMR-1	GE	4.80	—
GEMR-2	GE	6.90	—
GEMR-3	GE	8.60	—
GEMR-4	GE	3.80	—
GEMR-5	GE	1.40	—
HC2000H	RCA	55.00	—
HC2500	RCA	53.00	—
HEPC2005P-S	MOT	2.30	—
HEPC6049R-S	MOT	6.60	—
HEPC6052P-S	MOT	.80	—
LF155H	MOT	5.05	46
LF155J	MOT	5.05	—
LF155L	TI	5.20	60
LF156H	MOT	5.05	46
LF156J	MOT	5.05	—
LF157H	MOT	5.05	46
LF157J	MOT	5.05	—
LF255L	TI	3.75	60
LF255N	MOT	.265	—
LF256N	MOT	2.65	—
LF257N	MOT	2.65	—
LF355BN	MOT	1.60	—
LF355H	MOT	1.50	46
LF355L	TI	3.32	60
LF355N	MOT	1.10	—
LF356BN	MOT	1.60	—
LF356H	MOT	1.50	46
LF356L	TI	3.32	46, 60
LF356N	MOT	1.10	—
LF357BN	MOT	1.60	—
LF357H	MOT	1.50	46
LF357L	TI	1.60	46, 60
LF357N	MOT	1.10	—
LM101AL	TI	3.47	—
LM148J	MOT	5.30	46
LM248J	MOT	4.00	46
LM248N	MOT	3.90	46
LM301AL	TI	.66	46, 60
LM301AN	TI	.46	60
LM301AN	MOT	.39	46
LM301AP	TI	.36	60
LM304L	TI	2.94	60
LM304N	TI	2.70	60
LM305AL	TI	2.94	60
LM305L	TI	1.79	60
LM305P	TI	1.47	60
LM306L	TI	1.78	60
LM306P	TI	1.46	60
LM307L	TI	1.10	60
LM307N	TI	.81	46
LM307P	TI	.78	60
LM308AN	MOT	3.10	46
LM309LA	TI	2.86	60
LM311L	TI	1.20	60
LM311N	TI	1.06	60
LM311N	MOT	.75	46
LM311P	TI	.76	60
LM317KC	TI	2.79	60
LM318P	TI	2.50	60
LM324J	TI	2.47	60
LM324N	MOT	.84	46
LM324N	TI	.80	60
LM339J	TI	2.47	60
LM339N	MOT	.78	—
LM339N	TI	.60	60
LM340-5KC	TI	1.10	60
LM340-6KC	TI	1.10	60
LM340-8KC	TI	1.10	60
LM340-10KC	TI	1.10	60
LM340-12KC	TI	1.10	60
LM340-15KC	TI	1.10	60
LM340-18KC	TI	1.10	60
LM340-24KC	TI	1.10	60
LM348J	MOT	1.73	46
LM348N	MOT	1.25	46
LM358P	TI	.72	60
LM741CN	MOT	.36	46
LM2901N	TI	1.89	60
LM2902J	TI	2.47	60
LM2902N	TI	1.90	60
LM2904P	TI	1.58	60
LM3302N	TI	.76	60
LS-400	TI	5.17	62
LS-600	TI	1.44	62
MC8T26AP	MOT	2.70	—
MC68A00L	MOT	23.70	—
MC68A00P	MOT	19.50	—
MC68A21L	MOT	17.00	—
MC68A21P	MOT	12.50	—
MC68B00L	MOT	28.45	—
MC68B00P	MOT	23.25	—
MC68B21L	MOT	20.00	—
MC68B21P	MOT	15.00	—
MC68B50L	MOT	21.00	—
MC68B50P	MOT	18.00	—
MC78L05ACP	MOT	.54	—
MC78L05CG	MOT	1.28	45
MC78L05CP	MOT	.36	—
MC78L12ACP	MOT	.54	—
MC78L12CP	MOT	.36	—
MC78L15ACG	MOT	1.58	—
MC78L15ACP	MOT	.54	—
MC78L15CP	MOT	.36	—
MC78M05CG	MOT	2.70	—
MC78M06CG	MOT	2.70	—
MC78M12CG	MOT	2.70	—
MC78M12CT	MOT	1.15	—
MC78M15CG	MOT	2.70	—
MC79L05ACP	MOT	1.20	—
MC79L05CP	MOT	.75	—
MC79L12ACP	MOT	1.20	—
MC79L12CP	MOT	.75	—
MC79L15ACG	MOT	1.88	45
MC79L15ACP	MOT	1.20	—
MC79L15CP	MOT	.75	—
MC8T97P	MOT	1.65	—
MC407P	MOT	1.32	—
MC408P	MOT	1.27	—
MC423P	MOT	1.75	—
MC660L	MOT	1.70	—
MC660P	MOT	1.25	—
MC661L	MOT	1.70	—
MC661P	MOT	1.25	—
MC662L	MOT	1.70	—
MC662P	MOT	1.25	—
MC663L	MOT	2.88	—
MC663P	MOT	2.13	—
MC664L	MOT	2.88	—
MC664P	MOT	2.13	—
MC665L	MOT	1.70	—
MC665P	MOT	1.25	—
MC666P	MOT	1.35	—
MC667L	MOT	2.88	—
MC667P	MOT	2.13	—
MC668L	MOT	1.70	—
MC668P	MOT	1.25	—
MC669P	MOT	1.03	—
MC670L	MOT	1.80	—
MC670P	MOT	1.35	—
MC671L	MOT	1.80	—
MC671P	MOT	1.35	—
MC672L	MOT	1.70	—
MC672P	MOT	1.25	—
MC673P	MOT	1.25	—
MC674P	MOT	1.25	—
MC675L	MOT	2.88	—
MC675P	MOT	2.13	—
MC676L	MOT	3.63	—
MC676P	MOT	2.75	—
MC677L	MOT	1.80	—
MC677P	MOT	1.35	—
MC678P	MOT	1.35	—
MC679L	MOT	2.88	—
MC679P	MOT	2.13	—
MC680L	MOT	1.80	—
MC680P	MOT	1.35	—
MC681L	MOT	1.80	—
MC681P	MOT	1.35	—
MC682L	MOT	3.63	—
MC682P	MOT	2.75	—
MC683L	MOT	2.88	—
MC683P	MOT	2.13	—
MC684L	MOT	4.50	—
MC684P	MOT	3.38	—
MC685P	MOT	3.38	—
MC686P	MOT	3.38	—
MC688P	MOT	2.75	—
MC689P	MOT	1.35	—
MC690P	MOT	1.35	—
MC816P	MOT	2.15	—
MC817P	MOT	1.65	—
MC818P	MOT	1.55	—
MC819P	MOT	1.65	—
MC822P	MOT	2.00	—
MC824P	MOT	1.65	—
MC825P	MOT	1.65	—
MC826P	MOT	2.05	—
MC830P	MOT	.98	—
MC832P	MOT	.98	—
MC833P	MOT	.98	—
MC834P	MOT	1.10	—
MC835P	MOT	1.10	—
MC836L	MOT	2.00	—
MC836P	MOT	1.10	—
MC837P	MOT	1.10	—
MC838P	MOT	3.95	—
MC839P	MOT	3.95	—
MC840P	MOT	1.10	—
MC844L	MOT	1.80	—
MC844P	MOT	.98	—
MC845P	MOT	1.25	—
MC846L	MOT	1.80	—
MC846P	MOT	.98	—
MC848P	MOT	1.25	—
MC849P	MOT	.98	—
MC850P	MOT	3.85	—
MC851P	MOT	3.85	—
MC852L	MOT	3.30	—
MC852P	MOT	1.80	—
MC853L	MOT	3.30	—
MC853P	MOT	1.80	—
MC855P	MOT	1.80	—
MC856P	MOT	1.80	—
MC857L	MOT	2.00	—
MC857P	MOT	1.10	—
MC858P	MOT	1.10	—
MC861P	MOT	.98	—
MC862L	MOT	1.80	—
MC862P	MOT	.98	—
MC863P	MOT	.98	—
MC867AP	MOT	5.00	—
MC867P	MOT	5.60	—
MC870P	MOT	3.75	—
MC871P	MOT	2.75	—
MC876P	MOT	3.05	—
MC877P	MOT	5.20	—
MC878P	MOT	2.90	—
MC879P	MOT	2.90	—
MC880P	MOT	5.20	—
MC885P	MOT	1.65	—
MC887P	MOT	2.90	—

NEW TYPES STOCKED AS SOON AS RELEASED

Type	Mfr	1-24	Page
MC888P	MOT	2.05	—
MC889AP	MOT	1.95	—
MC889P	MOT	1.65	—
MC890P	MOT	3.05	—
MC891P	MOT	3.45	—
MC892P	MOT	1.65	—
MC893P	MOT	1.65	—
MC898P	MOT	1.85	—
MC899P	MOT	1.65	—
MC909G	MOT	2.75	—
MC914G	MOT	2.75	—
MC930G	MOT	6.50	—
MC930L	MOT	3.10	—
MC932L	MOT	3.10	—
MC933G	MOT	5.45	—
MC935L	MOT	3.40	—
MC936L	MOT	3.40	—
MC937L	MOT	3.40	—
MC944L	MOT	3.10	—
MC945L	MOT	4.05	—
MC946F	MOT	3.10	—
MC946G	MOT	6.50	—
MC946L	MOT	3.10	—
MC948L	MOT	4.05	—
MC949L	MOT	3.10	—
MC952F	MOT	5.65	—
MC952L	MOT	5.65	—
MC958L	MOT	3.40	—
MC961L	MOT	3.10	—
MC962L	MOT	3.10	—
MC1004P	MOT	1.97	—
MC1010P	MOT	1.97	—
MC1013P	MOT	3.99	—
MC1014P	MOT	3.99	—
MC1017P	MOT	4.99	—
MC1020P	MOT	2.16	—
MC1022P	MOT	5.49	—
MC1023P	MOT	3.54	—
MC1026P	MOT	3.54	—
MC1027P	MOT	5.97	—
MC1032P	MOT	6.56	—
MC1034P	MOT	8.86	—
MC1035P	MOT	2.16	—
MC1216L	MOT	5.49	—
MC1230L	MOT	4.12	—
MC1302P	MOT	2.54	—
MC1303P	MOT	1.82	—
MC1306P	MOT	.91	—
MC1310P	MOT	4.29	—
MC1349P	MOT	1.17	—
MC1350P	MOT	.98	—
MC1355P	MOT	1.43	—
MC1357P	MOT	1.49	—
MC1358P	MOT	1.30	—
MC1364P	MOT	1.37	—
MC1405L	MOT	8.95	45
MC1406L	MOT	5.90	45
MC1408L-6	MOT	2.40	45
MC1408L-7	MOT	2.90	45
MC1408L-8	MOT	4.50	45
MC1410G	MOT	2.25	45
MC1414L	MOT	1.73	—
MC1414P	MOT	1.23	—
MC1420G	MOT	3.00	46
MC1430G	MOT	7.20	46
MC1430P	MOT	7.00	46
MC1431P	MOT	7.00	—
MC1433G	MOT	4.35	46
MC1433L	MOT	4.15	46
MC1433P	MOT	4.00	46
MC1435L	MOT	3.00	46
MC1436CG	MOT	4.00	—
MC1436G	MOT	6.75	46
MC1437L	MOT	2.65	46
MC1437P	MOT	2.25	46
MC1438R	MOT	13.00	—
MC1439G	MOT	3.45	46
MC1439L	MOT	3.25	46
MC1439P1	MOT	2.85	46
MC1439P2	MOT	2.95	46
MC1445G	MOT	2.95	45
MC1445L	MOT	2.95	—
MC1454G	MOT	4.45	—
MC1455G	MOT	.78	—
MC1455P1	MOT	.44	46
MC1456CG	MOT	1.27	—
MC1456G	MOT	1.40	46
MC1458CG	MOT	.79	—
MC1458CL	MOT	.97	—
MC1458CP1	MOT	.57	46
MC1458CP2	MOT	.73	—
MC1458G	MOT	.78	—
MC1458L	MOT	1.00	46
MC1458L	TI	1.00	—
MC1458P	TI	.50	—
MC1458P1	MOT	.59	—
MC1458P2	MOT	.67	—
MC1458SP1	MOT	2.40	—
MC1458U	MOT	1.15	—
MC1460G	MOT	4.60	—
MC1460R	MOT	6.45	—
MC1461G	MOT	6.45	—
MC1461R	MOT	8.25	—
MC1463G	MOT	4.15	—
MC1463R	MOT	6.15	—
MC1466L	MOT	8.60	45
MC1468G	MOT	4.20	—
MC1468L	MOT	4.35	45
MC1468R	MOT	5.62	45
MC1369G	MOT	4.15	—
MC1469R	MOT	5.00	—
MC1472P1	MOT	1.58	45
MC1472U	MOT	1.88	—
MC1488L	MOT	1.50	45
MC1489AL	MOT	1.50	45
MC1489L	MOT	1.50	45
MC1494L	MOT	6.00	—
MC1495L	MOT	5.25	—
MC1496G	MOT	1.27	—
MC1496L	MOT	1.23	—
MC1496P	MOT	1.15	—
MC1505L	MOT	14.25	45
MC1508L-8	MOT	11.25	—
MC1514L	MOT	4.85	—
MC1520G	MOT	6.70	46
MC1536G	MOT	16.25	46
MC1537L	MOT	3.00	—
MC1538R	MOT	28.05	—
MC1539G	MOT	5.25	46
MC1539L	MOT	5.05	46
MC1545G	MOT	10.50	45
MC1545L	MOT	10.50	—
MC1550G	MOT	1.50	45
MC1552G	MOT	11.50	45
MC1553G	MOT	11.50	45
MC1554G	MOT	18.15	—
MC1555G	MOT	3.25	—
MC1556G	MOT	1.80	46
MC1558G	MOT	1.65	46
MC1558L	MOT	1.85	46
MC1561G	MOT	14.85	—
MC1561R	MOT	17.50	—
MC1563G	MOT	9.00	—
MC1563R	MOT	12.00	—
MC1566L	MOT	12.00	45
MC1568L	MOT	6.00	45
MC1568R	MOT	9.00	45
MC1569G	MOT	7.70	45
MC1569R	MOT	9.75	—
MC1590G	MOT	6.90	45
MC1594L	MOT	9.00	—
MC1595L	MOT	7.50	—
MC1596G	MOT	1.60	—
MC1596L	MOT	1.95	—
MC1648L	MOT	4.70	—
MC1648P	MOT	3.75	—
MC1670L	MOT	20.35	—
MC1709CG	MOT	.86	46
MC1709CL	MOT	.87	46
MC1709CP1	MOT	.51	46
MC1709CP2	MOT	.59	46
MC1709G	MOT	1.60	46
MC1709L	MOT	1.25	46
MC1710CG	MOT	.85	—
MC1710CL	MOT	.85	—
MC1710CP	MOT	.65	—
MC1710G	MOT	1.35	—
MC1710L	MOT	1.65	—
MC1711CG	MOT	.85	45
MC1711CL	MOT	.90	—
MC1711G	MOT	1.35	—
MC1711L	MOT	1.60	—
MC1712CG	MOT	3.00	46
MC1712CL	MOT	3.53	46
MC1723CG	MOT	.85	—
MC1723CL	MOT	1.15	—
MC1723CP	MOT	.56	—
MC1723G	MOT	1.50	—
MC1723L	MOT	1.82	45
MC1733CG	MOT	1.35	45
MC1733CL	MOT	1.20	45
MC1741CG	MOT	.54	46
MC1741CL	MOT	.91	46
MC1741CP1	MOT	.36	46
MC1741CP2	MOT	.64	46
MC1741G	MOT	1.20	46
MC1741L	MOT	1.45	46
MC1741SCP1	MOT	2.10	46
MC1741SG	MOT	4.42	46
MC1747CG	MOT	1.08	46
MC1747CL	MOT	1.15	46
MC1747CP2	MOT	.87	46
MC1747L	MOT	2.25	46
MC1748CG	MOT	.71	46
MC1748G	MOT	1.25	46
MC1776CG	MOT	3.22	46
MC1776G	MOT	9.00	46
MC1800P	MOT	.98	—
MC1801P	MOT	.98	—
MC1802P	MOT	.98	—
MC1803P	MOT	.98	—
MC1804P	MOT	.98	—
MC1805P	MOT	.98	—
MC1806P	MOT	.98	—
MC1807P	MOT	.98	—
MC1808P	MOT	.98	—
MC1809P	MOT	.98	—
MC1810P	MOT	.98	—
MC1811P	MOT	.98	—
MC1812P	MOT	1.25	—
MC1813P	MOT	3.65	—
MC1814P	MOT	3.65	—
MC2024P	MOT	1.76	—
MC2911LC	MOT	9.30	42
MC1918LC	MOT	6.10	—
MC3001L (74H08)	MOT	2.68	—
MC3001P (74H08)	MOT	1.98	—
MC3002P	MOT	1.98	—
MC3003L	MOT	2.78	—
MC3003P	MOT	1.98	—
MC3004L (74H01)	MOT	2.08	—
MC3021P	MOT	2.38	—
MC3022P	MOT	2.38	—
MC3026P	MOT	1.98	—
MC3061P	MOT	2.68	—
MC3062P	MOT	2.68	—
MC3101L (54H08)	MOT	3.38	46
MC3301P	MOT	.80	46
MC3302P	MOT	.72	—
MC3303P	MOT	4.12	46
MC3340P	MOT	1.21	—

Key Mfr.

MOT Motorola
Motorola—HEP

RCA Radio Corp. of America
RCA—SK

SPR Sprague

TI Texas Instruments

Type	Mfr	1-24	Page
MC3357P	MOT	2.27	—
MC3401P	MOT	.75	46
MC3403L	MOT	4.05	46
MC3403P	MOT	1.30	46
MC3405L	MOT	2.25	—
MC3405P	MOT	1.73	—
MC3408L	MOT	2.40	—
MC3420L	MOT	7.12	45
MC3420P	MOT	6.75	45
MC3446J	TI	3.70	—
MC3446N	TI	3.00	—
MC3456P	MOT	.90	—
MC3458P1	MOT	1.85	46
MC3459P	MOT	3.30	45
MC3467P	MOT	5.60	—
MC3486P	MOT	3.40	—
MC3487L	MOT	3.75	—
MC3487P	MOT	3.40	—
MC3503L	MOT	13.10	46
MC3505L	MOT	11.25	—
MC4002P	MOT	4.86	—
MC4006P	MOT	5.89	—
MC4007P	MOT	5.89	—
MC4015P	MOT	5.71	—
MC4016P	MOT	6.79	—
MC4018P	MOT	6.79	—
MC4022P	MOT	5.31	—
MC4023P	MOT	7.69	—
MC4024L	MOT	4.72	—
MC4024P	MOT	3.82	—
MC4026P (SM12)	MOT	2.03	—
MC4037P (SM73)	MOT	2.00	—
MC4044L	MOT	4.72	—
MC4044P	MOT	3.82	—
MC4050P	MOT	12.15	—
MC4324L	MOT	5.40	—
MC4344L	MOT	5.40	—
MC4558CP1	MOT	.78	—
MC4741CP	MOT	1.40	46
MC5404L	MOT	1.35	—
MC5493L	MOT	3.36	—
MC6800L	MOT	18.95	51
MC6800P	MOT	15.50	51
MC6802CL	MOT	31.25	—
MC6802CP	MOT	27.50	—
MC6802L	MOT	20.95	51
MC6802P	MOT	17.95	51
MC6821L	MOT	9.30	51
MC6821P	MOT	6.60	51
MC6840L	MOT	18.00	51
MC6840P	MOT	15.00	51
MC6850L	MOT	10.25	51
MC6850P	MOT	8.65	51
MC6852P	MOT	11.00	51
MC6860L	MOT	10.40	51
MC6860P	MOT	9.25	51
MC6862P	MOT	12.00	51
MC6870A	MOT	33.00	—
MC6871A	MOT	36.00	—

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr	1-24	Page
MC6875L	MOT	7.40	—
MC6880AL	MOT	3.75	—
MC6880AP	MOT	2.70	—
MC6880P	MOT	2.70	—
MC6885P	MOT	1.65	45
MC6886P	MOT	1.65	45
MC6887P	MOT	1.65	45
MC6888P	MOT	1.65	45
MC7242P	MOT	1.70	45
MC7400F	MOT	1.80	—
MC7400L	MOT	1.80	—
MC7401L	MOT	1.80	—
MC7402L	MOT	1.80	—
MC7404F	MOT	2.15	—
MC7404L	MOT	2.15	—
MC7405L	MOT	2.15	—
MC7410L	MOT	1.80	—
MC7402L	MOT	1.80	—
MC7430L	MOT	1.80	—
MC7441AL	MOT	9.90	—
MC7442L	MOT	7.75	—
MC7447L	MOT	10.60	—
MC7472L	MOT	2.55	—
MC7473L	MOT	3.60	—
MC7475L	MOT	6.30	—
MC7479L	MOT	3.60	—
MC7486F	MOT	5.28	—
MC7490F	MOT	7.00	—
MC7493L	MOT	7.00	—
MC7524L	MOT	2.11	45
MC7805CK	MOT	2.25	45
MC7805CT	MOT	1.17	—
MC7806CK	MOT	2.25	45
MC7806CT	MOT	1.17	—
MC7808CK	MOT	2.25	45
MC7808CT	MOT	1.17	—
MC7812CK	MOT	2.25	45
MC7815CK	MOT	1.17	45
MC7815CT	MOT	1.17	—
MC7818CK	MOT	2.25	45
MC7818CK	MOT	1.65	—
MC7824CK	MOT	2.25	45
MC7824CT	MOT	1.17	—
MC7905CK	MOT	3.16	45
MC7905CT	MOT	1.65	—
MC7906CT	MOT	1.65	—
MC7908CK	MOT	3.16	45
MC7908CT	MOT	1.65	—
MC7912CK	MOT	3.16	45
MC7912CT	MOT	1.65	—
MC7915CK	MOT	3.16	45
MC7915CT	MOT	1.65	—
MC7918CT	MOT	1.65	—
MC7924CK	MOT	3.16	45
MC7924CT	MOT	1.65	—
MC8300P	MOT	1.57	—
MC8301P	MOT	1.86	—
MC8308P	MOT	5.21	—
MC8311P	MOT	4.17	—
MC8312P	MOT	1.86	—
MC8314P	MOT	1.99	—
MC8316P	MOT	1.60	—
MC8324P	MOT	3.30	—
MC8601L	MOT	1.75	—
MC8602L	MOT	2.55	—
MC8601P	MOT	1.41	—
MC8602P	MOT	2.28	—
MC9301L	MOT	3.95	—
MC9308L	MOT	8.41	—
MC9314L	MOT	4.72	—
MC9601L	MOT	2.08	—
MC9602L	MOT	4.00	—
MC9713P	MOT	1.40	—
MC9715P	MOT	1.28	—
MC9718P	MOT	1.09	—
MC9719P	MOT	1.09	—
MC9802P	MOT	2.15	—
MC9818P	MOT	1.09	—
MC9819P	MOT	1.09	—
MC10101P	MOT	.51	—
MC10102L	MOT	.56	—
MC10102P	MOT	.51	—
MC10104L	MOT	.56	—
MC10104P	MOT	.51	—
MC10105L	MOT	.56	—
MC10107L	MOT	.61	—
MC10109L	MOT	.56	—
MC10115L	MOT	.56	—
MC10116L	MOT	.56	—
MC10116P	MOT	.51	—
MC10124L	MOT	2.41	—
MC19125L	MOT	2.41	—
MC10125P	MOT	1.93	—
MC10131L	MOT	3.11	—
MC10135L	MOT	3.69	—
MC10137L	MOT	10.46	—
MC10164L	MOT	3.66	—
MC10173L	MOT	4.33	—
MC10174L	MOT	3.66	—
MC10210P	MOT	1.35	—
MC10231L	MOT	4.82	—
MC12000L	MOT	13.46	—
MC14000UBAL	MOT	.68	—
MC14000UBCL	MOT	.57	—
MC14000UBCP	MOT	.38	—
MC14001BAL	MOT	.68	—
MC14001BCL	MOT	.57	—
MC14001BCP	MOT	.38	—
MC1400/UBCL	MOT	.57	—
MC14001UBCL	MOT	.00	—
MC14001UBCP	MOT	.38	—
MC14002BCL	MOT	.57	—
MC14002BCP	MOT	.38	—
MC14002CP	MOT	.38	—
MC14006BAL	MOT	3.26	—
MC14006BCP	MOT	1.81	—
MC14911BCL	MOT	.57	—
MC14007UBAL	MOT	.68	—
MC14007UBCL	MOT	.57	—
MC14007UBCP	MOT	.38	—
MC14008BCP	MOT	1.48	—
MC14011BAL	MOT	.68	—
MC14011BCP	MOT	.38	—
MC14011CP	MOT	.38	—
MC14012BAL	MOT	.68	—
MC14012BCL	MOT	.57	—
MC14012BCP	MOT	.38	—
MC14012CP	MOT	.38	—
MC14013BAL	MOT	1.57	—
MC14013BCL	MOT	1.30	—
MC14013BCP	MOT	.87	—
MC14014BCP	MOT	1.61	—
MC14015BAL	MOT	2.90	—
MC14015BCL	MOT	2.41	—
MC14015BCP	MOT	1.61	—
MC14016BAL	MOT	1.57	—
MC14016BCL	MOT	1.30	—
MC14016BCP	MOT	.87	—
MC14017BAL	MOT	2.90	—
MC14017BCP	MOT	1.61	—
MC14018BCP	MOT	1.61	—
MC14020BCP	MOT	1.71	—
MC14021BCP	MOT	1.61	—
MC14022BCP	MOT	1.51	—
MC14023BAL	MOT	.68	—
MC14023BCP	MOT	.38	—
MC14023CL	MOT	.57	—
MC14023CP	MOT	.38	—
MC14024BAL	MOT	2.16	—
MC14024BCP	MOT	1.20	—
MC14025BAL	MOT	.68	—
MC14025BCL	MOT	.57	—
MC14025BCP	MOT	.38	—
MC14025CP	MOT	.38	—
MC14027BCL	MOT	1.30	—
MC14027BCP	MOT	.87	—
MC14028BAL	MOT	2.56	—
MC14028BCL	MOT	2.13	—
MC14028BCP	MOT	1.42	—
MC14032BCP	MOT	1.91	—
MC14034BCL	MOT	5.29	—
MC14035BCP	MOT	1.91	—
MC14040BCL	MOT	2.41	—
MC14040BCP	MOT	1.61	—
MC14042BCP	MOT	1.30	—
MC14043BCP	MOT	1.61	—
MC14044BCP	MOT	1.51	—
MC14046BCP	MOT	2.32	—
MC14049BAL	MOT	1.62	—
MC14049UBCL	MOT	1.35	—
MC14049UBCP	MOT	.90	—
MC14050BCL	MOT	1.35	—
MC14050BCP	MOT	.90	—
MC14051BCP	MOT	1.20	—
MC14052BCP	MOT	1.20	—
MC14053BCP	MOT	1.20	—
MC14066BCP	MOT	1.01	—
MC14068BCL	MOT	.57	—
MC14068BCP	MOT	.38	—
MC14069UBCL	MOT	.57	—
MC14069UBCP	MOT	.38	—
MC14070BCP	MOT	.38	—
MC14071BCP	MOT	.38	—
MC14071CP	MOT	.38	—
MC14072BCP	MOT	.38	—
MC14073BCP	MOT	.38	—
MC14075BCP	MOT	.38	—
MC14076BCP	MOT	1.81	—
MC14077BCP	MOT	.38	—
MC14078BCP	MOT	.38	—
MC14081BCP	MOT	.38	—
MC14081CP	MOT	.38	—
MC14082BCP	MOT	.38	—
MC14093BCP	MOT	.76	—
MC14099BCL	MOT	4.80	—
MC14099BCP	MOT	3.20	—
MC14160BCP	MOT	1.71	—
MC14161BCP	MOT	1.71	—
MC14162BCP	MOT	1.71	—
MC14163BCP	MOT	1.71	—
MC14174BCP	MOT	1.74	—
MC14175BCP	MOT	1.60	—
MC14194BCP	MOT	1.81	—
MC14408P	MOT	10.06	—
MC14409P	MOT	10.06	—
MC14410P	MOT	9.28	—
MC14411L	MOT	17.40	—
MC14411P	MOT	11.60	—
MC14412VP	MOT	14.14	—
MC14419P	MOT	3.26	—
MC14433L	MOT	21.37	—
MC14433P	MOT	14.25	—
MC14435FP	MOT	7.93	—
MC14435VP	MOT	5.95	—
MC14440L	MOT	24.34	—
MC14450P	MOT	3.62	—
MC14451P	MOT	3.62	—
MC14490FL	MOT	9.78	—
MC14490FP	MOT	6.52	—
MC14490VP	MOT	4.89	—
MC14500BCL	MOT	16.38	—
MC14500BCP	MOT	10.92	—
MC14501UBCL	MOT	.57	—
MC14501UBCP	MOT	.38	—
MC14502BCP	MOT	1.71	—
MC14503BCP	MOT	1.16	—
MC14506BCP	MOT	.71	—
MC14507CL	MOT	1.48	—
MC14507CP	MOT	.99	—
MC14508BCP	MOT	4.28	—
MC14510BAL	MOT	3.08	—
MC14510BCL	MOT	2.57	—
MC14510BCP	MOT	1.71	—
MC14511BCL	MOT	3.63	—
MC14511BCP	MOT	2.42	—
MC14512BCL	MOT	2.13	—
MC14512BCP	MOT	1.42	—
MC14512CL	MOT	2.13	—
MC14512CP	MOT	1.42	—
MC14514BCL	MOT	7.61	—
MC14514BCP	MOT	5.07	—
MC14515BCL	MOT	7.61	—
MC14515BCP	MOT	5.07	—
MC14516BCL	MOT	2.57	—
MC14516BCP	MOT	1.71	—
MC14517BCL	MOT	12.98	—
MC14517BCP	MOT	8.66	—
MC14518BAL	MOT	3.08	—
MC14518BCL	MOT	2.57	—
MC14518BCP	MOT	1.71	—
MC14519BCP	MOT	.91	—
MC14520BAL	MOT	3.08	—
MC14520BCL	MOT	2.57	—
MC14520BCP	MOT	1.71	—
MC14521BAL	MOT	5.62	—
MC14521BCP	MOT	3.12	—
MC14522BCL	MOT	2.57	—
MC14522BCP	MOT	1.71	—
MC14526BCL	MOT	2.57	—
MC14526BCP	MOT	1.71	—
MC14527BAL	MOT	5.62	—
MC14527BCP	MOT	3.12	—
MC14528BAL	MOT	3.26	—
MC14528BCL	MOT	2.72	—
MC14528BCP	MOT	1.81	—
MC14529BCP	MOT	2.02	—
MC14530BCP	MOT	.90	—
MC14531BCP	MOT	1.61	—
MC14532BCP	MOT	2.52	—
MC14534BCP	MOT	9.06	—
MC14536BCP	MOT	6.03	—
MC14538BCP	MOT	2.22	—
MC14539BAL	MOT	2.90	—
MC14539BCP	MOT	1.61	—
MC14541BCP	MOT	2.02	—
MC14543BCP	MOT	2.81	—
MC14549BCP	MOT	6.52	—
MC14553BCP	MOT	6.84	—
MC14554BCP	MOT	2.12	—
MC14555BCP	MOT	1.01	—
MC14556BCP	MOT	1.01	—
MC14557BCP	MOT	6.87	—
MC14558BCP	MOT	2.02	—
MC14559BCP	MOT	6.52	—
MC14560BCP	MOT	3.26	—
MC14566BCP	MOT	2.68	—
MC14568BCP	MOT	3.78	—
MC14569BCL	MOT	3.90	—
MC14569BCP	MOT	2.60	—
MC14572UBCP	MOT	.54	—
MC14580BCP	MOT	9.87	—
MC14581BAL	MOT	7.43	—
MC14581BCP	MOT	4.13	—
MC14582BCP	MOT	1.61	—
MC14583BAL	MOT	2.54	—
MC14583BCP	MOT	1.41	—
MC14584BCP	MOT	.76	—
MC14585BCP	MOT	2.00	—
MC14597BCL	MOT	5.07	—
MC14597BCP	MOT	3.90	—
MC14598BCL	MOT	5.85	—
MC14598BCP	MOT	4.50	—
MC14599BCP	MOT	4.04	—
MC68488CL	MOT	31.20	—
MC68488CP	MOT	27.50	—
MC75451P	MOT	.45	—

NEW TYPES STOCKED AS SOON AS RELEASED

Type	Mfr	1-24	Page
MC75452P	MOT	.45	—
MC75453P	MOT	.45	—
MC75454P	MOT	.45	—
MC75491P	MOT	.83	—
MC75492P	MOT	1.19	—
MCA7	MON	3.90	—
MCA8	MON	2.50	—
MCA81	MON	2.25	—
MCA255	MON	1.55	—
MCA230	MOT	1.30	28
MCA231	MON	1.65	—
MCA255	MOT	1.50	28
MCA1911N	MOT	5.63	—
MCL601	MON	8.95	98
MCL1301	MOT	2.30	—
MCM27A08L	MOT	34.50	—
MCM68A10L	MOT	6.40	—
MCM68A10P	MOT	4.25	—
MCM68B10L	MOT	9.50	—
MCM68B10P	MOT	6.00	—
MCM2708L	MOT	23.50	—
MCM2708P	MOT	14.00	—
MCM2716L	MOT	38.00	—
MCM4027L3	MOT	14.35	—
MCM4027L4	MOT	13.65	—
MCM4116L-20	MOT	27.75	—
MCM4116L-25	MOT	26.50	—
MCM6571L	MOT	10.80	—
MCM6605AL	MOT	24.00	43
MCM6810L	MOT	6.30	—
MCM10146L	MOT	19.50	—
MCM68708L	MOT	30.00	—
MCM14510IL	MOT	11.88	—
MLM101AG	MOT	3.70	46
MLM104G	MOT	6.45	—
MLM105G	MOT	6.40	45
MLM107G	MOT	6.00	46
MLM109K	MOT	15.00	—
MLM209K	MOT	5.90	—
MLM211G	MOT	4.30	—
MLM301AG	MOT	.54	—
MLM301AP1	MOT	.39	—
MLM304G	MOT	2.70	—
MLM305G	MOT	1.70	45
MLM307G	MOT	.90	46
MLM308AG	MOT	4.35	—
MLM308AP1	MOT	3.10	—
MLM309G	MOT	3.40	—
MLM309K	MOT	2.05	—
MLM310G	MOT	2.92	—
MLM311G	MOT	1.24	—
MLM311P1	MOT	.75	—
MLM324P	MOT	.84	46
MLM339P	MOT	.78	—
MLM358P1	MOT	.73	46
MLM2901P	MOT	2.05	—
MLM2902P	MOT	1.40	46
N8T26B	MOT	2.70	46
N8T95B	MOT	1.65	46
N8T96B	MOT	1.65	46
N8T97B	MOT	1.65	46
N8T98B	MOT	1.65	46
NE555JG	TI	.56	60
NE555L	TI	.66	60
NE555P	TI	.40	60
NE555V	MOT	.44	46
NE592A	MOT	1.35	46
NE592FH	MOT	1.80	46
NE592K	MOT	1.65	46
SK3022	RCA	4.20	—
SK3023	RCA	4.20	—
SK3071	RCA	7.25	—
SK3154	RCA	18.55	—
SK3164	RCA	1.70	—
SK3618	RCA	2.85	—
SN29601N	TI	1.77	—
SN5400J	TI	1.10	—
SN5401J	TI	1.10	—
SN5404J	TI	1.18	—
SN5406J	TI	1.38	—
SN5486J	TI	1.38	—
SN5495AJ	TI	2.82	—
SN54123J	TI	2.82	—

Type	Mfr	1-24	Page
SN54H102J	TI	6.00	—
SN54L04J	TI	2.07	—
SN54L20J	TI	1.88	—
SN54LS00J	TI	.58	—
SN54S00J	TI	7.91	—
SN55115J	TI	6.97	—
SN7400J	TI	.65	—
SN7400N	TI	.25	—
SN7401J	TI	.65	—
SN7401N	TI	.32	—
SN7402J	TI	.65	—
SN7402N	TI	.25	—
SN7403J	TI	.65	—
SN7403N	TI	.32	—
SN7404J	TI	.79	—
SN7404N	TI	.27	—
SN7405J	TI	.79	—
SN7405N	TI	.34	—
SN7406J	TI	1.18	—
SN7406N	TI	.46	—
SN7407J	TI	1.18	—
SN7407N	TI	.46	—
SN7408J	TI	.76	—
SN7408N	TI	.25	—
SN7409J	TI	.76	—
SN7409N	TI	.34	—
SN7410J	TI	.65	—
SN7410N	TI	.25	—
SN7412J	TI	.71	—
SN7412N	TI	.39	—
SN7413J	TI	1.80	—
SN7413N	TI	.54	—
SN7414J	TI	3.39	—
SN7414N	TI	.52	—
SN7416J	TI	1.18	—
SN7416N	TI	.41	—
SN7417J	TI	1.18	—
SN7417N	TI	.41	—
SN7420J	TI	.65	—
SN7420N	TI	.25	—
SN7422N	TI	.39	—
SN7423N	TI	.34	—
SN7425J	TI	.90	—
SN7425N	TI	.34	—
SN7426J	TI	.84	—
SN7426N	TI	.36	—
SN7427J	TI	.90	—
SN7427N	TI	.36	—
SN7428N	TI	.36	—
SN7430J	TI	.65	—
SN7430N	TI	.25	—
SN7432J	TI	.99	—
SN7432N	TI	.29	—
SN7433N	TI	.39	—
SN7437J	TI	1.13	—
SN7437N	TI	.34	—
SN7438J	TI	1.13	—
SN7438N	TI	.34	—
SN7440J	TI	.65	—
SN7440N	TI	.25	—
SN7442AJ	TI	2.40	—
SN7442AN	TI	.80	—
SN7443AN	TI	1.25	—
SN7445J	TI	3.39	—
SN7445N	TI	.91	—
SN7446AJ	TI	3.39	—
SN7446AN	TI	1.13	—
SN7447AJ	TI	3.39	—
SN7447AN	TI	1.08	—
SN7448J	TI	3.39	—
SN7448N	TI	.97	—
SN7450N	TI	.32	—
SN7451J	TI	.65	—
SN7451N	TI	.32	—
SN7453J	TI	.65	—
SN7453N	TI	.32	—
SN7454J	TI	.65	—
SN7454N	TI	.32	—
SN7460N	TI	.32	—
SN7470J	TI	.90	—
SN7470N	TI	.52	—
SN7472J	TI	.90	—
SN7472N	TI	.52	—
SN7473J	TI	1.10	—

Type	Mfr	1-24	Page
SN7473N	TI	.32	—
SN7474J	TI	1.10	—
SN7474N	Tr	.32	—
SN7475J	TI	1.69	—
SN7475N	TI	.51	—
SN7476J	TI	1.10	—
SN7476N	TI	.38	—
SN7480N	TI	1.03	—
SN7481AN	TI	1.64	—
SN7482N	TI	1.64	—
SN7483AJ	TI	2.54	—
SN7483AN	TI	1.03	—
SN7484AN	TI	1.76	—
SN7485J	TI	2.54	—
SN7485N	TI	1.34	—
SN7486J	TI	1.10	—
SN7486N	TI	.46	—
SN7489J	TI	14.11	—
SN7489N	TI	3.53	—
SN7490AJ	TI	1.83	—
SN7490AN	TI	.46	—
SN7491AJ	TI	2.54	—
SN7491AN	TI	.66	—
SN7492AJ	TI	1.83	—
SN7492AN	TI	.71	—
SN7493AJ	TI	1.83	—
SN7493AN	TI	.46	—
SN7494N	TI	.91	—
SN7495AJ	TI	2.54	—
SN7495AN	TI	.52	—
SN7496J	TI	2.54	—
SN7496N	TI	1.00	—
SN7497J	TI	7.17	—
SN7497N	TI	2.83	—
SN74100J	TI	8.13	—
SN74100N	TI	2.05	—
SN74104N	TI	1.33	—
SN74105N	TI	1.33	—
SN74107J	TI	1.10	—
SN74107N	TI	.51	—
SN74109J	TI	1.10	—
SN74109N	TI	.45	—
SN74110N	TI	.57	—
SN74111N	TI	.78	—
SN74116N	TI	2.05	—
SN74120N	TI	1.71	—
SN74121J	TI	1.10	—
SN74121N	TI	.52	—
SN74122J	TI	1.75	—
SN74122N	TI	.59	—
SN74123J	TI	1.75	—
SN74123N	TI	.57	—
SN74125J	TI	1.07	—
SN74125N	TI	.68	—
SN74126J	TI	1.07	—
SN74126N	TI	.71	—
SN74128N	TI	.75	—
SN74132J	TI	2.54	—
SN74132N	TI	.98	—
SN74136N	TI	.64	—
SN7414J	TI	3.89	—
SN74141N	TI	1.48	—
SN74142N	TI	4.24	—
SN74143J	TI	8.47	—
SN74143N	TI	4.37	—
SN74144J	TI	8.47	—
SN74144N	TI	4.37	—
SN74145J	TI	3.39	—
SN74145N	TI	.97	—
SN74147N	TI	1.96	—
SN74148N	TI	1.71	—
SN74150J	TI	6.06	—
SN74150N	TI	1.03	—
SN74151AJ	TI	2.54	—
SN74151AN	TI	.66	—
SN74153J	TI	2.54	—
SN74153N	TI	.66	—
SN74154J	TI	4.71	—
SN74154N	TI	1.59	—
SN74155J	TI	3.10	—
SN74155N	TI	.66	—
SN74156N	TI	1.03	—
SN74157J	TI	2.51	—

Key Mfr.

MOT Motorola
Motorola—HEP

RCA Radio Corp. of America
RCA—SK

SPR Sprague

TI Texas Instruments

Type	Mfr	1-24	Page
SN74157N	TI	.66	—
SN74159N	TI	1.70	—
SN74160S	TI	2.54	—
SN74160N	TI	.81	—
SN74161J	TI	2.54	—
SN74161N	TI	.81	—
SN74162N	TI	.91	—
SN74163J	TI	2.54	—
SN74163N	TI	.81	—
SN74164J	TI	3.39	—
SN74164N	TI	.74	—
SN74165J	TI	3.39	—
SN74165N	TI	.81	—
SN74166N	TI	1.48	—
SN74167N	TI	3.49	—
SN74170N	TI	2.50	—
SN74172N	TI	8.29	—
SN74173N	TI	2.05	—
SN74174J	TI	6.24	—
SN74174N	TI	1.21	—
SN74175J	TI	2.54	—
SN74175N	TI	1.10	—
SN74176N	TI	1.10	—
SN74177J	TI	2.96	—
SN74177N	TI	1.10	—
SN74178N	TI	1.48	—
SN74179N	TI	1.48	—
SN74180J	TI	3.39	—
SN74180N	TI	1.13	—
SN74181N	TI	2.54	—
SN74182N	TI	1.13	—
SN74184J	TI	4.57	—
SN74184N	TI	2.69	—
SN74185AJ	TI	4.57	—
SN74185AN	TI	2.69	—
SN74186J	TI	21.73	—
SN74186N	TI	19.76	—
SN74188AN	TI	3.10	—
SN74190N	TI	.88	—
SN74191N	TI	.88	—
SN74192J	TI	3.39	—
SN74192N	TI	.81	—
SN74193J	TI	3.39	—
SN74193N	TI	.81	—
SN74194N	TI	1.13	—
SN74195N	TI	.61	—
SN74196N	TI	1.10	—
SN74197N	TI	1.10	—
SN74198N	TI	1.71	—
SN74199N	TI	1.71	—
SN74221J	TI	4.32	—
SN74221N	TI	1.17	—
SN74247N	TI	1.71	—
SN74251N	TI	1.13	—
SN74265N	TI	.99	—
SN74273N	TI	2.50	—
SN74278N	TI	2.73	—
SN74279J	TI	1.58	—
SN74279N	TI	.94	—
SN74283N	TI	1.38	—
SN74284N	TI	4.04	—
SN74285N	TI	4.04	—
SN74290N	TI	.95	—
SN74293N	TI	.95	—
SN74298N	TI	1.33	—

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr	1-24	Page
SN74365AN	TI	.86	—
SN74365N	TI	.86	—
SN74366N	TI	.86	—
SN74367N	TI	.86	—
SN74368AN	TI	.86	—
SN74368N	TI	.86	—
SN74390N	TI	1.48	—
SN74393N	TI	1.89	—
SN74490N	TI	2.29	—
SN74H00J	TI	1.32	—
SN74H00N	TI	.93	—
SN74H01N	TI	.93	—
SN74H04N	TI	1.06	—
SN74H05N	TI	1.06	—
SN74H10N	TI	.93	—
SN74H11N	TI	.93	—
SN74H15N	TI	.93	—
SN74H20N	TI	.93	—
SN74H21N	TI	.93	—
SN74H22N	TI	.93	—
SN74H30N	TI	.93	—
SN74H40N	TI	.93	—
SN74H50N	TI	.94	—
SN74H51N	TI	.93	—
SN74H52N	TI	.93	—
SN74H53N	TI	.93	—
SN74H54N	TI	.93	—
SN74H55N	TI	.93	—
SN74H60N	TI	.93	—
SN74H62N	TI	193	—
SN74H71N	TI	1.42	—
SN74H72N	TI	1.23	—
SN74H73N	TI	2.03	—
SN74H74N	TI	2.03	—
SN74H76N	TI	2.20	—
SN74H78N	TI	2.20	—
SN74H87N	TI	5.98	—
SN74H102N	TI	1.32	—
SN74H103N	TI	2.08	—
SN74H106N	TI	1181	—
SN74H108N	TI	1.99	—
SN74H183N	TI	4.92	—
SN74L00J	TI	1.13	—
SN74L00N	TI	.64	—
SN74L02N	TI	.64	—
SN74L03N	TI	.64	—
SN74L04N	TI	.68	—
SN74L10N	TI	.64	—
SN74L20N	TI	.64	—
SN74L30N	TI	.64	—
SN74L42N	TI	2.10	—
SN74L46N	TI	3.34	—
SN74L47N	TI	2.87	—
SN74L51N	TI	.64	—
SN74L54N	TI	.64	—
SN74L71N	TI	.82	—
SN74L72N	TI	.82	—
SN74L73N	TI	1.01	—
SN74L74N	TI	1.01	—
SN74L75N	TI	1.01	—
SN74L78N	TI	1.01	—
SN74L85N	TI	3.34	—
SN74L86N	TI	1.01	—
SN74L90N	TI	2.46	—
SN74L93N	TI	2.46	—
SN74L95N	TI	2.46	—
SN74L96N	TI	2.46	—
SN74L98N	TI	2.46	—
SN74L121N	TI	.95	—
SN74L122N	TI	.95	—
SN74L123N	TI	1.01	—
SN74L153N	TI	2.33	—
SN74L154N	TI	3.34	—
SN74L157N	TI	2.10	—
SN74L164N	TI	2.33	—
SN74L192N	TI	2.72	—
SN74L193N	TI	2.72	—
SN74LS00J	TI	.47	66
SN74LS00N	TI	.28	66
SN74LS00N	MOT	.30	42
SN74LS01N	TI	.36	66
SN74LS02N	TI	.28	66
SN74LS02N	MOT	.30	42
SN74LS03N	TI	.28	66
SN74LS03N	MOT	.30	42
SN74LS04J	TI	.48	66
SN74LS04N	TI	.31	66
SN74LS04N	MOT	.32	42
SN74LS05N	TI	.31	66
SN74LS05N	MOT	.32	42
SN74LS08N	TI	.28	66
SN74LS08N	MOT	.30	42
SN74LS09N	TI	.36	66
SN74LS10N	TI	.28	66
SN74LS10N	MOT	.30	42
SN74LS11N	TI	.28	66
SN74LS12N	TI	.36	66
SN74LS13N	TI	.49	66
SN74LS13N	MOT	.50	42
SN74LS14N	TI	.80	66
SN74LS14N	MOT	.89	42
SN74LS15N	TI	.36	66
SN74LS20N	TI	.28	66
SN74LS20N	MOT	.30	42
SN74LS21N	TI	.36	66
SN74LS22N	TI	.36	66
SN74LS26N	TI	.42	66
SN74LS27N	TI	.28	66
SN74LS28N	TI	.54	66
SN74LS30N	TI	.28	—
SN74LS30N	MOT	.30	42
SN74LS32J	TI	.48	66
SN74LS32N	TI	.31	66
SN74LS33N	TI	.54	66
SN74LS37N	TI	.44	66
SN74LS38N	TI	.33	66
SN74LS40N	TI	.36	66
SN74LS42N	TI	.91	66
SN74LS47N	TI	1.32	66
SN74LS48N	TI	1.18	66
SN74LS49N	TI	.98	66
SN74LS51N	TI	.28	66
SN74LS51N	MOT	.30	42
SN74LS54N	TI	.36	66
SN74LS74AN	TI	.44	66
SN74LS74N	MOT	.45	42
SN74LS75N	TI	.75	66
SN74LS76N	TI	.61	66
SN74LS78N	TI	.61	66
SN74LS83AN	TI	.98	66
SN74LS85N	TI	1.18	66
SN74LS85N	MOT	1.30	42
SN74LS86N	TI	.48	66
SN74LS86N	MOT	.47	42
SN74LS90N	MOT	.77	42
SN74LS90N	TI	.70	66
SN74LS91N	TI	1.60	—
SN74LS92N	TI	.87	—
SN74LS93N	MOT	.77	42
SN74LS93N	TI	.68	66
SN74LS95BN	TI	1.24	66
SN74LS96N	TI	1.43	66
SN74LS107AN	TI	.44	—
SN74LS109AN	TI	.44	66
SN74LS112AN	TI	.44	—
SN74LS122N	TI	.98	66
SN74LS123N	TI	.98	66
SN74LS124N	TI	2.22	66
SN74LS125AN	TI	.75	66
SN74LS126N	TI	.75	—
SN74LS132N	TI	1.18	66
SN74LS136N	MOT	.47	42
SN74LS136N	TI	.61	66
SN74LS138N	TI	.85	66
SN74LS138N	MOT	.93	42
SN74LS139N	TI	.87	66
SN74LS145N	TI	1.73	66
SN74LS147N	TI	2.12	66
SN74LS148N	TI	1.43	66
SN74LS151N	TI	.75	66
SN74LS151N	MOT	.85	42
SN74LS153N	TI	.75	66
SN74LS153N	MOT	.85	42
SN74LS155J	TI	1.30	66
SN74LS155N	TI	1.27	66
SN74LS155N	MOT	1.35	42
SN74LS156N	TI	.87	66
SN74LS157N	TI	.75	66
SN74LS157N	MOT	.85	42
SN74LS158N	TI	.87	66
SN74LS158N	MOT	.95	42
SN74LS160AN	TI	1.24	66
SN74LS161AN	TI	1.03	66
SN74LS161J	TI	1.84	—
SN74LS162AN	TI	1.24	66
SN74LS163AN	TI	1.03	66
SN74LS164N	TI	1.13	66
SN74LS165N	TI	2.15	66
SN74LS166N	TI	2.15	66
SN74LS170N	MOT	2.30	42
SN74LS174N	TI	.85	66
SN74LS174N	MOT	.93	42
SN74LS175N	TI	.85	66
SN74LS175N	MOT	.93	42
SN74LS181N	TI	3.72	66
SN74LS181N	MOT	3.23	42
SN74LS183N	TI	3.72	66
SN74LS190N	TI	1.49	66
SN74LS190N	MOT	2.30	42
SN74LS191N	TI	1.49	66
SN74LS191N	MOT	1.40	—
SN74LS192N	TI	1.19	66
SN74LS192N	MOT	1.23	42
SN74LS193N	TI	1.07	66
SN74LS193N	MOT	1.23	42
SN74LS194AN	TI	1.18	66
SN74LS195AN	TI	.98	66
SN74LS196N	MOT	1.35	42
SN74LS197N	TI	1.30	66
SN74LS197N	MOT	1.35	42
SN74LS221N	TI	1.27	66
SN74LS240N	TI	2.69	66
SN74LS241N	TI	2.69	66
SN74LS242N	TI	2.59	66
SN74LS243N	TI	2.59	66
SN74LS244N	TI	2.69	66
SN74LS245N	TI	1.97	66
SN74LS247N	TI	1.63	66
SN74LS251N	TI	1.09	66
SN74LS251N	MOT	1.25	42
SN74LS253N	TI	1.09	66
SN74LS256N	MOT	1.40	42
SN74LS257N	TI	.75	66
SN74LS257N	MOT	.85	42
SN74LS258N	MOT	1.25	42
SN74LS259N	TI	1.35	66
SN74LS259N	MOT	1.40	42
SN74LS260N	MOT	.30	42
SN74LS266N	TI	.49	66
SN74LS266N	MOT	.49	42
SN74LS273N	TI	1.65	66
SN74LS275N	TI	5.04	66
SN74LS279N	TI	.52	66
SN74LS280N	TI	2.84	66
SN74LS279N	MOT	.60	42
SN74LS283N	TI	1.09	66
SN74LS290N	TI	1.32	66
SN74LS290N	MOT	1.10	42
SN74LS293N	MOT	1.20	42
SN74LS295AN	MOT	1.55	42
SN74LS298N	TI	2.30	66
SN74LS324N	TI	1.43	66
SN74LS325N	TI	3.80	66
SN74LS326N	TI	3.88	66
SN74LS327N	TI	3.72	66
SN74LS348N	TI	1.73	66
SN74LS352N	TI	1.43	66
SN74LS353N	TI	1.43	66
SN74LS362N	TI	7.65	66
SN74LS365N	TI	1.04	—
SN74LS365N	MOT	.68	42
SN74LS366N	TI	1.04	—
SN74LS366N	MOT	.68	42
SN74LS367AN	TI	.59	—
SN74LS367N	MOT	.68	42
SN74LS367N	TI	.59	—
SN74LS368AN	TI	.59	66
SN74LS368N	MOT	.68	42
SN74LS373N	TI	1.86	66
SN74LS374N	TI	1.86	66
SN74LS377N	TI	2.66	66
SN74LS378N	TI	1.78	66
SN74LS379N	TI	1.78	66
SN74LS390N	TI	2.51	66
SN74LS390N	MOT	1.75	42
SN74LS393N	TI	2.41	66
SN74LS393N	MOT	1.75	42
SN74LS395AN	TI	2.30	66
SN74LS395N	MOT	1.75	42
SN74LS396N	TI	1.86	66
SN74LS398N	TI	2.84	66
SN74LS399N	TI	2.12	66
SN74LS424N	TI	6.00	66
SN74LS445N	TI	1.32	66
SN74LS447N	TI	1.19	66
SN74LS490N	TI	2.51	66
SN74LS490N	MOT	2.99	42
SN74LS668N	TI	.98	66
SN74LS669N	TI	.98	66
SN74LS670N	MOT	2.55	42
SN74S00N	TI	.57	—
SN74S02N	TI	.57	—
SN74S03N	TI	.57	—
SN74S04N	TI	.68	—
SN74S05N	TI	.68	—
SN74S08N	TI	.57	—
SN74S10N	TI	.57	—
SN74S11N	TI	.57	—
SN74S15N	TI	.57	—
SN74S20N	TI	.57	—
SN74S22N	TI	.57	—
SN74S30N	TI	.85	—
SN74S32N	TI	.57	—
SN74S37N	TI	1.36	—
SN74S38N	TI	1.36	—
SN74S40N	TI	.57	—
SN74S51N	TI	.57	—
SN74S64N	TI	.57	—
SN74S74N	TI	.87	—
SN74S85N	TI	3.02	—
SN74S86N	TI	.85	—
SN74S112N	TI	.98	—
SN74S113N	TI	.98	—
SN74S114N	TI	.98	—
SN74S124N	TI	3.64	—
SN74S132N	TI	1.88	—
SN74S133N	TI	.57	—
SN74S134N	TI	.73	—
SN74S135N	TI	1.76	—
SN74S138N	TI	2.51	—
SN74S139N	TI	2.51	—
SN74S140N	TI	.85	—
SN74S151N	TI	2.39	—
SN74S153N	TI	2.39	—
SN74S157N	TI	2.39	—
SN74S158N	TI	2.39	—
SN74S162N	TI	4.77	—
SN74S163N	TI	6.13	—
SN74S169N	TI	8.79	—
SN74S174N	TI	3.39	—
SN74S175N	TI	3.39	—
SN74S181N	TI	6.91	—
SN74S182N	TI	2.64	—

NEW TYPES STOCKED AS SOON AS RELEASED

INTEGRATED CIRCUITS

Type	Mfr	1-24	Page
SN74S188N	TI	2.18	—
SN74S189N	TI	3.28	—
SN74S194N	TI	3.14	—
SN74S195N	TI	3.14	—
SN74S201N	TI	4.95	—
SN74S240N	TI	6.11	—
SN74S241N	TI	6.11	—
SN74S257N	TI	2.51	—
SN74S258N	TI	2.51	—
SN74S260N	TI	.63	—
SN74S281N	TI	18.22	—
SN74S287N	TI	2.73	—
SN74S288N	TI	2.18	—
SN74S387N	TI	2.73	—
SN74S412N	TI	3.82	—
SN74S470N	TI	6.55	—
SN74S471N	TI	6.55	—
SN74S472N	TI	13.09	—
SN74S474N	TI	13.39	—
SN74S475N	TI	13.39	—
SN7520-N	TI	1.94	61
SN7524-N	TI	1.94	61
SN7528N	TI	1.94	61
SN75107AJ	TI	2.64	61
SN75107AN	TI	2.20	61
SN75108AN	TI	2.20	61
SN75110AJ	TI	2.64	61
SN75110AN	TI	2.20	61
SN75112N	TI	2.92	61
SN75113N	TI	2.92	61
SN75114N	TI	1.60	61
SN75115N	TI	1.60	61
SN75116N	TI	2.92	61
SN75117P	TI	2.92	61
SN75118N	TI	2.79	61
SN75119P	TI	2.79	61
SN75122N	TI	1.60	61
SN75123N	TI	1.60	61
SN75136J	TI	3.70	61
SN75138N	TI	3.54	61
SN75140P	TI	2.43	61
SN75150N	TI	2.70	61
SN75150P	TI	2.22	61
SN75151N	TI	3.39	61
SN75152N	TI	3.90	61
SN75153N	TI	2.60	61
SN75154J	TI	4.18	—
SN75154N	TI	3.47	—
SN75158JG	TI	3.50	—
SN75158P	TI	3.00	—
SN75182N	TI	1.30	61
SN75183N	TI	1.30	61
SN75188N	TI	1.10	61
SN75189AN	TI	1.10	—
SN75189N	TI	1.10	—
SN75234N	TI	1.94	61
SN75322N	TI	3.90	61
SN75324N	TI	3.50	61
SN75325N	TI	2.79	61
SN75327N	TI	3.90	61
SN75361AP	TI	2.43	61
SN75365N	TI	3.60	61
SN75432P	TI	.68	61
SN75450BJ	TI	2.08	—
SN75450BN	TI	1.24	—
SN75451BP	TI	.40	61
SN75452BP	TI	.40	61
SN75453BP	TI	.50	61
SN75454BP	TI	.50	61
SN75460N	TI	1.94	61
SN75461P	TI	.68	61
SN75462P	TI	.68	61
SN75463P	TI	.68	61
SN75464P	TI	.68	61
SN75466N	TI	1.70	61
SN75468J	TI	2.00	61
SN75468N	TI	1.70	61
SN75469N	TI	1.70	61
SN75471P	TI	.76	61
SN75472P	TI	.76	61
SN75480N	TI	3.41	61
SN75491N	TI	1.15	61
SN75492AN	TI	1.26	61

Type	Mfr	1-24	Page
SN76005ND	TI	2.13	—
SNC54LS02J	TI	.81	—
TL022CP	TI	1.36	60
TL044CJ	TI	8.56	—
TL044CN	TI	2.34	—
TL061CP	TI	.70	60
TL062CP	TI	1.20	60
TL064CN	TI	2.00	60
TL066CP	TI	.70	60
TL071CP	TI	.56	60
TL072CP	TI	1.06	60
TL074CN	TI	1.88	60
TL075CN	TI	2.00	60
TL080CP	TI	.50	60
TL081CL	TI	.90	60
TL081CP	TI	.44	60
TL082CL	TI	1.32	60
TL082CP	TI	.92	60
TL083CN	TI	1.30	60
TL084CN	TI	1.70	60
TL170CLP	TI	.50	60
TL182CN	TI	2.79	60
TL191CN	TI	2.79	60
TL331CP	TI	.50	60
TL430CLP	TI	.70	60
TL440CN	TI	1.79	60
TL441CN	TI	2.50	60
TL489CP	TI	1.90	61
TL495CN	TI	5.00	—
TL497CJ	TI	4.00	60
TL497CN	TI	3.00	60
TL500CN	TI	7.49	60
TL502CN	TI	9.99	60
TL505CN	TI	3.50	60
TL560CP	TI	1.26	60
TL601CP	TI	1.30	60
TL604CP	TI	1.30	60
TL610CP	TI	1.30	60
TL702CL	TI	1.04	60
TL702CN	TI	.58	60
TL720CN	TI	1.26	—
TL811CN	TI	1.13	60
TMS2532JL	TI	70.00	—
TMS2516JL	TI	48.00	—
TMS2708JL	TI	21.53	—
TMS2716JL	TI	40.93	—
TMS3114NC	TI	5.93	—
TMS3409NC	TI	5.93	—
TMS3417JC	TI	3.62	—
TMS3417NC	TI	5.93	—
TMS4033NL	TI	3.60	—
TMS4035NL	TI	3.12	—
TMS4044-20NL	TI	21.55	—
TMS4044-45NL	TI	15.09	—
TMS4045-20NL	TI	21.55	—
TMS4045-30NL	TI	18.86	—
TMS4045-45NL	TI	15.09	—
TMS6011JC	TI	10.78	—
TMS6011NC	TI	9.35	—
TMS8080ANL	TI	9.70	65
TMS9900JL	TI	64.99	64, 65
TP4001AN	TI	.31	—
TP4011BN	TI	.31	—
TP4012AN	TI	.31	—
TP4013AN	TI	.75	—
TP4019AN	TI	.75	—
TP4028AN	TI	1.07	—
TP4029AN	TI	1.42	—
TP4040AN	TI	1.42	—
TP4049AN	TI	.75	—
TP4050AN	TI	.75	—
TP4361AN	TI	1.69	—
UA78L02ACLP	TI	.40	60
UA78L02CLP	TI	.34	60
UA78L05ACLP	TI	.40	60
UA78L06ACLP	TI	.40	60
UA78L06CLP	TI	.34	60
UA78L08ACLP	TI	.40	60
UA78L08CLP	TI	.34	60
UA78L09CLP	TI	.34	60
UA78L10CLP	TI	.34	60
UA78L12ACLP	TI	.40	60
UA78L12CLP	TI	.34	60
UA78L15ACLP	TI	.40	60

Type	Mfr	1-24	Page
UA78M05CKC	TI	1.08	60
UA78M05CKF	TI	.74	60
UA78M05CLA	TI	1.40	60
UA78M06CKC	TI	1.30	60
UA78M06CKF	TI	.74	60
UA78M06CLA	TI	1.40	60
UA78M08CKC	TI	1.30	60
UA78M08CKF	TI	.74	60
UA78M08CLA	TI	1.40	60
UA78M12CKC	TI	1.30	60
UA78M12CKF	TI	.74	60
UA78M12CLA	TI	1.40	60
UA78M15CKC	TI	1.30	60
UA78M15CKF	TI	.74	60
UA78M15CLA	TI	1.40	60
UA78M20CKC	TI	1.30	60
UA78M20CKF	TI	.74	60
UA78M20CLA	TI	1.40	60
UA78M22CLF	TI	.74	—
UA78M24CKC	TI	1.30	60
UA78M24CKF	TI	.74	—
UA78M24CLA	TI	1.40	60
UA79M05CKC	TI	1.08	61
UA79M05CKF	TI	.81	60
UA79M05CLA	TI	1.40	61
UA79M06CKC	TI	1.40	61
UA79M06CKF	TI	.81	60
UA79M06CLA	TI	1.40	61
UA79M08CKC	TI	1.40	61
UA79M08CKF	TI	.81	60
UA79M08CLA	TI	1.40	61
UA79M12CKC	TI	1.40	—
UA79M12CKF	TI	.81	60
UA79M12CLA	TI	1.40	—
UA79M15CKC	TI	1.40	61
UA79M15CKF	TI	.81	60
UA79M15CLA	TI	1.40	61
UA79M20CKC	TI	1.40	61
UA79M20CKF	TI	.81	60
UA79M24CKC	TI	1.70	61
UA79M24CKF	TI	.81	—
UA79M24CLA	TI	1.40	—
UA709CL	TI	.98	—
UA709CN	TI	.68	60
UA709CP	TI	.48	60
UA711CN	TI	.60	60
UA723CL	TI	.72	60
UA723CN	TI	.48	60
UA733CL	TI	2.00	—
UA733CN	TI	.96	—
UA741CJ	TI	.56	60
UA741CL	TI	.66	60
UA741CN	TI	.46	60
UA741CP	TI	.40	60
UA741ML	TI	2.00	60
UA741TC	MOT	.36	—
UA747CJ	TI	1.78	60
UA747CL	TI	.86	60
UA747CN	TI	.64	60
UA747ML	TI	2.77	60
UA748CL	TI	1.00	60
UA748CN	TI	.60	60
UA748CP	TI	.52	60
UA7805CKC	TI	1.10	61
UA7806CKC	TI	1.10	61
UA7812CKC	TI	1.10	61
UA7815CKC	TI	1.10	61
UA7818CKC	TI	1.10	61
UA7822CKC	TI	1.10	61
UA7824CKC	TI	1.10	61
UA7885CKC	TI	1.10	61
UA7905CKC	TI	1.50	61
UA7906CKC	TI	1.50	61
UA7908CKC	TI	1.50	61
UA7912CKC	TI	1.50	61
UA7915CKC	TI	1.50	61
UA7918CKC	TI	1.50	61
UA7924CKC	TI	1.50	61
UDN3611M	SPR	1.75	99
UDN3612M	SPR	1.75	99
UDN3613M	SPR	1.75	99
UDN3614M	SPR	1.75	99

Key	Mfr.
MOT	Motorola Motorola—HEP
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr	1-24	Page
UDN5703A	SPR	3.52	99
UDN5706A	SPR	3.52	99
UDN5707A	SPR	3.52	99
UDN5711M	SPR	2.43	99
UDN5712M	SPR	2.43	99
UDN5713M	SPR	2.43	99
UDN5714M	SPR	2.43	99
UDN6144A	SPR	2.68	99
UDN6164A	SPR	3.75	99
UDN6184A	SPR	4.45	99
UDN7180A	SPR	4.30	99
UDN7183A	SPR	4.30	99
UDN7184A	SPR	4.30	99
UDN7186A	SPR	4.30	99
UGN3019T	SPR	4.00	—
UGN3020T	SPR	4.50	—
UGN3201M	SPR	8.00	—
UGN3203M	SPR	8.50	—
UGN3501M	SPR	8.00	—
UGN3501T	SPR	4.50	—
UGN3600M	SPR	16.00	—
UGN3601M	SPR	8.00	—
UGS3019T	SPR	5.00	—
UGS3020T	SPR	5.50	—
ULN2001A	SPR	1.90	99
ULN2001AN	TI	1.39	—
ULN2002A	SPR	1.90	—
ULN2002AN	TI	1.30	—
ULN2003A	SPR	1.90	99
ULN2003AN	TI	1.10	—
ULN2004A	SPR	1.90	99
ULN2004AN	TI	1.30	—
ULN2005A	SPR	1.90	99
ULN2011A	SPR	2.85	99
ULN2012A	SPR	2.85	—
ULN2013A	SPR	2.85	99
ULN2014A	SPR	2.85	99
ULN2015A	SPR	2.85	99
ULN2021A	SPR	2.85	99
ULN2022A	SPR	2.85	—
ULN2023A	SPR	2.85	99
ULN2024A	SPR	2.85	99
ULN2025A	SPR	2.85	99
ULN2031A	SPR	1.67	—
ULN2032A	SPR	1.67	—
ULN2033A	SPR	1.47	—
ULN2046A	SPR	1.32	—
ULN2047A	SPR	1.55	—
ULN2054A	SPR	1.55	—
ULN2061M	SPR	3.03	99
ULN2064B	SPR	4.00	99
ULN2074B	SPR	4.00	99
ULN2081A	SPR	1.83	—
ULN2083A	SPR	2.07	—
ULN2086A	SPR	1.25	—
ULN2274B	SPR	3.69	—
ULN2278B	SPR	5.31	—
ULN2280B	SPR	2.55	—
ULN2281B	SPR	3.48	—
ULN2111A	SPR	1.86	—
ULN3303M	SPR	1.53	—
ULN3304M	SPR	1.53	—
ULN3305M	SPR	1.80	—
ULN3306M	SPR	1.80	—

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr	1-24	Page
1N34A	IR	.27	—
1N64	IR	.27	—
1N67A	IR	.27	—
1N82AG	IR	.87	—
1N87A	IR	.27	—
1N248A	IR	1.73	—
1N248B	MOT	1.45	36
1N248C	MOT	1.45	—
1N249B	MOT	1.76	36
1N249C	RCA	1.71	—
1N250B	MOT	2.69	36
1N251	TI	.29	59
1N294	IR	.30	—
1N295	IR	.30	—
1N456	TI	.35	—
1N456A	TI	.36	—
1N457	TI	.38	—
1N457A	TI	.39	—
1N458	TI	.41	—
1N458A	TI	.42	—
1N459	TI	.44	—
1N459A	TI	.44	—
1N461	TI	.35	—
1N461A	TI	.36	—
1N462	TI	.38	—
1N462A	TI	.39	—
1N463	TI	.41	—
1N463A	TI	.42	—
1N482	TI	.35	—
1N482A	TI	.36	—
1N482B	TI	.40	—
1N483	TI	.38	—
1N483A	TI	.39	—
1N483B	TI	.39	—
1N484	TI	.41	—
1N484A	TI	.42	—
1N485	TI	.44	—
1N485B	TI	.46	—
1N536	RCA	.36	73
1N537	RCA	.40	73
1N538	RCA	.45	73
1N539	RCA	.50	73
1N540	RCA	.56	73
1N541	IR	.30	—
1N547	RCA	.79	73
1N625	TI	.24	59
1N626	TI	.19	59
1N627	TI	.19	59
1N628	TI	.19	59
1N629	TI	.19	59
1N643	TI	.19	59
1N645	TI	.51	—
1N645A	TI	.55	—
1N647	TI	.55	—
1N658	TI	.19	—
1N659	TI	.19	59
1N660	TI	.19	59
1N661	TI	.19	59
1N662	TI	.19	59
1N702	MOT	1.85	—
1N702A	MOT	2.60	—
1N704A	TI	.45	—
1N705	MOT	1.85	—
1N705A	TI	.45	—
1N706	TI	.41	—
1N707A	TI	.45	—
1N708	TI	.41	—
1N709A	TI	.45	—
1N710	TI	.41	—
1N712	MOT	1.85	—
1N714	MOT	1.85	—
1N714	TI	.41	—
1N714A	TI	.45	—
1N715A	TI	.45	—
1N716	MOT	1.85	—
1N716	TI	.41	—
1N716A	MOT	2.60	—
1N721	MOT	1.85	—
1N745A	MOT	4.35	—
1N746	MOT	.54	29
1N746	TI	.41	—
1N746A	MOT	.54	—
1N746A	TI	.45	—
1N747	MOT	.54	29
1N747	TI	.41	—
1N747A	MOT	.54	—
1N747A	TI	.45	—
1N748	MOT	.54	29
1N748	TI	.41	—
1N748A	MOT	.54	—
1N748A	IR	1.05	89
1N748A	TI	.45	—
1N749	MOT	.54	29
1N749A	MOT	.54	—
1N749A	TI	.45	—
1N750	MOT	.54	29
1N750	TI	.41	—
1N750A	MOT	.54	—
1N750A	IR	1.05	89
1N750A	TI	.45	—
1N751	MOT	.54	29
1N751	TI	.41	—
1N751A	MOT	.54	—
1N751A	IR	1.05	89
1N751A	TI	.45	—
1N752/ •4M56AZ10	MOT	.54	—
1N752	TI	.41	—
1N752A	MOT	.54	—
1N752A	IR	1.05	89
1N752A	TI	.45	—
1N753	MOT	.54	29
1N753	TI	.41	—
1N753A	MOT	.54	—
1N753A	TI	.35	—
1N754	MOT	.54	29
1N754	TI	.41	—
1N754A	MOT	.54	—
1N754A	TI	.45	—
1N754A	IR	1.05	89
1N755	MOT	.54	29
1N755	TI	.41	—
1N755A	MOT	.54	—
1N755A	IR	1.05	88
1N755A	TI	.45	—
1N756	MOT	.54	29
1N756	TI	.41	—
1N756A	MOT	.54	—
1N756A	IR	1.05	88
1N756A	TI	.45	—
1N757	MOT	.54	29
1N757	TI	.41	—
1N757A	MOT	.54	—
1N757A	IR	1.05	89
1N757A	TI	.45	—
1N758	TI	.41	—
1N758A	MOT	.54	—
1N758A	IR	1.05	89
1N758A	TI	.45	—
1N759	MOT	.54	29
1N759	TI	.41	—
1N759A	MOT	.54	—
1N759A	IR	1.05	89
1N759A	TI	.45	—
1N761	TI	.59	—
1N762	TI	.59	—
1N768	MOT	2.15	—
1N816	MOT	.33	—
1N821	MOT	2.75	—
1N821	IR	1.59	—
1N821A	MOT	3.05	—
1N821A	IR	1.63	—
1N823	MOT	3.60	—
1N823	IR	1.90	—
1N823A	MOT	3.90	—
1N823A	IR	1.93	—
1N825	MOT	5.80	—
1N825	IR	2.90	—
1N825A	MOT	6.50	—
1N827	MOT	10.85	—
1N827	IR	4.76	—
1N827A	MOT	13.05	—
1N827A	IR	4.81	—
1N829	IR	11.46	—
1N829A	MOT	19.55	—
1N914	TI	.16	59
1N914	GE	.33	—
1N914/JAN	TI	.21	—
1N914A	TI	.17	59
1N914A	GE	.44	—
1N914B	TI	.17	59
1N914B	GE	.88	—
1N916	TI	.17	59
1N916	GE	.57	—
1N916A	TI	.17	59
1N916B	TI	.17	59
1N935	MOT	2.30	—
1N935	IR	1.80	—
1N935A	MOT	2.60	—
1N935A	IR	1.83	—
1N936	MOT	2.75	—
1N936	IR	2.05	—
1N936A	IR	2.10	—
1N936B	MOT	4.20	—
1N936B	IR	2.15	—
1N937	MOT	5.35	—
1N937B	MOT	7.10	—
1N937B	IR	2.63	—
1N938	MOT	6.95	—
1N938A	MOT	7.55	—
1N938A	IR	4.66	—
1N938B	IR	4.76	—
1N941	MOT	3.20	—
1N942	MOT	3.50	—
1N942A	MOT	4.35	—
1N943	MOT	6.90	—
1N943B	MOT	7.15	—
1M944	MOT	10.15	—
1N944A	MOT	13.05	—
1N957	TI	.38	—
1N957A	TI	.41	—
1N957B	IR	1.31	89
1N957B	TI	.45	—
1N958B	IR	1.31	89
1N959B	IR	1.31	89
1N959B	TI	.45	—
1N960B	MOT	.54	—
1N960B	IR	1.31	89
1N961	MOT	.54	29
1N961	TI	.38	—
1N961A	TI	.41	—
1N961B	MOT	.54	—
1N961B	IR	1.31	89
1N961B	TI	.45	—
1N962A	MOT	.54	—
1N962B	IR	1.31	89
1N962B	TI	.45	—
1N963	MOT	.54	29
1N963A	MOT	.54	—
1N963B	MOT	.54	—
1N963B	IR	1.31	89
1N964	MOT	.54	29
1N964B	MOT	.54	—
1N964B	TI	.45	—
1N964B	IR	1.31	89
1N965	MOT	.54	29
1N965A	TI	.41	—
1N965B	MOT	.54	—
1N965B	IR	1.31	89
1N966	MOT	.54	29
1N966B	MOT	.54	—
1N966B	IR	1.31	89
1N967	TI	.38	—
1N967A	MOT	.54	—
1N967B	MOT	.54	—
1N967B	IR	1.31	89
1N968	MOT	.54	29
1N968B	MOT	.54	—
1N968B	IR	1.31	89
1N968B	TI	.45	—
1N969	MOT	.54	29
1N969A	MOT	.54	—
1N969B	IR	1.31	89
1N970	MOT	.54	29
1N970A	MOT	.54	—
1N970B	IR	1.31	89
1N970B	TI	.45	—
1N971B	MOT	.54	—
1N971B	TI	.45	—
1N972A/ •4M30Z10	MOT	.54	—
1N972B	IR	1.31	89
1N973A	MOT	.54	—
1N973B	IR	1.31	89
1N974B	MOT	.54	—
1N975	MOT	.54	29
1N976B	MOT	.54	—
1N978B	IR	1.31	89
1N980B	MOT	.75	—
1N982B	MOT	.75	—
1N985B	MOT	1.45	—
1N986B	MOT	1.45	—
1N989B	MOT	1.45	—
1N990B	MOT	1.45	—
1N991B	MOT	1.45	—
1N1084/5MA4	IR	.92	—
1N1095	RCA	.61	73
1N1183	MOT	1.84	36
1N1183A	RCA	2.00	73
1N1183RA	MOT	1.93	—
1N1183A	MOT	1.93	36
1N1184	MOT	2.16	36
1N1184A	RCA	2.31	73
1N1184A	GE	5.82	—
1N1184R	MOT	2.16	—
1N1184RA	RCA	2.31	—
1N1185	MOT	2.53	—
1N1186	MOT	2.89	36
1N1186	GE	5.93	78
1N1186A	GE	5.95	—
1N1186A	RCA	3.38	73
1N1186R	MOT	2.89	—
1N1186RA	RCA	3.38	—
1N1187	MOT	3.43	—
1N1187A	RCA	4.30	73
1N1188	MOT	4.45	36
1N1188	GE	6.78	78
1N1188A	RCA	4.92	73
1N1188R	MOT	4.45	—
1N1189	MOT	5.18	—
1N1189R	MOT	5.18	—
1N1189RA	GE	6.88	—
1N1190	MOT	5.99	36
1N1190	GE	6.91	78
1N1190A	RCA	6.15	73
1N1190R	MOT	5.99	—
1N1190RA	RCA	6.15	—
1N1191	MOT	1.84	—
1N1192	MOT	2.16	—
1N1196	MOT	4.45	36
1N1196A	MOT	5.27	—
1N1197	MOT	5.18	—
1N1198	MOT	5.99	—
1N1198A	RCA	5.40	—
1N1199	GE	3.60	—
1N1199A	RCA	1.09	73
1N1200	MOT	1.40	—
1N1200	GE	3.67	—
1N1200A	MOT	1.40	—
1N1200A	RCA	1.25	73
1N1200A	GE	3.67	—
1N1200RA	MOT	1.40	—
1N1201A	MOT	1.50	—
1N1202A	MOT	1.50	—
1N1202A	RCA	2.28	73
1N1202A	GE	3.82	—
1N1202RA	GE	3.82	—
1N1203	GE	3.89	—
1N1203A	RCA	3.17	73
1N1203A	GE	3.89	78
1N1204	MOT	1.86	—
1N1204	GE	3.95	—
1N1204A	MOT	1.86	—
1N1204A	RCA	4.04	73
1N1204RA	GE	3.95	—
1N1205A	RCA	4.82	73
1N1206	MOT	3.30	—
1N1206A	MOT	3.30	—
1N1206A	RCA	5.66	73
1N1206A	GE	6.37	78
1N1206AR	MOT	3.30	—
1N1341A	GE	3.55	—
1N1342B	RCA	1.22	—
1N1343	GE	3.70	—
1N1345	GE	3.84	—
1N1345RA	GE	3.84	—
1N1346A	GE	3.91	—

NEW TYPES STOCKED AS SOON AS RELEASED

DISCRETE DEVICES

Type	Mfr	1-24	Page
1N1348A	GE	5.02	—
1N1612	GE	3.83	78
1N1613	GE	3.90	—
1N1614	GE	3.76	78
1N1615	GE	4.03	78
1N1732	IR	5.16	—
1N1764A	RCA	.52	—
1N2069/10D2	IR	3.40	—
1N2069G	TI	.50	—
1N2069A	IR	.34	—
1N2069AG	TI	.49	—
1N2070/10D4	IR	.37	—
1N2070A	IR	.37	—
1N2070AG	TI	1.05	—
1N2071	IR	.47	—
1N2071G	TI	.62	—
1N2071A	IR	.47	—
1N2071A	TI	.51	—
1N2071AG	TI	.70	—
1N2155	GE	5.78	78
1N2157	GE	6.05	78
1N2158	GE	6.85	78
1N2160	GE	6.96	78
1N2163	MOT	4.13	—
1N2166A	MOT	10.13	—
1N2620	MOT	5.13	—
1N2620A	MOT	5.44	—
1N2621	MOT	5.75	—
1N2622A	MOT	10.19	—
1N2623	MOT	11.00	—
1N2623A	MOT	12.56	—
1N2631/ST-2	IR	7.22	—
1N2804	MOT	5.65	—
1N2804B	MOT	10.65	—
1N2810/ 50M12Z	MOT	5.65	—
1N2810B	MOT	10.65	—
1N2811B	MOT	10.65	—
1N2813B	MOT	10.65	—
1N2814B	MOT	10.65	—
1N2820B	MOT	10.65	—
1N2821B	MOT	10.65	—
1N2822B	MOT	10.65	—
1N2823B	MOT	10.65	—
1N2828B	MOT	10.65	—
1N2833B	MOT	10.65	—
1N2835/ 50M75Z	MOT	5.65	—
1N2837	MOT	5.65	—
1N2838	MOT	5.65	—
1N2842B	MOT	17.95	—
1N2846	MOT	6.80	—
1N2858A	RCA	.33	73
1N2859A	RCA	.37	73
1N2860A	RCA	.40	73
1N2862A	RCA	.48	73
1N2863A	RCA	.58	73
1N2864A	RCA	.70	73
1N2970	MOT	5.45	29
1N2970B	IR	3.90	—
1N2971B	IR	3.90	—
1N2973	MOT	5.45	29
1N2973B	MOT	7.30	—
1N2974	MOT	5.45	29
1N2974B/ 10M10Z5	MOT	7.30	—
1N2976	MOT	5.45	29
1N2976A	MOT	5.85	—
1N2976B	MOT	7.30	—
1N2976B	IR	3.90	—
1N2976RB	IR	3.90	—
1N2977	MOT	5.45	29
1N2977B	MOT	7.30	—
1M2977B	IR	3.90	—
1N2978B	IR	3.90	—
1N2978B	MOT	7.30	—
1N2979	MOT	5.45	29
1N2979B	MOT	7.30	—
1N2979B	IR	3.90	—
1N2979RB	MOT	7.30	29
1N2979RB	IR	3.90	—
1N2980	MOT	5.45	29
1N2980B	MOT	7.30	—
1N2980RB	MOT	7.30	29
1N2982	MOT	5.45	29
1N2982B	MOT	7.30	—
1N2984	MOT	5.45	29
1N2984A	MOT	5.85	—

Type	Mfr	1-24	Page
1N2984B	MOT	7.30	—
1N2984B	IR	3.90	—
1N2985	IR	3.90	—
1N2986	MOT	5.45	29
1N2986A	MOT	5.85	—
1N2986B	MOT	7.30	—
1N2986B	IR	3.90	—
1N2986RB	IR	3.90	—
1N2986RB	MOT	7.30	29
1N2987B	IR	3.90	—
1N2988A	MOT	5.85	—
1N2988B	MOT	7.30	—
1N2988B	IR	3.90	—
1N2988RA	MOT	5.85	29
1N2989	MOT	5.45	29
1N2989A	MOT	5.85	—
1N2989B	IR	3.90	—
1N2990	MOT	5.45	29
1N2990B	MOT	7.30	—
1N2991	MOT	5.45	29
1N2991B	IR	3.90	—
1N2992A	MOT	5.85	—
1N2992B	MOT	7.30	—
1N2992B	IR	3.90	—
1N2993A	MOT	5.85	—
1N2993B	IR	3.90	—
1N2994B	IR	3.90	—
1N2995B	IR	3.90	—
1N2997	MOT	5.45	29
1N2997A	MOT	5.85	—
1N2999B	IR	3.90	—
1N2999B	MOT	7.30	—
1N3000B	MOT	7.30	—
1N3000B	IR	3.90	—
1N3002B	MOT	7.30	—
1N3003	MOT	5.45	29
1N3003B	MOT	7.30	—
1N3004B	MOT	7.30	—
1N3005	MOT	5.45	29
1N3005B	MOT	7.30	—
1N3006B	MOT	7.30	—
1N3007	MOT	5.45	29
1N3007B	MOT	7.30	—
1N3008	MOT	5.45	29
1N3008B	MOT	7.30	—
1N3009	MOT	5.45	29
1N3009A	MOT	5.85	—
1N3009B	MOT	7.30	—
1N3011	MOT	5.45	29
1N3011A	MOT	5.85	—
1N3011B	MOT	7.30	—
1N3013	MOT	6.00	—
1N3015	MOT	6.00	29
1N3015A	MOT	9.00	—
1N3015B	MOT	13.75	—
1N3016	MOT	2.85	29
1N3016B	MOT	3.70	—
1N3016B	IR	3.47	89
1N3017A	MOT	3.20	—
1N3017B	MOT	3.70	—
1N3018	MOT	2.85	29
1N3018A	MOT	3.20	—
1N3018B	IR	3.47	—
1N3019B	MOT	3.70	—
1N3020	MOT	2.85	—
1N3020A	MOT	3.20	—
1N3020B	MOT	3.70	—
1N3020B	IR	3.47	89
1N3021	MOT	2.85	29
1N3021B	MOT	3.70	—
1N3022	MOT	2.85	29
1N3022A	MOT	3.20	—
1N3022B	MOT	3.70	—
1N3022B	IR	3.47	89
1N3023	MOT	2,85	29
1N3023B	MOT	3.70	—
1N3024	MOT	2.85	29
1N3024A	MOT	3.20	—
1N3024B	MOT	3.70	89
1N3024B	IR	3.47	—
1N3025B	MOT	3.70	—
1N3026B	MOT	3.70	—
1N3026B	IR	3.47	89
1N3027	MOT	2.85	29
1N3027B	MOT	3.70	—
1N3027B	IR	3.47	—
1N3028	MOT	2.85	—
1N3028B	MOT	3.70	—
1N3028B	IR	3.47	89

Type	Mfr	1-24	Page
1N3029/1M24Z	MOT	2.85	—
1N3029A	MOT	3.20	—
1N3029B	MOT	3.70	—
1N3029B	IR	3.47	89
1N3030	MOT	2.85	29
1N3030B	MOT	3.70	—
1N3030B	IR	3.47	89
1N3031	MOT	2.85	29
1N3031B	IR	3.47	89
1N3032B	IR	3.47	89
1N3033B	MOT	3.70	—
1N3033B	IR	3.47	—
1N3034B	MOT	3.70	—
1N3035	MOT	2.85	29
1N3037B	MOT	3.70	—
1N3038	MOT	2.85	29
1N3038B	MOT	3.70	—
1N3039B	IR	3.47	89
1N3041A	MOT	3.20	—
1N3041B	MOT	3.70	—
1N3041B	MOT	3.70	—
1N3044	MOT	2.85	29
1N3045A	MOT	3.25	—
1N3046	MOT	2.95	29
1N3047	MOT	2.95	29
1N3047B	MOT	4.65	—
1N3048	MOT	2.95	29
1N3048B	MOT	4.65	—
1N3050	MOT	2.95	29
1N3051	MOT	2.95	29
1N3051A	MOT	3.25	—
1N3051B	MOT	4.65	—
1N3064	TI	.19	59
1N3070	TI	.25	59
1N3154	MOT	2.60	—
1N3155	MOT	3.55	—
1N3156	MOT	6.15	—
1N3182	MOT	.60	—
1N3193	RCA	.35	73
1N3194	RCA	.38	73
1N3195	RCA	.53	73
1N3196	RCA	.74	73
1N3208	MOT	1.31	36
1N3208R	MOT	1.31	—
1N3209	MOT	1.60	36
1N3209	GE	4.23	—
1N3209R	MOT	1.60	—
1N3210	MOT	2.05	36
1N3210	GE	3.60	78
1N3210R	MOT	2.05	—
1N3211	MOT	2.55	—
1N3211R	MOT	2.55	—
1N3212	MOT	2.91	36
1N3212	GE	4.02	78
1N3212R	MOT	2.91	—
1N3214	MOT	4.18	36
1N3214	GE	4.95	—
1N3214R	MOT	4.18	—
1N3253	RCA	.38	73
1N3254	RCA	.42	73
1N3255	RCA	.56	73
1N3256	RCA	.78	73
1N3289	GE	15.75	78
1N3291	GE	17.75	78
1N3292	GE	19.00	78
1N3293R	GE	20.00	—
1N3294	GE	23.00	78
1N3295	GE	25.00	78
1N3296	GE	27.00	78
1N3305	MOT	5.65	—
1N3306B	MOT	10.65	—
1N3308B	MOT	10.65	—
1N3309B	MOT	10.65	—
1N3311	MOT	5.65	—
1N3311A	MOT	7.65	—
1N3311B	MOT	10.65	—
1N3312	MOT	5.65	—
1N3314	MOT	5.65	—
1N3314B	MOT	10.65	—
1N3315	MOT	5.65	—
1N3315B	IR	10.65	—
1N3319A	MOT	7.65	—
1N3319RB	IR	10.65	—
1N3321	MOT	5.65	—
1N3321A	MOT	7.65	—
1N3322B	MOT	10.65	—
1N3323A	MOT	7.65	—
1N3323B	IR	10.65	—
1N3324	MOT	5.65	—

Key	Mfr.
GE	General Electric
GI	General Instrument
IDI	International Devices Inc.
IR	International Rectifier
LAN	Lansdale
MON	Monsanto
MOT	Motorola Motorola—HEP
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr	1-24	Page
1N3326B	IR	10.65	—
1N3339	MOT	5.65	—
1N3340	MOT	5.65	—
1N3340RA	MOT	7.65	—
1N3346	MOT	6.80	—
1N3350	MOT	6.80	—
1N3350B	MOT	17.95	—
1N3491	MOT	.90	36
1N3491R	MOT	.90	—
1N3492	MOT	1.10	36
1N3492	IR	1.67	—
1N3492R	MOT	1.10	—
1N3493	MOT	1.30	36
1N3493	IR	1.87	—
1N3493R	MOT	1.30	—
1N3493R	IR	1.87	—
1N3494	MOT	1.50	—
1N3494	IR	2.05	—
1N3494R	MOT	1.50	—
1N3495	MOT	1.68	36
1N3495R	MOT	1.68	—
1N3563	RCA	.94	73
1N3659	MOT	1.15	36
1N3660	MOT	1.27	36
1N3660R	MOT	1.27	—
1N3661	MOT	1.36	36
1N3661R	MOT	1.36	—
1N3663	MOT	1.82	36
1N3663R	MOT	1.82	—
1N3673	GE	9.90	—
1N3673A	GE	9.90	78
1N3712	GE	9.30	—
1N3713	GE	14.78	—
1N3716	GE	6.13	—
1N3717	GE	11.58	—
1N3718	GE	7.46	—
1N3719	GE	10.80	—
1N3720	GE	9.46	—
1N3721	GE	11.09	—
1N3738	GE	28.75	78
1N3766	GE	9.75	78
1N3768	GE	11.62	78
1N3785B	MOT	8.69	—
1N3791	MOT	4.69	—
1N3791A	MOT	6.63	—
1N3791B	MOT	8.69	—
1N3792	MOT	4.69	—
1N3793B	MOT	8.69	—
1N3798	MOT	4.69	—
1N3798B	MOT	8.69	—
1N3799	MOT	4.69	—
1N3800B	MOT	8.69	—
1N3801A	MOT	6.63	—
1N3803	MOT	4.69	—
1N3808B	MOT	8.69	—
1N3817	MOT	5.94	—
1N3821	MOT	2.10	29
1N3823	MOT	2.10	29
1N3824	MOT	2.10	29
1N3825	MOT	2.10	29
1N3825A	IR	2.65	—
1N3826	MOT	2.10	29
1N3826A	MOT	2.65	—
1N3827	MOT	2.10	29,
1N3827A	MOT	2.65	—
1N3828	MOT	2.10	29
1N3828A	MOT	2.65	—
1N3829	MOT	2.10	29
1N3830	MOT	2.10	29
1N3830A/ 1M7.5AZ	MOT	2.65	—

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr	1-24	Page
1N3879	MOT	2.10	29
1N3880	MOT	2.50	29
1N3880	GE	3.79	78
1N3881	MOT	3.00	36
1N3883	MOT	4.00	36
1N3889	MOT	2.60	36
1N3890	MOT	3.00	36
1N3890R	GE	3.84	—
1N3891	MOT	3.50	36
1N3893	MOT	5.50	36
1N3899	MOT	4.00	36
1N3901	MOT	4.90	36
1N3901	GE	6.22	—
1N3909	MOT	4.50	36
1N3910	MOT	5.10	36
1N3913	GE	10.13	78
1N3990R	GE	10.80	—
1N3993	MOT	5.65	29
1N3994A	MOT	7.70	—
1N3996	MOT	5.65	29
1N3996A	MOT	7.70	—
1N3996RA	MOT	7.70	29
1N3997	MOT	5.65	29
1N3997A	MOT	7.70	—
1N3998	MOT	5.65	29
1N3998A	MOT	7.70	—
1N3998A	IR	7.00	89
1N3999	MOT	5.65	29
1N3999RA	MOT	7.70	—
1N4000	MOT	5.65	29
1N4001	MOT	.25	36
1N4001	GI	.29	—
1N4001	IR	.30	93
1N4001G	TI	.39	—
1N4002	MOT	.26	36
1N4002	IR	.32	93
1N4002	GI	.32	—
1N4002G	TI	.44	—
1N4003	MOT	.27	36
1N4003	IR	.34	93
1N4003G	TI	.50	—
1N4004	MOT	.30	36
1N4004	GI	.36	—
1N4004	IR	.37	93
1N4004G	TI	.56	—
1N4005	MOT	.35	36
1N4005	IR	47	93
1N4006	MOT	.44	36
1N4006	IR	.57	93
1N4007	MOT	.55	36
1N4007	IR	.63	93
1N4050	GE	32.50	—
1N4054	GE	40.50	—
1N4099	MOT	3.85	29
1N4100	MOT	3.85	29
1N4101	MOT	3.85	29
1N4103	MOT	3.85	29
1N4104	MOT	3.85	29
1N4105	MOT	3.85	29
1N4106	MOT	3.85	29
1N4109	MOT	3.85	29
1N4116	MOT	3.85	29
1N4118	MOT	3.85	29
1N4148	TI	.16	59
1N4148 (1N914)	GE	.33	—
1N4148JAN	TI	.19	—
1N4148JANTX	TI	1.29	—
1N4149	TI	.17	59
1N4150	TI	.23	59
1N4151 (1N3604)	GE	.83	—
1N4151	TI	.21	59
1N4152	TI	.21	59
1N4152 (1N3605)	GE	.66	—
1N4153	TI	.21	59
1N4153 (1N3606)	GE	.83	—
1N4154	TI	.20	59
1N4154 (1N4009)	GE	.36	—
1N4156	GE	.75	—
1N4157	GE	1.04	—
1N4245	GE	.38	—
1N4247	GE	.59	77
1N4248	GE	1.05	—
1N4249	GE	1.19	77
1N4305	TI	.20	59
1N4370	MOT	.95	29
1N4370A	MOT	.95	—
1N4371	MOT	.95	29
1N4371A	MOT	.95	—
1N4372	MOT	.95	29
1N4372A	MOT	.95	—
1N4444	TI	.20	59
1N4446	TI	.20	59
1N4446/ 1N914A	GE	.40	—
1N4448	TI	.19	59
1N4449	TI	.19	59
1N4454	TI	.21	59
1N4454 (1N3064)	GE	.26	—
1N4510	GE	11.80	—
1N4529/A38P	GE	13.50	—
1N4530(A38PB)	GE	17.25	—
1N4531	TI	.24	59
1N4549	MOT	6.05	—
1N4552	MOT	6.05	—
1N4552A	MOT	8.00	—
1N4554B	MOT	11.50	—
1N4561	MOT	6.05	—
1N4562	MOT	6.05	—
1N4565	MOT	8.65	—
1N4571	MOT	7.30	—
1N4575	MOT	3.00	—
1N4576A	MOT	4.05	—
1N4582	MOT	6.60	—
1N4606	GE	.30	—
1N4607	TI	.25	59
1N4608	GE	1.58	—
1N4719	MOT	1.10	36
1N4720	MOT	1.20	36
1N4721	MOT	1.30	36
1N4722	MOT	1.50	36
1N4723	MOT	1.70	36
1N4724	MOT	2.50	36
1N4725	MOT	3.80	36
1N4727	TI	.24	59
1N4728	MOT	1.26	29
1N4728	TI	.59	—
1N4728A	MOT	1.93	—
1N4728A	IR	1.45	89
1N4728A	TI	.64	—
1N4729	MOT	1.26	29
1N4729	TI	.59	—
1N4729A	MOT	1.93	—
1N4729A	TI	.64	—
1N4729A	IR	1.45	89
1N4730	MOT	1.26	29
1N4730	TI	.59	—
1N4730A	MOT	1.93	—
1N4730A	TI	.64	—
1N4730A	IR	1.45	89
1N4731	MOT	1.26	29
1N4731	TI	.59	—
1N4731A	MOT	1.93	—
1N4731A	TI	.64	—
1N4731A	IR	1.45	89
1N4732	MOT	1.26	29
1N4732	TI	.59	—
1N4732A	MOT	1.93	—
1N4732A	TI	.64	—
1N4732A	IR	1.45	89
1N4733	MOT	1.26	29
1N4733	TI	.59	—
1N4733A	MOT	1.93	—
1N4733A	TI	.64	—
1N4733A/ G4.7T5	IR	1.45	—
1N4734	MOT	1.26	29
1N4734	TI	.60	—
1N4734A	MOT	1.93	—
1N4734A	TI	.64	—
1N4734A/ G5.1T5	IR	1.45	—
1N4735	MOT	1.26	29
1N4735	TI	.59	—
1N4735A	MOT	1.93	—
1N4735A	TI	.64	—
1N4735A/ G5.6T5	IR	1.45	—
1N4736	MOT	1.26	29
1N4736	TI	.59	—
1N4736A	MOT	1.93	—
1N4736A	TI	.64	—
1N4736A/ G6.2T5	IR	1.45	—
1N4737	MOT	1.26	29
1N4737	TI	.59	—
1N4737A	MOT	1.93	—
1N4737A	TI	.64	—
1N4738	MOT	1.26	29
1N4738	TI	.59	—
1N4738A	MOT	1.93	—
1N4738A	TI	.64	—
1N4738A/ G7.5T5	IR	1.45	—
1N4739	MOT	1.26	29
1N4739	TI	.59	—
1N4739A	MOT	1.93	—
1N4739A	TI	.64	—
1N4739A/ G8.2T5	IR	1.45	—
1N4740	MOT	1.26	29
1N4740	TI	.59	—
1N4740A	MOT	1.93	—
1N4740A	IR	1.45	89
1N4740A	TI	.64	—
1N4741	MOT	1.26	—
1N4741	TI	.59	—
1N4741A	MOT	1.93	—
1N4741A	TI	.64	—
1N4742	MOT	1.26	29
1N4742	TI	.59	—
1N4742A	MOT	1.93	—
1N4742A	TI	.64	—
1N4742A/ G11T5	IR	1.45	—
1N4743	MOT	1.26	29
1N4743	TI	.59	—
1N4743A	MOT	1.93	—
1N4743A	TI	.64	—
1N4743A	IR	1.45	89
1N4744	MOT	1.26	29
1N4744	TI	.59	—
1N4744A	MOT	1.93	—
1N4744A	TI	.64	—
1N4744A/ G13T5	IR	1.45	—
1N4745	MOT	1.26	29
1N4745	TI	.59	—
1N4745A	MOT	1.93	—
1N4745A	TI	.64	—
1N4745A	IR	1.45	89
1N4746	MOT	1.26	29
1N4746	TI	.59	—
1N4746A	MOT	1.93	—
1N4746A	TI	.64	—
1N4746A/ G16T5	IR	1.45	—
1N4747	MOT	1.26	29
1N4747	TI	.59	—
1N4747A	MOT	1.93	—
1N4747A	TI	.64	—
1N4747A/ G18T5	IR	1.45	—
1N4748	MOT	1.26	29
1N4748	TI	.59	—
1N4748A	MOT	1.93	—
1N4748A	TI	.64	—
1N4749	MOT	1.26	29
1N4749	TI	.59	—
1N4749A	MOT	1.93	—
1N4749A	TI	.64	—
1N4749A/ G22T5	IR	1.45	—
1N4750	MOT	1.26	29
1N4750	TI	.59	—
1N4750A	IR	1.45	89
1N4750A	MOT	1.93	—
1N4750A	TI	.64	—
1N4751	MOT	1.26	29
1N4751	TI	.59	—
1N4751A	MOT	1.93	—
1N4751A	TI	.64	—
1N4751A	IR	1.45	89
1N4752	MOT	1.26	29
1N4752	TI	.59	—
1N4752A	TI	.64	—
1N4752A	MOT	1.93	—
1N4752A	IR	1.45	89
1N4753	MOT	1.26	29
1N4753A	MOT	1.93	—
1N4753A	IR	1.45	89
1N4754	MOT	1.26	29
1N4754A	MOT	1.93	—
1N4854A	IR	1.45	89
1N4755	MOT	1.26	29
1N4755A	MOT	1.93	—
1N4755A	IR	1.45	89
1N4756	MOT	1.26	29
1N4756A	MOT	1.93	—
1N4756A	IR	1.45	89
1N4757	MOT	1.26	29
1N4757A	IR	1.45	—
1N4757A	MOT	1.93	—
1N4758	MOT	1.26	29
1N4758A	MOT	1.93	—
1N4759	MOT	1.26	29
1N4759A	MOT	1.93	—
1N4759A	IR	1.45	89
1N4760	MOT	1.26	29
1N4761	MOT	1.26	29
1N4761A	MOT	1.93	—
1N4761A	IR	1.45	89
1N4762	MOT	1.26	29
1N4762A	IR	1.45	89
1N4763	MOT	1.26	29
1N4763A	MOT	1.93	—
1N4763A	IR	1.45	89
1N4764	MOT	1.26	29
1N4764A	MOT	1.93	—
1N4764A	IR	1.45	89
1N4816	IR	.32	—
1N4817	IR	.35	—
1N4818	IR	.39	—
1N4819	IR	.40	—
1N4820	IR	.43	—
1N4821	IR	.45	—
1N4822	IR	.50	—
1N4829	GE	.76	—
1N4830	GE	1.02	—
1N4864	GE	2.10	—
1N4933	MOT	.33	36
1N4934	MOT	.37	36
1N4935	MOT	.42	36
1N4936	MOT	.46	36
1N4937	MOT	.51	36
1N4938	TI	.25	59
1N4997	MOT	1.10	36
1N4998	MOT	1.20	36
1N4999	MOT	1.30	36
1N5000	MOT	1.50	36
1N5001	MOT	1.70	36
1N5002	MOT	2.50	36
1N5003	MOT	3.80	36
1N5053	IR	.92	—
1N5054	IR	1.22	—
1N5059	GE	.36	78
1N5060	GE	.47	78
1N5061	GE	.63	78
1N5062	GE	.95	78
1N5139	MOT	3.60	—
1N5140	MOT	3.60	—
1N5148A	MOT	4.25	—
1N5213	RCA	.56	73
1N5215	RCA	.42	73
1N5217	RCA	.60	73
1N5221	MOT	.60	29
1N5221A/ .5M2.4ZS1	MOT	.80	—
1N5221B	MOT	.93	—
1N5222	MOT	.60	—
1N5222B	MOT	.93	—
1N5223	MOT	.60	29
1N5223A/ .5M2.7ZS5	MOT	.80	—

NEW TYPES STOCKED AS SOON AS RELEASED

Type	Mfr	1-24	Page
1N5223B/.5M2.7ZS	MOT	.93	—
1N5224B	MOT	.93	—
1N5225	MOT	.60	29
1N5225A/.5M2.7ZS	MOT	.80	—
1N5225B	MOT	.93	—
1N5226	MOT	.42	29
1N5226A	MOT	.42	—
1N5226B	MOT	.42	—
1N5227	MOT	.42	29
1N5227A	MOT	.42	—
1N5227B	MOT	.42	—
1N5227B	IR	.95	—
1N5228	MOT	.42	29
1N5228A/.5M3.9ZS1	MOT	.42	—
1N5228B	MOT	.42	—
1N5229	MOT	.42	29
1N5229A	MOT	.42	—
1N5229B	MOT	.42	—
1N5230	MOT	.42	29
1N5230B	MOT	.42	—
1N5230B	IR	.95	—
1N5231	MOT	.42	29
1N5231A	MOT	.42	—
1N5231B	IR	.95	—
1N5231B	MOT	.42	—
1N5232	MOT	.42	29
1N5232A	MOT	.42	—
1N5232B	MOT	.42	—
1N5232B	IR	.95	—
1N5233	MOT	.42	—
1N5233A	MOT	.42	—
1N5233B/.5M6.0ZS5	MOT	.42	—
1N5234	MOT	.42	29
1N5234A	MOT	.42	—
1N5234B	MOT	.42	—
1N5235	MOT	.42	—
1N5235A	MOT	.42	—
1N5235B	MOT	.42	—
1N5235B	IR	.95	—
1N5236	MOT	.42	29
1N5236A	MOT	.42	—
1N5236B	IR	.95	—
1N5236B	MOT	.42	—
1N5237	MOT	.42	—
1N5237A	MOT	.42	—
1N5237B	MOT	.42	—
1N5238	MOT	.42	—
1N5238B	MOT	.42	—
1N5239	MOT	.42	29
1N5239A	MOT	.42	—
1N5239B	MOT	.42	—
1N5240	MOT	.42	29
1N5240A	MOT	.42	—
1N5240B	MOT	.42	—
1N5241	MOT	.42	29
1N5241B	MOT	.42	—
1N5242	MOT	.42	29
1N5242A	MOT	.42	—
1N5242B	MOT	.42	—
1N5242B	IR	.95	29
1N5243	MOT	.42	—
1N5243A	MOT	.42	—
1N5243B	MOT	.42	—
1N5243B	IR	.95	—
1N5244	MOT	.42	—
1N5244B	MOT	.42	29
1N5245	MOT	.42	—
1N5245A	MOT	.42	—
1N5245B	MOT	.42	—
1N5245B	IR	.95	29
1N5246	MOT	.42	—
1N5246A	TI	.45	—
1N5246B	MOT	.42	—
1N5246B	IR	.95	—
1N5247	MOT	.42	—
1N5247B	IR	.95	—
1N5248	MOT	.42	29
1N5248A/.5M18ZS10	MOT	.42	—
1N5248B/.5M18ZS5	MOT	.42	—
1N5248B	IR	.95	—
1N5249	MOT	.42	—
1N5249B	MOT	.42	—
1N5250	MOT	.42	29
1N5250B	MOT	.42	—
1N5250B	IR	.95	—
1N5251	MOT	.42	29
1N5251B	MOT	.42	—
1N5251B	IR	.95	—
1N5252	MOT	.42	29
1N5252A	MOT	.42	—
1N5252B	MOT	.42	—
1N5252B	IR	.95	—
1N5253	MOT	.42	—
1N5253B	MOT	.42	—
1N5254	MOT	.42	29
1N5254B	MOT	.42	—
1N5254B	IR	.95	—
1N5255	MOT	.42	—
1N5255B	MOT	.42	—
1N5256	MOT	.42	29
1N5256B	MOT	.42	—
1N5257	MOT	.42	29
1N5257B	MOT	.42	—
1N5258	MOT	.42	29
1N5258A	MOT	.42	—
1N5258B	MOT	.42	—
1N5259	MOT	.42	29
1N5259B	IR	.95	—
1N5260	MOT	.42	29
1N5260B	MOT	.42	—
1N5261	MOT	.42	29
1N5261B	MOT	.42	—
1N5262	MOT	.80	—
1N5262A	MOT	.95	29
1N5262B	MOT	1.13	29
1N5263	MOT	.80	—
1N5265	MOT	.80	29
1N5267A	MOT	.95	29
1N5268	MOT	.80	29
1N5270	MOT	.80	—
1N5271	MOT	1.05	—
1N5271B	MOT	1.44	—
1N5272	MOT	1.05	29
1N5273	MOT	1.05	29
1N5273B/.5M120ZS5	MOT	1.44	—
1N5274	MOT	1.05	29
1N5276	MOT	1.05	29
1N5276A	MOT	1.20	—
1N5279B	MOT	1.44	—
1N5281	MOT	1.05	29
1N5283	MOT	5.50	—
1N5288	MOT	3.30	—
1N5290	MOT	5.50	—
1N5291	MOT	2.30	—
1N5333	MOT	2.20	29
1N5333A	MOT	2.20	—
1N5333B	MOT	2.45	—
1N5334	MOT	2.20	29
1N5334A	MOT	2.20	—
1N5334B	MOT	2.45	—
1N5335	MOT	2.20	29
1N5335B	MOT	2.45	—
1N5336A	MOT	2.20	—
1N5337	MOT	2.20	29
1N5337B	MOT	2.45	—
1N5338	MOT	2.20	29
1N5338A	MOT	2.20	—
1N5338B	MOT	2.45	—
1N5339	MOT	2.20	29
1N5339A	MOT	2.20	—
1N5339B	MOT	2.45	—
1N5339B	IR	2.45	89
1N5340	MOT	2.20	—
1N5340A	MOT	2.20	—
1N5340B	MOT	2.45	—
1N5341	MOT	2.20	29
1N5341A	MOT	2.20	—
1N5341B	MOT	2.45	—
1N5341B	IR	2.45	89
1N5342	MOT	2.20	29
1N5342A	MOT	2.20	—
1N5342B	MOT	2.45	—
1N5342B	IR	2.45	89
1N5343	MOT	2.20	29
1N5343A	MOT	2.20	—
1N5343B	MOT	2.45	—
1N5343B	IR	2.45	89
1N5344	MOT	2.20	29
1N5344A	MOT	2.20	—
1N5344B	MOT	2.45	—
1N5346	MOT	2.20	—
1N5346A	MOT	2.20	—
1N5346B	MOT	2.45	—
1N5347	MOT	2.20	29
1N5347A	MOT	2.20	—
1N5347B	MOT	2.45	—
1N5347B	IR	2.45	89
1N5348	MOT	2.20	29
1N5348A	MOT	2.20	—
1N5348B	MOT	2.45	—
1N5348B	IR	2.20	89
1N5349	MOT	2.20	29
1N5349A	MOT	2.20	—
1N5349B	MOT	2.45	—
1N5349B	IR	2.45	89
1N5350	MOT	2.20	29
1N5350B	MOT	2.45	—
1N5351	MOT	2.20	—
1N5351A	MOT	2.20	—
1N5351B	MOT	2.45	—
1N5352	MOT	2.20	29
1N5352A	MOT	2.20	—
1N5352B	MOT	2.45	—
1N5352B	IR	2.45	89
1N5353	MOT	2.20	29
1N5353B	MOT	2.45	—
1N5353B	IR	2.45	89
1N5354	MOT	2.20	—
1N5355	MOT	2.20	29
1N5355A	MOT	2.20	—
1N5355B	MOT	2.45	—
1N5356B	MOT	2.45	—
1N5357	MOT	2.20	29
1N5357A	MOT	2.20	—
1N5357B	MOT	2.45	—
1N5358	MOT	2.20	29
1N5358A	MOT	2.20	—
1N5358B	MOT	2.45	—
1N5359	MOT	2.20	29
1N5359A	MOT	2.20	—
1N5359B	MOT	2.45	—
1N5359B	IR	2.45	89
1N5360	MOT	2.20	—
1N5360B	MOT	2.45	—
1N5361	MOT	2.20	29
1N5361A	MOT	2.20	—
1N5361B	MOT	2.45	—
1N5362	MOT	2.20	—
1N5362B	MOT	2.45	—
1N5363	MOT	2.20	29
1N5363A	MOT	2.20	—
1N5363B	MOT	2.45	—
1N5364	MOT	2.20	29
1N5364B	MOT	2.45	—
1N5365	MOT	2.20	29
1N5365A	MOT	2.20	—
1N5365B	MOT	2.45	—
1N5365B	IR	2.45	89
1N5366	MOT	2.20	29
1N5366A	MOT	2.20	—
1N5366B	MOT	2.45	—
1N5367	MOT	2.20	29
1N5367A	MOT	2.20	—
1N5367B	MOT	2.45	—
1N5368	MOT	2.20	29
1N5368A	MOT	2.20	—
1N5368B	MOT	2.45	—
1N5369	MOT	2.20	29
1N5369A	MOT	2.20	—
1N5369B	MOT	2.45	—
1N5370B	MOT	2.45	—
1N5371	MOT	2.20	—
1N5372A	MOT	2.20	—
1N5372B	MOT	2.45	—
1N5373A	MOT	2.20	—
1N5373B	MOT	2.45	—
1N5374	MOT	2.20	29
1N5375	MOT	2.20	29
1N5376	MOT	2.20	—
1N5376B	MOT	2.45	—
1N5377	MOT	2.20	29
1N5378	MOT	2.20	29
1N5378B	MOT	2.45	—
1N5379	MOT	2.60	29
1N5379B	MOT	2.85	—
1N5380	MOT	2.60	29
1N5380B	MOT	2.85	—
1N5381	MOT	2.60	29
1N5381B	MOT	2.85	—
1N5382B	MOT	2.85	—

Key	Mfr.
GE	General Electric
GI	General Instrument
IDI	International Devices Inc.
IR	International Rectifier
LAN	Lansdale
MON	Monsanto
MOT	Motorola Motorola—HEP
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr	1-24	Page
1N5383	MOT	2.60	29
1N5383A	MOT	2.60	—
1N5383B	MOT	2.85	—
1N5384	MOT	2.60	29
1N5384B	MOT	2.85	—
1N5386B	MOT	2.85	—
1N5388	MOT	2.60	29
1N5388A	MOT	2.60	—
1N5388B	MOT	2.85	—
1N5443A	MOT	3.10	—
1N5447A	MOT	3.10	—
1N5521	MOT	2.95	29
1N5523	MOT	2.95	29
1N5525	MOT	2.95	29
1N5624	GE	.75	78
1N5625	GE	1.00	78
1N5626	GE	1.53	78
1N5627	GE	3.75	78
1N5758/MPT20	MOT	.53	34
1N5758A	MOT	.58	34
1N5760/MPT28	MOT	.53	34
1N5761/MPT32	MOT	.53	34
1N5762/MPT36	MOT	.53	34
1N5823	MOT	4.50	35
1N5829	MOT	5.10	35
2N43A	IDI	2.25	—
2N173	LAN	6.38	100
2N174	LAN	6.87	100
2N176	IDI	2.00	101
2N242	IDI	2.00	101
2N250A	IDI	2.50	—
2N277	LAN	3.31	100
2N278	LAN	4.05	100
2N297A	IDI	2.95	101
2N301	IDI	2.00	—
2N301A	IDI	2.05	—
2N307	IDI	2.00	—
2N307A	IDI	2.00	101
2N322	IDI	1.85	101
2N323	IDI	1.85	101
2N324	IDI	1.85	101
2N335	TI	5.88	—
2N336	TI	5.10	—
2N338	TI	4.46	—
2N350A	IDI	8.00	101
2N351A	IDI	2.50	101
2N375	IDI	4.75	101
2N376A	IDI	2.63	101
2N378	IDI	1.50	101
2N379	IDI	1.75	101
2N380	LAN	3.85	—
2N380	IDI	1.55	101
2N388	TI	4.72	—
2N388	IDI	1.45	101
2N388A	IDI	1.35	101
2N388A	TI	6.03	—
2N395	IDI	1.90	101
2N396	IDI	2.10	101
2N396	TI	3.77	—
2N397	TI	6.03	—
2N404	TI	3.20	—
2N404	IDI	2.00	101
2N404A	IDI	2.00z	101
2N404A	TI	4.72	—
2N427	IDI	1.80	101
2N428	IDI	2.60	101
2N438	TI	3.28	—
2N440	TI	3.77	—
2N441	LAN	4.67	100
2N442	LAN	5.96	100

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr	1-24	Page
2N443	LAN	6.72	100
2N456A	IDI	2.70	101
2N457A	IDI	2.85	101
2N457B	LAN	4.09	—
2N458A	IDI	3.45	—
2N459	IDI	5.93	101
2N459A	IDI	6.00	101
2N464	IDI	1.20	101
2N465	IDI	1.20	101
2N466	IDI	1.20	101
2N467	IDI	1.20	101
2N489	GE	17.77	86
2N490	TI	19.60	—
2N490	GE	18.55	86
2N491	TI	21.07	—
2N491	GE	19.53	86
2N491A/JAN	GE	23.26	86
2N492	TI	24.60	—
2N492	GE	20.47	86
2N494C	GE	35.82	86
2N497	TI	5.39	—
2N498	TI	5.39	—
2N524	LAN	2.73	—
2N525	LAN	2.79	—
2N526	IDI	1.50	101
2N526	LAN	3.09	—
2N527	LAN	3.27	—
2N527	IDI	1.55	101
2N527	TI	1.55	—
2N553	IDI	4.13	—
2N554	IDI	2.13	101
2N555	IDI	2.13	101
2N595	IDI	4.25	101
2N596	IDI	2.10	101
2N597	IDI	2.25	54
2N656	TI	5.39	—
2N656	MOT	1.50	38
2N656A	TI	2.35	54
2N657	TI	5.39	55
2N657A	TI	5.00	55
2N665	IDI	5.25	101
2N669	IDI	1.85	101
2N681	MOT	2.34	33
2N681	GE	2.63	—
2N682	MOT	2.82	33
2N682	GE	2.80	—
2N683	MOT	3.57	33
2N683	GE	3.51	—
2N684	MOT	4.19	—
2N685	MOT	4.81	33
2N685	RCA	5.50	72
2N685	GE	5.26	—
2N686	MOT	5.36	—
2N686	GE	5.77	—
2N687	MOT	5.77	33
2N687	GE	6.02	—
2N688	MOT	6.74	33
2N688	RCA	7.70	72
2N688	GE	7.01	—
2N689	MOT	8.05	33
2N689	RCA	9.19	72
2N689	GE	7.43	—
2N690	MOT	8.67	33
2N690	RCA	9.90	—
2N690	GE	7.83	—
2N696	TI	1.03	56
2N697	MOT	.52	38
2N697	TI	1.71	86
2N697	RCA	.52	86
2N698	TI	1.54	—
2N699	MOT	1.32	—
2N699	TI	1.29	—
2N699	RCA	.99	—
2N706	MOT	.69	—
2N706A	MOT	1.18	—
2N706B	MOT	1.48	—
2N708	MOT	.45	—
2N718	MOT	.46	38
2N718	TI	.74	56
2N718A	MOT	.62	—
2N718A	TI	.81	56
2N718A	RCA	1.10	—
2N719A	TI	1.42	56
2N720	TI	1.08	56
2N720A	MOT	1.32	—
2N720A	TI	1.37	55
2N720A	RCA	1.32	—
2N722	TI	1.54	56
2N731	TI	1.08	56
2N834	MOT	2.00	—
2N871	TI	1.57	56
2N910	TI	1.71	56
2N914	MOT	.95	—
2N915	MOT	1.05	38
2N916	MOT	.85	38
2N918	MOT	.73	38
2N918	TI	2.84	59
2N929	MOT	1.55	37
2N929	TI	2.21	59
2N930	MOT	.45	37
2N930	TI	1.47	59
2N930JAN	TI	1.81	—
2N930A	MOT	1.80	37
2N956	MOT	.85	38
2N1008A	IDI	3.65	101
2N1011	IDI	2.78	101
2N1021	IDI	3.12	101
2N1022	IDI	3.52	—
2N1047	TI	10.04	55
2N1048	TI	12.04	55
2N1073	IDI	8.75	101
2N1073A	IDI	10.00	101
2N1099	LAN	4.69	100
2N1100	LAN	10.42	100
2N1131	MOT	1.30	—
2N1131	TI	1.22	—
2N1131A	MOT	1.43	38
2N1132	MOT	.71	38
2N1132	TI	1.42	56
2N1162	LAN	3.62	100
2N1163	LAN	3.99	100
2N1164	LAN	5.64	100
2N1165	LAN	5.90	100
2N1166	LAN	7.10	100
2N1167	LAN	7.47	100
2N1175	IDI	1.25	101
2N1185	IDI	2.95	101
2N1189	IDI	3.30	101
2N1190	IDI	3.30	101
2N1191	IDI	2.75	101
2N1192	IDI	2.80	101
2N1193	IDI	3.15	101
2N1194	IDI	3.40	—
2N1274	TI	4.30	59
2N1302	TI	3.12	—
2N1303	TI	3.28	—
2N1304	TI	3.28	—
2N1304	IDI	2.10	101
2N1305	IDI	2.10	101
2N1305	TI	3.58	—
2N1306	IDI	2.35	101
2N1306	TI	4.30	—
2N1307	IDI	2.35	101
2N1307	TI	4.30	—
2N1308	IDI	3.25	101
2N1308	TI	6.03	—
2N1309	IDI	3.25	101
2N1309	TI	6.03	—
2N1359	IDI	2.75	101
2N1360	IDI	2.85	101
2N1362	IDI	3.85	101
2N1363	IDI	4.65	101
2N1370	IDI	2.25	101
2N1370	LAN	2.55	—
2N1370	TI	4.72	—
2N1371	IDI	2.35	101
2N1372	LAN	2.73	—
2N1372	IDI	2.45	101
2N1372	TI	5.22	59
2N1373	IDI	2.45	101
2N1374	IDI	2.45	101
2N1374	LAN	2.82	—
2N1374	TI	5.22	—
2N1375	IDI	2.65	101
2N1376	LAN	2.91	—
2N1376	IDI	2.65	101
2N1376	TI	5.22	—
2N1377	IDI	3.10	101
2N1378	IDI	3.25	101
2N1378	LAN	2.36	—
2N1379	LAN	2.45	—
2N1379	TI	5.03	—
2N1380	IDI	2.30	101
2N1380	LAN	2.18	—
2N1381	LAN	2.27	—
2N1381	IDI	2.30	101
2N1382	LAN	2.36	—
2N1382	IDI	2.50	101
2N1383	LAN	2.55	—
2N1383	IDI	2.50	101
2N1404	IDI	1.95	101
2N1404	TI	3.58	—
2N1413	IDI	1.80	101
2N1414	IDI	1.80	101
2N1415	IDI	1.80	101
2N1479	RCA	1.12	68
2N1480	RCA	1.30	68
2N1481	RCA	1.30	—
2N1482	RCA	1.47	68
2N1483	RCA	1.73	68
2N1484	RCA	1.91	68
2N1485	RCA	1.91	68
2N1487	RCA	2.16	68
2N1488	RCA	2.26	68
2N1489	RCA	2.26	68
2N1490	RCA	2.51	68
2N1518	LAN	5.30	100
2N1519	LAN	7.65	100
2N1520	LAN	5.44	100
2N1521	LAN	7.80	100
2N1522	LAN	8.18	100
2N1523	LAN	7.94	100
2N1529	LAN	2.64	—
2N1529	IDI	1.90	101
2N1530	IDI	1.90	101
2N1531	IDI	3.25	101
2N1532	IDI	4.00	101
2N1534	IDI	2.90	101
2N1535	IDI	2.90	101
2N1536	IDI	3.60	101
2N1537	IDI	5.65	101
2N1539	IDI	3.00	101
2N1540	IDI	3.50	101
2N1541	IDI	3.85	101
2N1542	IDI	4.50	101
2N1544	LAN	2.45	—
2N1546	IDI	3.40	—
2N1547	IDI	5.40	—
2N1595	TI	1.47	53
2N1595	GE	1.95	—
2N1595S	MOT	1.25	33
2N1596	TI	1.84	53
2N1596	GE	2.76	—
2N1597	TI	2.21	53
2N1597	GE	5.66	—
2N1598S	MOT	2.91	33
2N1605	TI	3.58	—
2N1613	TI	.77	56
2N1613	RCA	.65	—
2N1613	MOT	.65	33
2N1613JAN	TI	1.18	—
2N1651	LAN	6.24	100
2N1652	LAN	7.80	100
2N1653	LAN	11.31	100
2N1671	TI	8.48	—
2N1671	GE	6.87	86
2N1671A	TI	9.46	—
2N1671A	GE	7.65	86
2N1671B	TI	10.29	—
2N1671B	GE	8.44	86
2N1700	RCA	1.90	—
2N1701	RCA	2.31	—
2N7102	RCA	4.54	—
2N1711	TI	.83	56
2N1711	MOT	.71	38
2N1711	RCA	.80	—
2N1720	TI	6.76	55
2N1771	GE	2.55	—
2N1771A	GE	3.15	—
2N1774	GE	6.30	—
2N1774A	GE	6.90	—
2N1775A	GE	8.10	—
2N1777	GE	9.30	—
2N1777A	GE	9.90	—
2N1808	TI	4.72	—
2N1842	MOT	2.90	33
2N1846	MOT	4.41	33
2N1846A	MOT	4.46	33
2N1847	MOT	5.05	—
2N1848A	MOT	5.51	33
2N1849	MOT	6.49	33
2N1850	MOT	7.51	33
2N1893	RCA	.87	—
2N1913	GE	24.00	—
2N1916	GE	33.00	—
2N1924	LAN	3.64	—
2N1925	LAN	4.00	—
2N1926	LAN	4.18	—
2N1973	TI	1.71	56
2N1994	IDI	1.90	101
2N1997	IDI	1.70	101
2N1998	IDI	1.70	101
2N2027	GE	38.00	—
2N2060	MOT	4.10	41
2N2060	TI	6.61	58
2N2075	LAN	8.25	100
2N2076	LAN	6.00	100
2N2077	LAN	4.85	100
2N2078	LAN	4.33	—
2N2079	LAN	8.41	100
2N2080	LAN	6.16	100
2N2081	LAN	5.00	100
2N2082	LAN	3.08	100
2N2102	MOT	1.20	—
2N2102	TI	.97	56
2N2102	RCA	1.17	—
2N2102A	TI	1.02	—
2N2138	IDI	2.15	101
2N2139	TI	5.39	101
2N2140	IDI	3.80	101
2N2142	IDI	2.10	101
2N2143	IDI	2.15	101
2N2144	IDI	3.19	101
2N2151	TI	16.91	55
2N2152	LAN	8.42	100
2N2153	LAN	9.95	100
2N2154	LAN	6.61	100
2N2155	LAN	8.85	100
2N2156	LAN	4.19	100
2N2157	LAN	5.14	100
2N2158	LAN	6.69	100
2N2159	LAN	8.93	100
2N2160	TI	5.39	—
2N2160	GE	6.51	86
2N2192	TI	1.82	56
2N2192A	TI	1.92	56
2N2193	TI	1.71	56
2N2193A	MOT	3.15	38
2N2218	MOT	.65	38
2N2218	TI	1.18	56
2N2218	SPR	.80	—
2N2218A	TI	1.71	56
2N2218A	SPR	.92	—
2N2219	MOT	.70	38
2N2219	TI	.98	56
2N2219JAN	TI	1.18	—
2N2219A	TI	1.47	56
2N2219A	MOT	.73	38
2N2119A	SPR	.92	—
2N2219JAN	MOT	.59	—
2N2221	TI	1.13	—
2N2221A	MOT	.55	38
2N2221A	TI	1.67	—
2N2222	MOT	.48	38
2N2222	TI	.33	56
2N2222A	MOT	.52	38
2N2222A	TI	1.34	56
2N2222JAN	MOT	.57	—
2N2223	TI	4.85	58
2N2243	TI	1.81	56
2N2243A	TI	1.91	56
2N2257	MOT	1.27	—
2N2270	MOT	.78	38
2N2270	TI	.83	56
2N2270	RCA	.74	—
2N2322	GE	2.31	—
2N2322A	GE	4.29	—
2N2323	GE	2.54	—

NEW TYPES STOCKED AS SOON AS RELEASED

DISCRETE DEVICES

Type	Mfr	1-24	Page
2N2323A	GE	3.33	—
2N2324	GE	4.01	—
2N2325	GE	5.90*	—
2N2326	GE	7.59	—
2N2326A	GE	10.16	—
2N2331	MOT	3.35	—
2N2344	GE	4.50	—
2N2345(C7F)	GE	5.08	—
2N2357	LAN		100
2N2358	LAN		100
2N2359	LAN		100
2N2368	MOT	1.07	—
2N2369	MOT	.43	37
2N2369A	MOT	.45	37
2N2369AJAN	MOT	.53	—
2N2386	TI	2.65	57
2N2405	RCA	1.70	—
2N2432	TI	3.92	—
2N2480	MOT	4.85	—
2N2480A	MOT	5.70	41
2N2483	TI	.83	59
2N2484	MOT	.49	37
2N2484	TI	.78	59
2N2492	LAN	11.67	57
2N2498	TI	1.91	—
2N2501	MOT	4.70	59
2N2537	TI	1.62	57
2N2538	TI	1.62	33
2N2574	MOT	4.06	33
2N2575	MOT	4.95	33
2N2577	MOT	6.25	33
2N2578	MOT	7.27	33
2N2579	MOT	8.50	59
2N2586	TI	1.52	—
2N2605	TI	2.30	59
2N2608	TI	1.96	—
2N2640	MOT	2.47	—
2N2641	MOT	1.43	41
2N2642	MOT	3.55	34
2N2646	MOT	.41	—
2N2646	TI	.98	86
2N2646	GE	1.00	34
2N2647	MOT	.64	86
2N2647	GE	1.89	—
2N2652A	MOT	7.15	—
2N2711(16A1)	GE	.32	—
2N2712(16A2)	GE	.32	—
2N2712	SPR	.33	—
2N2713(16B1)	GE	.45	—
2N2714(16B2)	GE	.39	—
2N2714	SPR	.42	—
2N2840	GE	6.67	86
2N2857	MOT	1.47	—
2N2857	RCA	1.90	—
2N2876	RCA	12.35	—
2N2894	MOT	1.95	37
2N2894	TI	.69	59
2N2895	MOT	1.41	—
2N2897	MOT	1.16	—
2N2903	MOT	5.85	41
2N2904	MOT	.65	38
2N2904	TI	1.32	56
2N2904A	MOT	.69	38
2N2904A	TI	1.96	56
2N2905	MOT	.65	38
2N2905	TI	1.08	56
2N2905A	MOT	.68	38
2N2905A	TI	1.67	56
2N2905AJAN	TI	1.86	—
2N2906	MOT	.44	38
2N2906	TI	1.27	56
2N2906A	MOT	.46	38
2N2906A	TI	1.86	56
2N2907	MOT	.47	38
2N2907	TI	1.08	56
2N2907A	MOT	.49	38
2N2907A	TI	1.62	56
2N2913	MOT	2.70	41
2N2913	TI	2.65	58
2N2914	MOT	3.00	41
2N2914	TI	2.94	58
2N2915	TI	6.96	58
2N2916	TI	8.97	58
2N2917	TI	3.53	58
2N2918	TI	4.56	—
2N2919	MOT	4.70	41
2N2919	TI	7.69	58
2N2920	MOT	5.25	41
2N2920	TI	5.73	58
2N2920A	TI	8.58	—
2N2923	GE	.29	83
2N2924	GE	.32	83
2N2925	GE	.38	83
2N2926	GE	.27	83
2N2944	TI	2.70	—
2N2945	TI	2.45	—
2N2946	MOT	2.88	—
2N2946	TI	2.65	—
2N2959	MOT	2.70	—
2N2990	TI	6.76	—
2N3002	TI	1.32	53
2N3003	TI	1.47	53
2N3005	TI	1.03	53
2N3009	MOT	1.98	—
2N3011	MOT	1.00	—
2N3013	MOT	.81	—
2N3014	MOT	1.75	—
2N3015	TI	1.47	—
2N3036	TI	2.84	56, 57
2N3053	MOT	.55	38
2N3053	TI	.78	56
2N3053	RCA	.55	68
2N3054	MOT	.77	—
2N3054	RCA	1.24	—
2N3054A	MOT	.90	31
2N3055	MOT	.88	32
2N3055	TI	.84	55
2N3055	RCA	.91	69
2N3073	MOT	.90	—
2N3114	TI	2.21	56
2N3117	TI	1.67	—
2N3133	MOT	4.95	—
2N3137	MOT	1.95	—
2N3219	SPR	2.55	—
2N3228	RCA	1.47	—
2N3244	TI	2.45	57
2N3245	TI	2.55	57
2N3249	MOT	4.65	—
2N3250	MOT	.65	38
2N3250	TI	1.23	59
2N3250A	TI	1.32	—
2N3251	MOT	1.05	38
2N3251	TI	1.27	59
2N3251A	MOT	1.10	37
2N3251A	TI	1.37	57
2N3253	MOT	1.50	—
2N3253	TI	1.37	—
2N3291	MOT	1.50	—
2N3299	MOT	.75	—
2N3300	MOT	1.05	38
2N3307	MOT	10.50	38
2N3330	MOT	.85	40
2N3350	TI	6.37	58
2N3352	TI	3.92	58
2N3375	MOT	7.00	—
2N3375	RCA	8.75	—
2N3390	GE	.70	83
2N3391	GE	.43	83
2N3391A	GE	.47	83
2N3392	GE	.29	83
2N3392	SPR	.27	—
2N3393	GE	.29	—
2N3393	SPR	.29	—
2N3394	GE	.27	—
2N3395	GE	.40	—
2N3396	GE	.40	—
2N3397	GE	.40	—
2N3402	GE	.39	83
2N3403	GE	.42	—
2N3404	GE	.50	—
2N3405	GE	.61	83
2N3414	GE	.34	83
2N3414	SPR	.29	—
2N3415	GE	.37	—
2N3415	SPR	.32	—
2N3416	GE	.45	—
2N3416	SPR	.40	—
2N3417	GE	.56	83
2N3417	SPR	.42	—
2N3437	MOT	1.95	—
2N3439	MOT	1.09	37
2N3439	RCA	1.59	68
2N3439JAN	RCA	1.65	—
2N3440	MOT	.79	68
2N3440	TI	.87	—
2N3440	RCA	1.14	68
2N3441	MOT	1.00	—
2N3441	RCA	1.00	68
2N3442	MOT	1.49	—
2N3442	RCA	1.49	—
2N3445	MOT	3.38	32
2N3447	MOT	4.39	30, 32
2N3467	TI	2.60	57
2N3468	MOT	2.40	37
2N3478	RCA	1.55	56
2N3494	TI	3.19	56
2N3495	TI	3.53	37
2N3496	MOT	9.75	37
2N3498	MOT	6.60	37
2N3501	MOT	12.60	56
2N3502	TI	1.86	56
2N3503	TI	2.06	56
2N3505	TI	1.96	37
2N3506	MOT	11.55	37
2N3507	MOT	13.20	37
2N3509	MOT	5.40	—
2N3511	MOT	1.95	—
2N3525	RCA	1.77	—
2N3528	RCA	1.44	—
2N3529	RCA	1.75	—
2N3546	MOT	2.50	37
2N3553	MOT	1.45	40
2N3553	RCA	2.25	—
2N3568	IDI	.31	—
2N3572	TI	3.48	30
2N3583	RCA	1.09	—
2N3584	RCA	1.60	—
2N3585	MOT	1.65	—
2N3585	RCA	1.65	—
2N3611	IDI	1.95	101
2N3612	IDI	1.95	101
2N3613	IDI	1.95	101
2N3614	IDI	2.50	101
2N3615	IDI	2.70	101
2N3616	IDI	3.00	101
2N3617	IDI	2.70	101
2N3618	IDI	3.00	101
2N3632	MOT	8.40	—
2N3632	RCA	11.50	—
2N3634	MOT	13.20	37, 38
2N3635	MOT	14.40	37, 38
2N3638	IDI	.26	—
2N3638A	IDI	.27	—
2N3644	IDI	.33	—
2N3645	IDI	.33	—
2N3648	MOT	2.70	37
2N3649	GE	6.15	—
2N3656	GE	13.27	—
2N3657	GE	16.70	—
2N3658	GE	22.80	—
2N3662(16G1)	GE	.62	—
2N3663(16G2)	GE	.67	—
2N3668	RCA	2.39	72
2N3669	RCA	2.81	72
2N3680	TI	11.27	58
2N3702	TI	.36	—
2N3703	TI	.33	—
2N3704	TI	.33	—
2N3705	TI	.28	—
2N3706	TI	.26	—
2N3707	TI	.33	58
2N3708	TI	.26	—
2N3709	TI	.28	—
2N3710	TI	.26	—
2N3711	TI	.28	—
2N3713	TI	1.43	55
2N3713	MOT	1.28	32
2N3714	MOT	1.35	32
2N3714	TI	1.54	55
2N3715	MOT	1.28	32
2N3715	TI	1.83	55
2N3716	TI	2.42	55
2N3716	MOT	1.35	32
2N3720	MOT	5.75	30, 31
2N3724	TI	1.37	57
2N3724A	TI	1.86	57
2N3725	MOT	1.10	37
2N3725	TI	1.57	57
2N3725A	TI	2.16	57
2N3733	RCA	12.70	—
2N3736	MOT	4.95	37
2N3738	MOT	1.54	31
2N3739	MOT	1.82	31
2N3740	MOT	1.22	31
2N3741	MOT	1.28	—
2N3762	MOT	5.00	30, 37
2N3763	MOT	10.50	30, 37

Key	Mfr.
GE	General Electric
GI	General Instrument
IDI	International Devices Inc.
IR	International Rectifier
LAN	Lansdale
MON	Monsanto
MOT	Motorola Motorola—HEP
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr	1-24	Page
2N3766	MOT	1.49	31
2N3767	MOT	1.70	31
2N3771	TI	2.42	55
2N3771	MOT	2.67	32
2N3771	RCA	3.04	69
2N3772	TI	2.42	55
2N3772	MOT	2.90	32
2N3772	RCA	3.04	69
2N3772JAN	RCA	3.30	—
2N3773	MOT	2.88	32
2N3773	RCA	2.94	—
2N3789	MOT	1.28	32
2N3789	TI	1.69	55
2N3790	MOT	1.35	32
2N3791	MOT	1.28	32
2N3791	TI	2.21	55
2N3792	MOT	1.35	32
2N3792	TI	2.53	55
2N3796	MOT	3.45	40
2N3797	MOT	3.45	40
2N3798	MOT	3.20	37
2N3799	MOT	3.50	37
2N3799	TI	3.43	58
2N3811	TI	18.91	57
2N3819	TI	.55	—
2N3820	TI	.71	—
2N3821	MOT	1.25	—
2N3821	TI	2.45	—
2N3822	MOT	1.15	—
2N3822	TI	2.06	—
2N3823	MOT	1.10	40
2N3823	TI	1.86	—
2N3824	MOT	1.10	40
2N3824	TI	1.67	54
2N3829	TI	4.61	59
2N3854	GE	.34	83
2N3854A	GE	.36	83
2N3855	GE	.36	83
2N3855A	GE	.38	83
2N3856	GE	.38	83
2N3858	GE	.27	83
2N3858A	GE	.34	83
2N3859	GE	.29	83
2N3859A	GE	.36	83
2N3860	GE	.32	83
2N3866	MOT	1.09	40
2N3866	RCA	1.40	—
2N3866A	MOT	1.32	—
2N3870	MOT	3.63	33
2N3871	MOT	4.54	33
2N3871	RCA	4.54	72
2N3872	MOT	5.94	33
2N3872	RCA	6.78	72
2N3873	MOT	7.34	33
2N3873	RCA	8.82	72
2N3877	GE	.45	83
2N3877A-(D16X1)	GE	.52	83
2N3878	RCA	1.65	69
2N3879	RCA	2.70	72
2N3896	RCA	3.86	33
2N3897	MOT	4.87	73
2N3897	RCA	4.84	33
2N3898	MOT	6.27	72
2N3898	RCA	6.27	33
2N3899	MOT	7.67	72
2N3899	RCA	7.67	83
2N3900A	GE	.45	31
2N3902	MOT	5.75	39
2N3903	MOT	.47	83

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr	1-24	Page
2N3903	GE	.47	56
2N3903	TI	.54	39
2N3904	MOT	.49	83
2N3904	GE	.49	56
2N3904	TI	.54	—
2N3904	SPR	.42	39
2N3905	MOT	.50	83
2N3905	GE	.52	—
2N3905	TI	.54	39
2N3906	MOT	.52	83
2N3906	GE	.53	—
2N3906	TI	.54	—
2N3909	MOT	1.00	—
2N3924	MOT	3.20	—
2N3927	MOT	11.50	—
2N3946	MOT	2.40	38
2N3947	MOT	2.75	38
2N3959	MOT	3.80	—
2N3962	TI	.98	—
2N3963	TI	1.47	—
2N3964	TI	1.57	—
2N3965	TI	1.96	—
2N3970	MOT	1.50	—
2N3971	TI	2.94	57
2N3972	MOT	1.35	—
2N3976	SPR	.44	—
2N3993	TI	3.67	57
2N3993A	TI	5.39	57
2N3998	TI	16.34	55
2N4014/ 2N3725	MOT	1.90	37
2N4036	RCA	.97	69
2N4037	RCA	.78	69
2N4048	LAN	5.74	100
2N4049	LAN	6.99	100
2N4050	LAN	8.76	100
2N4051	LAN	5.89	100
2N4052	LAN	7.14	100
2N4053	LAN	8.94	100
2N4058	TI	.38	—
2N4059	TI	.39	—
2N4061	TI	.42	—
2N4062	TI	.36	—
2N4063	RCA	1.35	—
2N4064	RCA	1.06	—
2N4072	MOT	1.70	—
2N4091	MOT	1.05	—
2N4091	TI	3.09	57
2N4092	MOT	1.05	—
2N4093	MOT	1.10	—
2N4093	TI	2.11	57
2N4101	RCA	2.22	—
2N4102	RCA	2.22	—
2N4103	RCA	5.12	72
2N4104	TI	4.90	59
2N4123	MOT	.34	39
2N4123	TI	.38	56
2N4123	GE	.34	83
2N4124	MOT	.35	39
2N4124	GE	.35	83
2N4124	TI	.39	—
2N4125	MOT	.34	39
2N4125	GE	.35	83
2N4125	TI	.39	56
2N4126	MOT	.35	39
2N4126	GE	.36	83
2N4167	MOT	3.71	33
2N4168	MOT	3.75	33
2N4169	MOT	3.90	33
2N4170	MOT	4.01	33
2N4171	MOT	4.16	33
2N4172	MOT	4.42	33
2N4174	MOT	6.05	33
2N4183	MOT	3.69	33
2N4184	MOT	3.73	33
2N4185/ MCR2604L-3	MOT	3.88	33
2N4186	MOT	3.99	33
2N3187	MOT	4.14	33
2N4188	MOT	4.40	33
2N4190	MOT	6.03	33
2N4220	TI	1.52	57
2N4220	MOT	.90	40
2N4220A	MOT	1.05	40
2N4221	MOT	.95	40
2N4221	TI	1.37	57
2N4221A	MOT	1.05	40
2N4222	MOT	.95	40
2N4222A	MOT	1.05	40
2N4223	TI	1.47	57
2N4223	MOT	1.05	—
2N4234	MOT	1.38	37
2N4235	MOT	1.61	37
2N4236	MOT	1.73	37
2N4237	MOT	1.15	37
2N4238	MOT	1.32	37
2N4239	MOT	1.44	37
2N4240	TI	1.80	—
2N4240	MOT	1.70	31
2N4240	RCA	1.70	—
2N4250	IDI	.38	—
2N4252	TI	2.11	59
2N4256	GE	.68	83
2N4260	MOT	12.35	38
2N4261	MOT	14.60	38
2N4264	MOT	.48	38
2N4265	MOT	.54	39
2N4276	LAN	4.48	100
2N4277	LAN	4.61	100
2N4278	LAN	5.41	100
2N4279	LAN	5.56	100
2N4280	LAN	6.56	100
2N4281	LAN	6.73	100
2N4282	LAN	8.59	100
2N4283	LAN	8.76	100
2N4314	RCA	.87	89
2N4342	MOT	.65	—
2N4347	RCA	1.40	68
2N4348	RCA	2.19	68
2N4351	MOT	2.85	40
2N4352	MOT	2.70	40
2N4360	MOT	.54	—
2N4383	SPR	1.30	—
2N4384	SPR	1.10	—
2N4391	MOT	1.05	—
2N4391	TI	3.28	57
2N4392	MOT	1.05	—
2N4392	TI	2.94	57
2N4393	MOT	1.15	—
2N4393	TI	2.60	57
2N4398	MOT	2.09	30
2N4398	TI	3.16	55
2N4399	MOT	2.36	30
2N4399	TI	4.21	55
2N4400	MOT	.56	39
2N4400	GE	.57	83
2N4401	MOT	.72	39
2N4401	GE	.73	83
2N4402	MOT	.56	39
2N4402	GE	.55	83
2N4403	MOT	.72	39
2N4403	GE	.73	83
2N4404	MOT	8.25	—
2N4405	MOT	9.75	37, 38
2N4406	MOT	11.25	37, 38
2N4409	MOT	.67	37
2N4409	TI	.88	—
2N4410	MOT	.96	—
2N4416	MOT	1.05	40
2N4416	TI	2.11	57
2N4416A	TI	2.21	57
2N4424	GE	.43	83
2N4424	SPR	.40	—
2N4425	GE	.47	83
2N4427	MOT	1.09	40
2N4427	RCA	1.40	—
2N4441	MOT	1.28	34
2N4442	MOT	1.38	34
2N4443	MOT	1.88	34
2N4444	MOT	2.95	34
2N4851	MOT	.97	34
2N4852	MOT	.97	34
2N4853	MOT	2.25	34
2N4854	TI	9.65	58
2N4856	MOT	1.30	40
2N4856A	MOT	1.40	—
2N4857	MOT	1.30	40
2N4858	TI	2.65	57
2N4859	MOT	1.30	—
2N4859	TI	2.55	57
2N4860	MOT	1.30	—
2N4860	TI	2.70	57
2N4861	MOT	1.30	—
2N4861	TI	2.65	57
2N4861A	TI	2.79	57
2N4870	MOT	.75	34
2N4871	MOT	.68	34
2N4890	MOT	1.12	—
2N4891	TI	1.08	—
2N4893	TI	1.23	—
2N4898	MOT	1.28	31
2N4899	MOT	1.42	31
2N4900	MOT	1.60	31
2N4901	MOT	1.55	—
2N4901	TI	1.47	55
2N4902	MOT	2.23	31
2N4903	MOT	2.63	31
2N4903	TI	2.64	55
2N4904	MOT	1.82	31
2N4905	MOT	2.50	31
2N4906	MOT	2.70	31
2N4906	TI	2.95	55
2N4912	MOT	1.28	31
2N4913	MOT	1.49	31
2N4913	TI	1.05	55
2N4914	MOT	1.60	31
2N4915	MOT	1.75	31
2N4918	MOT	.83	31
2N4919	MOT	.99	31
2N4920	MOT	1.16	31
2N4921	MOT	.70	31
2N4922	MOT	.85	31
2N4923	MOT	.99	31
2N4925	MOT	2.50	—
2N4927	MOT	3.15	37
2N4928	MOT	4.05	37
2N4929	MOT	4.95	38
2N4931	MOT	6.75	37
2N4939	MOT	3.40	—
2N4947	TI	2.89	—
2N4949	MOT	2.40	34
2N4957	MOT	3.50	—
2N4959	MOT	2.12	—
2N4983	GE	1.46	86
2N4984	GE	1.93	86
2N4985	GE	3.26	86
2N4987- (D13P1)	GE	.84	—
2N4988- (D13P2)	GE	1.35	—
2N4989- (D13P3)	GE	1.82	—
2N4990- (D13Q1)	GE	.94	—
2N4991	GE	.83	86
2N4992- (D13Q2)	GE	1.46	—
2N4996	TI	.50	—
2N5000	TI	19.38	55
2N5031	MOT	2.60	—
2N5038	RCA	5.78	—
2N5039	RCA	4.87	—
2N5045	TI	9.31	—
2N5052	MOT	3.38	31
2N5058	MOT	3.00	37
2N5060	MOT	.63	34
2N5060	GE	.63	—
2N5061	MOT	.66	34
2N5061	GE	.66	—
2N5062	MOT	.75	34
2N5062	GE	.75	—
2N5063	MOT	.80	—
2N5063	GE	.80	—
2N5064	MOT	.84	34
2N5064	GE	.84	—
2N5067	MOT	1.08	31
2N5068	MOT	1.35	31
2N5069	MOT	1.62	31
2N5086	MOT	.50	39
2N5087	MOT	.60	39
2N5088	MOT	.50	39
2N5088	GE	.50	—
2N5089	MOT	.72	39
2N5089	GE	.72	83
2N5090	RCA	7.80	—
2N5102	RCA	21.75	—
2N5108	MOT	3.90	—
2N5109	MOT	1.55	—
2N5109	RCA	2.14	—
2N5148	TI	5.41	55
2N5150	TI	5.88	55
2N5157	IR	6.95	90
2N5160	MOT	3.34	—
2N5165	MOT	2.85	—
2N5168	MOT	2.94	—
2N5169	MOT	3.23	—
2N5170	MOT	4.08	—
2N5171	MOT	5.28	—
2N5172	GE	.24	83
2N5172	SPR	.30	—
2N5179	MOT	.49	—
2N5179	RCA	.90	—
2N5190	MOT	.81	31
2N5191	MOT	.98	31
2N5192	MOT	1.16	31
2N5193	MOT	.91	31
2N5194	MOT	1.08	31
2N5195	MOT	1.31	31
2N5204	GE	9.30	—
2N5206	GE	18.45	—
2N5208	MOT	.54	40
2N5209	MOT	.66	39
2N5210	MOT	.72	39
2N5220	MOT	.27	—
2N5221	MOT	.30	—
2N5221	GE	.32	83
2N5222	MOT	.24	40
2N5223	MOT	.21	—
2N5224	MOT	.24	—
2N5225	MOT	.27	—
2N5226	MOT	.30	—
2N5227	MOT	.24	—
2N5232	GE	.34	83
2N5232A	GE	.38	83
2N5239	RCA	2.97	—
2N5240	RCA	3.47	—
2N5245/ TIS88	TI	.83	57
2N5246	TI	.69	57
2N5248	TI	.59	57
2N5249	GE	.50	83
2N5249A	GE	.54	83
2N5270	MOT	3.75	—
2N5293	RCA	.73	68
2N5294	RCA	.73	68
2N5295	RCA	.73	68
2N5296	RCA	.73	68
2N5297	RCA	.74	68
2N5298	RCA	.74	68
2N5301	MOT	2.09	30, 32
2N5301	TI	2.31	55
2N5302	MOT	2.36	30, 32
2N5302	TI	2.64	55
2N5303	MOT	2.63	30, 32
2N5305	GE	.45	83
2N5306	GE	.43	83
2N5307	GE	.47	83
2N5308A	GE	.59	83
2N5320	RCA	1.14	83
2N5321	RCA	.91	—
2N5322	RCA	1.47	—
2N5323	RCA	1.01	—
2N5337	MOT	4.75	30, 31
2N5344	MOT	5.40	30, 31
2N5345	MOT	6.75	30, 31
2N5354/D29A4	GE	.36	83
2N5354	SPR	.40	—
2N5355/D29A5	GE	.41	83
2N5356	SPR	.50	—
2N5358	MOT	2.20	—
2N5360	MOT	1.90	—
2N5361	MOT	1.80	—
2N5364	MOT	2.00	—
2N5365/D29A7	GE	.45	83
2N5366/D29A8	GE	.50	83
2N5375	SPR	.44	—
2N5378	SPR	.44	—

NEW TYPES STOCKED AS SOON AS RELEASED

DISCRETE DEVICES

Type	Mfr	1-24	Page
2N5383	SPR	.44	—
2N5397	TI	3.87	57
2N5400	MOT	.75	39
2N5401	MOT	.89	39
2N5415	RCA	1.46	—
2N5416	RCA	1.98	—
2N5427	MOT	2.57	32
2N5428	MOT	2.63	30, 32
2N5431	MOT	3.50	34
2N5435	LAN	20.36	100
2N5436	LAN	26.18	100
2N5437	LAN	30.60	100
2N5438	LAN	22.00	100
2N5439	LAN	26.55	100
2N5440	LAN	30.87	100
2N5442	MOT	6.77	33
2N5443	RCA	8.46	71
2N5444	RCA	5.97	71
2N5445	MOT	7.10	33
2N5445/TA2839	RCA	7.10	—
2N5446	MOT	8.79	33
2N5446	RCA	8.79	71
2N5447	TI	.36	—
2N5448	TI	.33	—
2N5449	TI	.33	—
2N5450	TI	.28	—
2N5457	MOT	.45	40
2N5458	MOT	.45	40
2N5459	MOT	.50	40
2N5460	MOT	.80	40
2N5461	MOT	.67	40
2N5462	MOT	.80	40
2N5463	MOT	1.35	—
2N5464	MOT	1.08	—
2N5465	MOT	1.35	—
2N5472	MOT	2.33	—
2N5474	MOT	2.00	—
2N5484	MOT	.50	40
2N5485	MOT	.51	40
2N5486	MOT	.51	40
2N5490	RCA	.96	68
2N5492	RCA	.96	68
2N5494	RCA	.96	68
2N5496	RCA	1.04	68
2N5497	RCA	1.04	68
2N5545	TI	12.10	—
2N5546	TI	10.29	—
2N5550	MOT	.58	39
2N5551	MOT	.62	39
2N5555	MOT	.90	—
2N5567	RCA	3.05	70
2N5569	RCA	3.38	70
2N5570	MOT	3.99	33
2N5570	RCA	3.99	70
2N5572	MOT	3.89	33
2N5572	RCA	3.89	70
2N5573	RCA	3.58	70
2N5574	MOT	4.22	33
2N5574	RCA	4.22	70
2N5575	RCA	11.22	69
2N5578	RCA	13.91	69
2N5583	MOT	4.43	—
2N5589	MOT	4.60	—
2N5590	MOT	6.35	—
2N5591	MOT	10.35	—
2N5629	MOT	3.78	32
2N5630	MOT	4.52	32
2N5631	MOT	5.00	32
2N5633	MOT	2.43	32
2N5634	MOT	2.97	32
2N5635	MOT	4.95	—
2N5638	MOT	.48	40
2N5639	MOT	.48	40
2N5640	MOT	.53	40
2N5641	MOT	4.90	40
2N5642	MOT	8.63	—
2N5643	MOT	14.38	—
2N5653	MOT	.50	—
2N5654	MOT	.48	—
2N5655	MOT	.73	31
2N5656	MOT	.88	31
2N5657	MOT	1.06	31
2N5671	RCA	10.72	69
2N5672	RCA	13.60	69
2N5679	MOT	1.32	37
2N5680	MOT	1.52	37
2N5681	MOT	.99	37
2N5682	MOT	1.32	37
2N5683	MOT	6.40	32
2N5684	MOT	6.75	32
2N5685	MOT	6.40	32
2N5686	MOT	6.75	32
2N5745	MOT	2.63	30, 32
2N5754	RCA	.94	70
2N5755	RCA	1.09	70
2N5756	RCA	1.40	70
2N5757	RCA	1.89	70
2N5758	MOT	1.15	32
2N5760	MOT	1.49	—
2N5777	MOT	.60	28
2N5777	GE	.60	77
2N5778	GE	.70	77
2N5778	MOT	.70	28
2N5779	MOT	1.00	28
2N5779	GE	1.00	77
2N5780	MOT	1.20	28
2N5780	GE	1.20	77
2N5781	RCA	1.47	69
2N5782	RCA	1.43	69
2N5783	RCA	1.40	69
2N5784	RCA	1.24	68
2N5785	RCA	1.08	68
2N5786	RCA	.99	68
2N5804	IR	4.40	90
2N5836	MOT	3.62	—
2N5840	MOT	2.70	32
2N5847	MOT	9.70	—
2N5849	MOT	19.50	—
2N5859	MOT	.90	37
2N5875	MOT	1.28	30, 32
2N5876	MOT	1.74	30, 32
2N5877	MOT	1.28	30, 32
2N5878	TI	2.00	55
2N5880	MOT	1.89	30, 32
2N5881	MOT	1.69	30, 32
2N5882	MOT	1.89	30, 32
2N5883	MOT	2.57	30, 32
2N5884	MOT	2.84	30, 32
2N5885	MOT	2.57	30, 32
2N5886	MOT	2.84	30, 32
2N5913	RCA	3.25	—
2N5943	MOT	1.75	—
2N5944	MOT	7.50	40
2N5946	MOT	13.20	40
2N5949	TI	.60	75
2N5950	TI	.55	75
2N5951	TI	.55	75
2N5953	TI	.75	75
2N5954	RCA	1.56	—
2N5955	RCA	1.40	—
2N5956	RCA	1.23	—
2N5974	MOT	1.60	31
2N5979	MOT	2.05	31
2N5986	MOT	2.30	—
2N5987	MOT	2.55	—
2N5988	MOT	2.85	—
2N5991	MOT	2.70	—
2N6027	MOT	.27	33
2N6027	GE	.79	86
2N6028	MOT	.35	33
2N6028	GE	1.00	86
2N6030	MOT	4.52	32
2N6031	MOT	5.00	32
2N6034	MOT	1.42	30, 31
2N6035	MOT	1.60	30, 31
2N6036	MOT	1.90	30, 31
2N6037	MOT	1.22	30, 31
2N6038	MOT	1.36	30, 31
2N6040	MOT	1.95	30
2N6041	MOT	2.10	30
2N6042	MOT	2.30	30
2N6043	MOT	1.75	30
2N6044	MOT	1.90	30
2N6045	MOT	2.05	30
2N6049	MOT	1.60	31
2N6050	MOT	1.89	30, 32
2N6051	MOT	2.09	30, 32
2N6052	MOT	2.43	30, 32
2N6053	MOT	1.42	30, 32
2N6054	MOT	1.82	30, 32
2N6055	MOT	1.38	30, 32
2N6055	RCA	1.65	—
2N6056	MOT	1.55	30, 32
2N6057	MOT	1.89	30, 32
2N6058	MOT	2.09	30, 32
2N6059	MOT	2.43	30, 32
2N6069	MOT	.71	34
2N6069A	MOT	.98	34
2N6070	MOT	.80	34
2N6070A	MOT	1.10	34
2N6071	MOT	.88	34
2N6071A	MOT	1.22	34
2N6071B	MOT	.80	34
2N6072	MOT	.92	34
2N6073	MOT	.96	34
2N6073A	MOT	1.32	34
2N6074	MOT	1.23	34
2N6075	MOT	1.38	34
2N6076	GE	.25	83
2N6077	RCA	2.64	68
2N6078	RCA	2.47	68
2N6079	RCA	2.96	68
2N6080	MOT	5.45	—
2N6081	MOT	8.60	40
2N6082	MOT	9.90	40
2N6083	MOT	11.80	40
2N6084	MOT	13.20	40
2N6094	MOT	5.75	—
2N6095	MOT	10.35	—
2N6096	MOT	19.35	—
2N6099	RCA	1.07	68
2N6101	RCA	1.15	68
2N6103	RCA	1.15	69
2N6107	RCA	.75	—
2N6109	RCA	.75	—
2N6111	RCA	.73	—
2N6116/MPU231	MOT	1.35	—
2N6117/MPU232	MOT	2.16	—
2N6121	MOT	.67	31
2N6122	MOT	.74	31
2N6123	MOT	.79	31
2N6124	MOT	.74	31
2N6125	MOT	.79	31
2N6136	MOT	18.70	—
2N6146	MOT	5.37	33
2N6151	MOT	1.77	—
2N6152	MOT	2.15	—
2N6154	MOT	1.64	—
2N6155	MOT	2.02	—
2N6156	MOT	2.53	—
2N6158	MOT	3.94	33
2N6159	MOT	5.00	33
2N6161	MOT	5.74	33
2N6162	MOT	7.09	33
2N6163	MOT	6.00	33
2N6164	MOT	6.90	33
2N6211	MOT	1.69	30
2N6212	MOT	2.03	30
2N6213	RCA	2.36	—
2N6226	MOT	1.15	32
2N6230	MOT	2.43	32
2N6231	MOT	2.97	32
2N6233	MOT	5.15	30, 31
2N6239	MOT	.90	34
2N6246	RCA	1.98	—
2N6247	RCA	2.31	—
2N6248	RCA	2.64	—
2N6249	RCA	6.65	—
2N6250	RCA	7.38	—
2N6250	IR	7.30	90
2N6251	RCA	7.91	—
2N6251	IR	7.80	—
2N6254	RCA	1.98	69
2N6259	RCA	5.95	—
2N6261	RCA	1.40	68
2N6262	RCA	3.22	68
2N6274	MOT	13.50	30, 32
2N6277	MOT	29.70	30, 32
2N6282	MOT	2.57	30, 32
2N6283	MOT	2.90	30, 32
2N6284	MOT	3.38	30, 32
2N6285	MOT	2.57	30, 32
2N6286	MOT	2.90	30
2N6287	MOT	3.38	30, 32
2N6288	RCA	.69	—
2N6290	RCA	.73	—
2N6291	RCA	.81	—
2N6292	RCA	.73	—
2N6294	MOT	1.62	30, 31
2N6295	MOT	1.76	30, 31
2N6296	MOT	1.62	30, 31
2N6297	MOT	1.76	30, 31
2N6298	MOT	1.89	30, 32
2N6299	MOT	2.03	30, 32

Key	Mfr.
GE	General Electric
GI	General Instrument
IDI	International Devices Inc.
IR	International Rectifier
LAN	Lansdale
MON	Monsanto
MOT	Motorola Motorola—HEP
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr	1-24	Page
2N6300	MOT	1.89	30, 32
2N6301	MOT	2.03	30, 32
2N6306	IR	3.50	90
2N6306	RCA	3.38	—
2N6307	IR	3.90	90
2N6307	MOT	3.71	30, 32
2N6307	RCA	3.86	—
2N6308	MOT	5.40	30, 32
2N6308	IR	5.70	90
2N6308	RCA	5.63	—
2N6328	TI	3.48	55
2N6331	TI	4.00	—
2N6342	MOT	1.10	31
2N6342A	MOT	1.40	34
2N6343	MOT	1.45	—
2N6343A	MOT	1.70	34
2N6344A	MOT	2.30	34
2N6346	MOT	1.30	—
2N6346A	MOT	1.50	34
2N6347	MOT	1.55	34
2N6347A	MOT	1.80	34
2N6349A	MOT	4.50	34
2N6354	RCA	5.20	68
2N6371	RCA	1.49	69
2N6383	RCA	1.61	69
2N6384	RCA	1.78	69
2N6385	RCA	1.98	69
2N6386	RCA	.95	69
2N6387	RCA	1.05	69
2N6388	RCA	1.18	69
2N6400	MOT	1.68	34
2N6401	MOT	1.78	34
2N6402	MOT	1.98	34
2N6404	MOT	3.96	34
2N6405	MOT	5.94	34
2N6421	MOT	1.58	30, 31
2N6423	MOT	1.71	31
2N6425	MOT	1.80	31
2N6427	MOT	.48	39
2N6428	MOT	.60	—
2N6428A	MOT	.75	—
2N6429	MOT	.60	—
2N6429A	MOT	.75	—
2N6473	RCA	.86	—
2N6474	RCA	.93	—
2N6475	RCA	.95	69
2N6476	RCA	1.02	69
2N6489	MOT	1.28	—
2N6497	MOT	2.00	30
2N6543	MOT	3.58	30, 32
2N6545	MOT	6.08	30, 32
2N6546	MOT	8.10	30, 32
2N6546	IR	8.70	90
2N6547	MOT	10.67	30, 32
2N6569	MOT	.80	32
2N6594	MOT	.80	32
3N74	TI	11.17	—
3N79	TI	3.51	—
3N81	GE	4.14	86
3N82	GE	6.03	86
3N83	GE	2.42	86
3N84	GE	2.42	86
3N85	GE	4.02	86
3N123	SPR	4.00	—
3N124	MOT	3.00	—
3N126	MOT	3.00	—
3N128	MOT	1.35	—
3N128	RCA	1.29	—
3N138	RCA	2.89	—
3N139	RCA	2.48	—
3N140	RCA	1.62	—

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr	1-24	Page
3N141	RCA	1.45	—
3N142	RCA	1.04	—
3N152	RCA	1.62	—
3N153	RCA	1.42	—
3N154	RCA	1.49	—
3N157	MOT	2.50	—
3N159	RCA	2.06	—
3N160	TI	2.45	57
3N163	TI	3.72	—
3N170	MOT	5.50	—
3N171	MOT	4.20	—
3N187	RCA	2.72	—
3N200	RCA	4.37	—
3N201	TI	1.03	57
3N201	MOT	1.00	40
3N202	TI	1.03	57
3N202	MOT	1.00	40
3N203	TI	.83	57
3N203	MOT	.85	40
3N204	TI	1.18	57
3N207	TI	6.17	—
3N211	MOT	1.20	40
3N212	MOT	1.20	40
3N213	MOT	1.25	40
3N246	MOT	.60	—
3N247	MOT	.66	—
3N248	MOT	.72	—
3N249	MOT	.78	—
3N250	MOT	.92	—
3N251	MOT	1.16	—
3N252	MOT	1.36	—
3N253	MOT	.90	—
3N254	MOT	1.00	—
3N255	MOT	1.08	—
3N256	MOT	1.18	—
3N257	MOT	1.38	—
3N258	MOT	1.74	—
3N259	MOT	2.04	—
4N22	TI	4.82	63
4N24	TI	8.47	63
4N25	MON	.97	98
4N25	GE	1.75	77
4N25	MOT	1.75	28
4N25A	MOT	1.85	28
4N25A	GE	1.75	77
4N26	GE	1.25	77
4N26	MOT	1.25	28
4N26	MON	.97	98
4N26A	GE	1.25	—
4N27	MOT	1.15	28
4N28	MOT	1.00	28
4N28	GE	1.00	77
4N28	MON	.97	98
4N29	MON	1.65	98
4N29	MOT	1.75	28
4N29	GE	1.75	77
4N29A	MOT	1.85	28
4N29A	GE	1.75	77
4N30	MOT	1.50	28
4N30	GE	1.50	77
4N31	MOT	1.30	28
4N31	GE	1.30	77
4N32	MOT	1.80	28
4N32	GE	1.80	77
4N32	MON	1.70	98
4N32A	MOT	1.80	28
4N33	GE	1.75	77
4N33	MOT	1.75	28
4N33	MON	1.65	98
4N35	MON	2.05	98
4N35	GE	1.50	77
4N36	GE	1.41	77
4N36	MON	1.40	98
4N37	MON	1.25	98
4N37	GE	1.25	77
4N38	GE	1.25	77
4N38	MOT	1.60	28
4N38A	MOT	1.75	28
4N38A	GE	1.73	77
4N39	GE	1.88	77
4N40	GE	1.97	77
A5T5058	TI	1.23	56
A7T6028	TI	.83	—
A14A	GE	.34	78
A14C	GE	.40	78
A14E	GE	.57	78
A14F	GE	.30	78
A15A	GE	.62	78
A15F	GE	.57	78
A40A	GE	3.38	—
A40B	GE	3.60	—
A40C	GE	3.82	—
A40D	GE	4.02	—
A40E	GE	4.24	—
A40F	GE	3.31	—
A40M	GE	4.95	—
A41E	GE	4.24	—
A44C	GE	3.67	78
A44D	GE	3.89	78
A44E	GE	4.09	78
A44F	GE	3.18	—
A45D	GE	3.89	—
A114B	GE	.96	—
A114D	GE	1.08	—
A114F	GE	.78	—
A115A	GE	1.56	78
A115B	GE	1.89	78
A115D	GE	2.55	78
A115E	GE	2.97	78
A115F	GE	1.50	78
A397M	GE	33.50	78
AM26LS31N	TI	2.60	61
AM26LS32N	TI	2.60	61
AM26S11CN	TI	3.00	61
C6A	GE	2.13	—
C6B	GE	2.49	—
C6F	GE	1.96	—
C6G	GE	2.31	—
C6U	GE	1.78	—
C13F	GE	.50	—
C13Y	GE	.45	—
C15A	GE	2.60	80
C15B	GE	2.79	80
C15C	GE	3.55	80
C15D	GE	3.97	80
C35A	MOT	3.43	—
C35B	MOT	4.60	—
C35B	GE	6.33	80
C35C	GE	7.56	80
C35D	MOT	6.00	—
C35D	GE	8.25	80
C35E	GE	8.91	80
C35F	GE	3.70	80
C35H	GE	7.02	80
C35M	GE	9.74	80
C35N	MOT	12.96	—
C35S	MOT	7.50	—
C37B	GE	5.92	80
C37D	GE	8.24	80
C37M	GE	10.16	80
C38D	GE	13.62	80
C46D	GE	28.40	80, 81
C46N	GE	42.40	80, 81
C50M	GE	41.50	80
C50N	GE	50.30	80
C103A	GE	.75	80
C103B	GE	.84	80
C103Y	GE	.63	80
C103YY	GE	.66	80
C106A	MOT	.33	—
C106A1	GE	.39	—
C106A1	RCA	.56	—
C106A2	GE	.44	—
C106A3	GE	.44	—
C106A4	GE	.44	—
C106A41	GE	.46	—
C106B	MOT	.37	—
C106B1	GE	.44	—
C106B1	RCA	.63	—
C106B2	GE	.49	—
C106B3	GE	.49	—
C106B4	GE	.49	—
C106B21	GE	.51	—
C106B41	GE	.51	—
C106C1	GE	.55	—
C106C1	RCA	.84	—
C106C2	GE	.60	—
C106D1	GE	.64	—
C106D1	RCA	.92	—
C106D2	GE	.69	—
C106D4	GE	.69	—
C106E	MOT	.65	—
C106E1	GE	.77	—
C106F1	GE	.38	—
C106F1	RCA	.55	—
C106F2	GE	.43	—
C106Y	MOT	.30	—
C106Y1	GE	.36	—
C106Y2	GE	.41	—
C106Y11	GE	.43	—
C106Y21	GE	.43	—
C107A1	GE	.37	81
C107B1	GE	.41	81
C107C1	GE	.52	81
C107D1	GE	.60	81
C107E1	GE	.75	81
C107F1	GE	.36	81
C122A1	GE	.91	—
C122B1	GE	.99	—
C122C1	MOT	.99	34
C122C1	GE	1.24	—
C122D	GE	1.40	80
C122D1	MOT	1.12	34
C122D1	GE	1.40	—
C122E1	MOT	1.32	34
C122F	GE	.83	80
C122F1	MOT	.55	34
C122F1	GE	.83	—
C137E	GE	9.75	—
C137M	GE	10.80	80
C137N	GE	16.20	80
C137P	GE	21.15	80
C137PB	GE	26.55	81
C147B	GE	16.00	81
C147D	GE	18.00	81
C147E	GE	20.00	81
C147P	GE	39.00	—
C147PB	GE	47.00	80
C220A	GE	2.05	80
C220B	GE	2.10	80
C220C	GE	2.41	80
C220D	GE	2.62	80
C220F	GE	2.00	80
C222B	GE	1.90	—
C222D	GE	2.40	—
C222F	GE	1.80	—
C230A	GE	3.30	80
C230B	GE	4.42	80
C230C	GE	5.20	80
C230D	GE	5.89	80
C230E	GE	6.58	80
C230F	GE	3.10	80
C232C	GE	4.94	80
C232D	GE	5.63	80
C234F	GE	3.60	81
C291C	GE	76.00	—
C350E	GE	30.00	81
C355B	GE	26.00	81
C380N	GE	76.00	81
C390S	GE	99.00	81
D5J-43	GE	1.37	86
D5J-44	GE	1.26	86
D5K1	GE	9.70	86
D5K2	GE	5.40	86
D29E1	GE	.52	83
D29E4	GE	.47	83
D29E7	GE	.63	83
D29E10	GE	.95	83
D33D30	GE	.88	83
D40C1	GE	.64	84
D40C2	GE	.89	84
D40C4	GE	.71	84
D40C5	GE	1.02	84
D40C7	GE	1.02	84
D40D1	GE	.61	84
D40D2	GE	.77	84
D40D4	GE	.74	84
D40D5	GE	.84	84
D40D7	GE	.82	84
D40D8	GE	.92	84
D40K1	GE	.82	84
D40K2	GE	.93	84
D40V1	GE	.78	84
D40V2	GE	.79	84
D40V3	GE	.85	84
D41D1	GE	.66	84
D41D2	GE	.87	84
D41D4	GE	.79	84
D41D5	GE	1.00	84
D41D7	GE	.87	84
D41D8	GE	1.13	84
D42C1	GE	.77	84
D42C2	GE	.84	84
D42C3	GE	.90	84
D42C4	GE	.87	84
D42C5	GE	1.02	84
D42C7	GE	1.00	84
D42C8	GE	1.17	84
D42T2	GE	1.05	84
D43C1	GE	.84	84
D43C2	GE	.90	84
D43C3	GE	.96	84
D43C4	GE	.94	84
D43C5	GE	1.15	84
D43C7	GE	1.05	84
D43C8	GE	1.30	84
D43C11	GE	1.33	84
D44C1	GE	.84	85
D44C2	GE	.94	85
D44C3	GE	.94	85
D44C4	GE	.93	85
D44C5	GE	1.03	85
D44C7	GE	1.05	85
D44C8	GE	1.06	85
D44C10	GE	1.10	85
D44E2	GE	1.75	85
D44E3	GE	1.89	85
D44H2	GE	1.53	85
D44H5	GE	1.66	85
D44H7	GE	1.72	85
D44H8	GE	1.78	85
D44H10	GE	1.87	85
D44H11	GE	2.03	85
D44R4	GE	1.44	85
D44T1	GE	1.32	84
D44T2	GE	1.40	84
D44T4	GE	1.51	84
D45C3	GE	1.03	85
D45C5	GE	1.06	85
D45C6	GE	1.10	85
D45C8	GE	1.18	85
D45E2	GE	2.46	85
D45E3	GE	2.61	85
D45H2	GE	1.77	85
D45H4	GE	1.82	85
D45H5	GE	1.86	85
D45H8	GE	1.98	85
D45H10	GE	2.06	85
D45H11	GE	2.19	85
D1300A	RCA	.45	73
D2601EF	RCA	.99	—
D3202U	RCA	.28	73
D3202Y	RCA	.46	73
DA1702	GE	.26	—
DF3D	RCA	.05	—
DF3H	RCA	.05	—
DF6B	RCA	.02	—
DF6C	RCA	.02	—
DF13C	RCA	.05	—
DF31A	RCA	.03	—
DF103B	RCA	.02	—
DF137A	RCA	.02	—
DF378D	RCA	.04	—
DF378E	RCA	.13	—
DF378G	RCA	.02	—
DS8831J	TI	3.50	61
DS8831N	TI	3.00	61
DS8832J	TI	3.50	61
DS8832N	TI	3.00	61
DT230B	GE	.30	78
E150L	IR	3.74	—
EE1000/90	IR	9.54	—
GE-1	GE	1.20	—
GE-2	GE	1.58	—
GE-4	GE	7.90	—
GE-5	GE	3.13	—
GE-6	GE	2.18	—
GE-7	GE	1.77	—

NEW TYPES STOCKED AS SOON AS RELEASED

Type	Mfr	1-24	Page
GE-8	GE	2.50	—
GE-10	GE	1.20	—
GE-11	GE	1.53	—
GE-12	GE	2.34	—
GE-13-MP	GE	6.55	—
GE-14	GE	3.51	—
GE-15-MP	GE	7.02	—
GE-16	GE	4.80	—
GE-17	GE	1.42	—
GE-18	GE	1.46	—
GE-19	GE	3.06	—
GE-20	GE	1.10	—
GE-21	GE	1.12	—
GE-22	GE	1.03	—
GE-23	GE	2.52	—
GE-24-MP	GE	5.04	—
GE-25	GE	7.50	—
GE-27	GE	2.18	—
GE-28	GE	2.15	—
GE-29	GE	2.40	—
GE-30	GE	2.20	—
GE-32	GE	2.79	—
GE-38	GE	12.00	—
GE-41	GE	3.36	—
GE-42	GE	2.28	—
GE-44	GE	2.40	—
GE-46	GE	6.42	—
GE-51	GE	1.28	—
GE-53	GE	1.02	—
GE-59	GE	1.26	—
GE-61	GE	1.32	—
GE-62	GE	.81	—
GE-63	GE	1.80	—
GE-64	GE	.96	—
GE-66	GE	2.49	—
GE-67	GE	1.80	—
GE-69	GE	2.76	—
GE-76	GE	11.55	—
GE-80	GE	4.35	—
GE-82	GE	1.02	—
GE-214	GE	1.98	—
GE-239	GE	6.50	—
GE-300	GE	.81	—
GE-504A	GE	.66	—
GE-509	GE	.79	—
GE-510	GE	.81	—
GE-511	GE	.99	—
GECR-2	GE	.99	—
GE-FET-1	GE	1.95	—
GE-FET-2	GE	1.44	—
GER4003	GE	.35	83
GES929	GE	.37	83
GES930	GE	.37	83
GES2221	GE	.30	83
GES2907	GE	.34	83
GES5305	GE	.45	83
GES5306	GE	.43	83
GES5307	GE	.47	83
GES5308	GE	.52	83
GES5820	GE	.60	83
GE-X1	GE	2.60	—
GE-X3	GE	5.45	—
GE-X4	GE	3.20	—
GE-X5	GE	2.30	—
GE-X7	GE	.90	—
GE-X9	GE	3.17	—
GE-X10	GE	1.35	—
GE-X11	GE	1.80	—
GE-X12	GE	4.50	—
GE-X13	GE	1.60	—
GE-X14	GE	1.15	—
GEZD-5.1	GE	.90	—
GEZD-9.1	GE	.90	—
GEZD-10-4	GE	.90	—
GEZD-12	GE	.90	—
GEZD-15	GE	.90	—
GEZD-18	GE	.90	—
H11A1	GE	1.41	77
H11A1	MOT	1.00	28
H11A2	GE	1.25	77
H11A2	MOT	.90	28
H11A3	GE	1.41	77
H11A4	GE	1.13	77
H11A5	GE	1.03	77
H11A10	GE	1.28	77
H11A520	GE	1.65	77
H11A550	GE	1.65	77
H11A5100	GE	1.65	77
H11AA1	GE	2.40	77
H11AA2	GE	2.18	77
H11B1	GE	2.32	77
H11B2	GE	2.17	77
H11B3	GE	1.28	77
H11B255	GE	1.64	77
H11C1	GE	4.00	77
H11C2	GE	3.35	77
H11C3	GE	1.71	77
H11C4	GE	4.60	77
H11C5	GE	4.00	77
H11D1	GE	1.80	77
H11D2	GE	1.47	77
H11D3	GE	1.35	77
H11D4	GE	1.20	77
H13A1	GE	2.25	77
H13A2	GE	2.02	77
H13B1	GE	2.40	77
H13B2	GE	2.17	77
H15A1	GE	1.65	77
H15A2	GE	1.50	77
H15B1	GE	1.72	77
H17A1	GE	1.30	77
H17B1	GE	1.34	77
H74A1	GE	1.53	77
H74C1	GE	1.53	77
H74C2	GE	2.23	77
HEPF0010-S	MOT	1.72	—
HEPF0015-S	MOT	1.38	—
HEPF1035-S	MOT	1.38	—
HEPF1036-S	MOT	3.38	—
HEPF2004-S	MOT	2.40	—
HEPF2005-S	MOT	2.54	—
HEPF2007A-S	MOT	2.20	—
HEPR0050-S	MOT	.38	—
HEPR0052-S	MOT	.46	—
HEPR0053-S	MOT	.55	—
HEPR0054-S	MOT	.60	—
HEPR0056-S	MOT	.82	—
HEPR0092-S	MOT	2.40	—
HEPR0096-S	MOT	2.98	—
HEPR0098-S	MOT	3.90	—
HEPR0170-S	MOT	.30	—
HEPR0700-S	MOT	1.16	—
HEPR0801-S	MOT	1.48	—
HEPR0803-S	MOT	1.98	—
HEPR1001-S	MOT	.80	—
HEPR1005-S	MOT	1.15	—
HEPR1221-S	MOT	1.70	—
HEPR1234-S	MOT	3.52	—
HEPR1246-S	MOT	6.90	—
HEPR1301-S	MOT	3.76	—
HEPR1723-S	MOT	2.15	—
HEPR2002-S	MOT	.98	—
HEPR9134-S	MOT	.52	—
HEPR9135-S	MOT	.52	—
HEPS0005-S	MOT	.90	—
HEPS0011-S	MOT	.94	—
HEPS0012-S	MOT	1.28	—
HEPS0013-S	MOT	1.48	—
HEPS0014-S	MOT	1.12	—
HEPS0015-S	MOT	.90	—
HEPS0016-S	MOT	1.16	—
HEPS0017-S	MOT	1.42	—
HEPS0019-S	MOT	1.18	—
HEPS0020-S	MOT	1.18	—
HEPS0024-S	MOT	.74	—
HEPS0025-S	MOT	.98	—
HEPS0030-S	MOT	1.18	—
HEPS0032-S	MOT	.98	—
HEPS3001-S	MOT	3.72	—
HEPS3005-S	MOT	9.95	—
HEPS3007	MOT	16.50	—
HEPS3013-S	MOT	1.90	—
HEPS3014-S	MOT	5.60	—
HEPS3019-S	MOT	2.56	—
HEPS3020-S	MOT	1.60	—
HEPS3021-S	MOT	1.84	—
HEPS3024-S	MOT	1.32	—
HEPS3028-S	MOT	1.38	—
HEPS3032-S	MOT	1.90	—
HEPS5000-S	MOT	1.84	—
HEPS5004-S	MOT	2.72	—
HEPS5005-S	MOT	3.82	—
HEPS5006-S	MOT	2.20	—
HEPS5011-S	MOT	2.24	—
HEPS5012-S	MOT	2.57	—
HEPS5013-S	MOT	1.85	—
HEPS5014-S	MOT	1.75	—
HEPS5015-S	MOT	2.06	—
HEPS5018-S	MOT	5.25	—
HEPS5019-S	MOT	1.80	—
HEPS5020-S	MOT	7.96	—
HEPS5021-S	MOT	7.96	—
HEPS5022-S	MOT	1.38	—
HEPS5023-S	MOT	1.74	—
HEPS5025-S	MOT	3.25	—
HEPS5026-S	MOT	2.56	—
HEPS7000-S	MOT	7.34	—
HEPS7001-S	MOT	7.94	—
HEPS7002-S	MOT	3.62	—
HEPS7003-S	MOT	3.96	—
HEPS7004-S	MOT	2.60	—
HEPS9001-S	MOT	1.28	—
HEPS9002-S	MOT	1.38	—
HEPS9100-S	MOT	.86	—
HEPS9140-S	MOT	3.78	—
HEPZ0211-S	MOT	.50	—
HEPZ0220-S	MOT	.50	—
HEPZ0405-S	MOT	.85	—
HEPZ0407-S	MOT	.85	—
HEPZ0408-S	MOT	.85	—
HEPZ0412-S	MOT	.85	—
HEPZ0415-S	MOT	.85	—
HEPZ0418-S	MOT	.85	—
HEPZ2506-S	MOT	1.78	—
HEPZ2514-S	MOT	1.78	—
HEPZ2516-S	MOT	1.78	—
IR106B-1	IR	.86	—
IR106B-2	IR	.88	—
IR106C-1	IR	1.06	—
IR106D1	IR	1.23	—
IR106F-1	IR	.74	—
IR106F2	IR	.76	—
IR106Y-1	IR	1.71	—
IR122B	IR	1.53	—
IR410	IR	2.25	90
IR413	IR	2.30	90
IR423	IR	3.85	90
J14C5	IR	5.25	—
J14C8	IR	6.64	—
J29B1	IR	4.79	—
J29B5	IR	9.02	—
J29B8	IR	11.67	—
J116B04	IR	6.91	—
J116B1	IR	9.81	—
J116B5	IR	25.22	—
J116B8	IR	37.17	—
J135B1	IR	11.01	—
J135B17	IR	71.19	—
J308	MOT	.65	—
J309	MOT	.77	—
J310	MOT	.77	40
KD2131	RCA	29.95	—
KSA2DAF	IR	4.84	—
KSA5DAF	IR	8.38	—
KSA6DBF	IR	9.64	—
KSA10DBF	IR	14.33	—
KSA11DBF	IR	15.74	—
KSA12DBF	IR	16.59	—
KSA17DBF	IR	21.69	—
KSA20DBF	IR	25.21	—
KSL5DAF	IR	14.81	—
KSL6DBF	IR	17.26	—
KSL20DBF	IR	48.47	—
KSLP12DBF	IR	15.08	—
KY4DPF	IR	1.98	—
KY5DPF	IR	2.13	—
KY6DPF	IR	2.22	—
KZ2DPF	IR	1.94	—
KZ4DPF	IR	2.44	—
KZ4DTM	IR	1.79	95
KZ5DPF	IR	2.70	—
KZ5DTM	IR	2.00	95
KZ6DPF	IR	2.99	—
KZ8DTM	IR	2.63	95
KZ9DPF	IR	3.72	—
KZ10DPF	IR	3.94	—
L8B	GE	17.90	—
L8U	GE	6.81	—
L14F2	GE	1.65	77
L14G1	GE	1.70	77
L14G2	GE	1.60	77
L14G3	GE	1.80	77
L14H1	GE	.48	77
L14H1	MOT	.45	28
L14H2	GE	.53	77
L14H2	MOT	.50	28
L14H3	MOT	.55	28

Key	Mfr.
GE	General Electric
GI	General Instrument
IDI	International Devices Inc.
IR	International Rectifier
LAN	Lansdale
MON	Monsanto
MOT	Motorola Motorola—HEP
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr	1-24	Page
L14H3	GE	.60	—
L14H4	MOT	.40	28
L14H4	GE	.45	—
LED55B	GE	1.45	77
LED55BF	GE	1.45	77
LED55C	GE	1.50	77
LED55CF	GE	1.50	77
LED56	GE	1.45	77
LED56F	GE	1.45	77
MAC10-2	MOT	1.52	—
MAC10-4	MOT	1.77	—
MAC10-6	MOT	2.15	—
MAC11-1	MOT	1.27	—
MAC11-3	MOT	1.52	—
MAC11-4	MOT	1.64	—
MAC11-5	MOT	1.89	—
MAC11-6	MOT	2.02	—
MAC11-8	MOT	2.53	—
MAC92-4	MOT	1.15	34
MAN1A	MON	9.90	97
MAN2A	MON	6.00	97
MAN10A	MON	9.90	97
MAN51A	MON	3.10	97
MAN52A	MON	3.10	97
MAN54A	MON	3.10	97
MAN71A	MON	2.01	97
MAN72A	MON	2.01	97
MAN73A	MON	2.01	97
MAN74A	MON	2.01	97
MAN82A	MON	3.10	97
MAN84A	MON	3.10	97
MAN3610A	MON	2.87	97
MAN3620A	MON	2.87	97
MAN3630A	MON	2.87	97
MAN3640A	MON	2.87	—
MAN4610A	MON	3.05	97
MAN4640A	MON	3.05	97
MAN6610	MON	3.45	97
MAN6630	MON	3.45	97
MAN6640	MON	3.45	97
MAN6660	MON	3.15	97
MAN6680	MON	3.15	97
MAN6710	MON	3.30	97
MAN6730	MON	3.30	97
MAN6740	MON	3.30	97
MAN6750	MON	3.30	97
MAN6760	MON	1.88	97
MAN6780	MON	1.88	97
MBD101	MOT	.89	—
MBD102	MOT	.98	—
MBD501	MOT	.94	—
MBD502	MOT	1.06	—
MC14561BCP	MOT	1.13	34
MBS4991	MOT	.78	34
MBS4992	MOT	1.35	98
MCL601	MON	8.95	—
MCL1301	MOT	2.30	—
MCR101	MOT	.42	—
MCR102	MOT	.63	34
MCR103	MOT	.66	34
MCR104	MOT	.75	34
MCR120	MOT	.84	34
MCR106-1	MOT	.74	34
MCR106-2	MOT	.78	34
MCR106-3	MOT	.81	34
MCR106-4	MOT	.90	34
MCR106-5	MOT	1.13	34
MCR106-6	MOT	1.31	34
MCR106-8	MOT	2.25	34
MCR649-1	MOT	3.72	—
MCR649-2	MOT	4.47	—

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr	1-24	Page
MCR649-4	MOT	5.79	—
MCR649AP1	MOT	3.36	—
MCR649P2	MOT	3.97	—
MCR3000-1	MOT	1.26	34
MCR3818-4	MOT	2.48	—
MCR3918-2	MOT	2.56	33
MCR3918-5	MOT	3.47	33
MCR3918-8	MOT	5.28	—
MCR3935-2	MOT	3.32	33
MCR3935-6	MOT	6.27	—
MCR3835-8	MOT	7.67	33
MCS2	MON	1.65	98
MCS2400	MON	2.20	98
MCS6200	MON	4.35	98
MCS6201	MON	5.10	98
MCT2	MOT	.90	28
MCT-2	TI	1.06	—
MCT2E	MON	1.10	98
MCT8	MON	2.35	—
MCT26	MON	.97	98
MCT66	MON	2.25	98
MCT271	MON	1.45	98
MCT272	MON	1.45	98
MCT273	MON	1.55	98
MCT274	MON	1.85	98
MCT275	MON	1.65	98
MD708	MOT	3.38	—
MD918	MOT	5.20	—
MD918A	MOT	8.45	—
MD2219	MOT	7.95	41
MD2369A	MOT	7.15	—
MD2905	MOT	7.95	41
MD5000	MOT	11.25	—
MD6002	MOT	7.80	41
MD8001	MOT	2.10	41
MD8002	MOT	2.25	—
MD8003	MOT	2.50	—
MDA800	MOT	5.60	—
MDA801	MOT	6.20	—
MDA802	MOT	6.80	—
MDA804	MOT	8.00	—
MDA806	MOT	10.00	—
MDA920A1	MOT	1.66	—
MDA920A2	MOT	1.98	36
MDA920A3	MOT	2.28	36
MDA920A4	MOT	2.72	36
MDA920A5	MOT	2.82	—
MDA920A6	MOT	2.90	36
MDA920A7	MOT	3.78	36
MDA942A1	MOT	2.90	—
MDA942A-2	MOT	3.30	—
MDA942A3	MOT	3.80	—
MDA942A4	MOT	4.40	—
MDA942A5	MOT	4.80	—
MDA942A6	MOT	5.50	—
MDA960-1	MOT	3.00	—
MDA960-2	MOT	3.45	—
MDA960-3	MPT	3.90	—
MDA970-1	MOT	3.13	36
MDA970-2	MOT	3.56	36
MDA970-3	MOT	3.99	36
MDA970-5	MOT	4.99	36
MDA980-1	MOR	3.27	—
MDA980-2	MOT	3.55	—
MDA980-3	MOT	3.73	—
MDA980-4	MOT	4.00	—
MDA980-5	MOT	4.45	—
MDA980-6	MOT	5.09	—
MDA990-1	MOT	3.73	—
MDA990-2	MOT	3.90	—
MDA990-3	MOT	4.09	—
MDA990-4	MOT	4.36	—
MDA990-5	MOT	4.73	—
MDA990-6	MOT	5.55	—
MDA1200	MOT	5.55	36
MDA1201	MOT	5.80	36
MDA1202	MOT	6.35	36
MDA1204	MOT	7.20	36
MDA1206	MOT	8.35	36
MDA3500	MOT	2.54	36
MDA3501	MOT	2.62	36
MDA3502	MOT	2.70	36
MDA3504	MOT	2.77	36
MDA3506	MOT	3.77	36
MDA3508	MOT	4.54	36
MDA3510	MOT	5.77	36
ME7024	MON	1.95	—
ME7124	MON	1.65	—
MFE2093	MOT	2.10	—
MFE3001	MOT	2.25	40
MFE3002	MOT	3.35	—
MFE3003	MOT	3.00	—
MFE3004	MOT	1.80	—
MFE3005	MOT	6.75	—
MHQ2222	MOT	8.40	41
MHQ6002	MOT	8.40	41
MJ410	MOT	2.50	31
MJ411	MOT	2.75	32
MJ413	MOT	2.55	32
MJ423	MOT	4.15	32
MJ802	MOT	3.04	32
MJ900	MOT	1.42	30, 32
MJ901	MOT	1.62	30, 32
MJ1000	MOT	1.42	30, 32
MJ1001	MOT	1.62	30, 32
MJ1800	MOT	3.00	32
MJ2252	MOT	2.00	—
MJ2500	MOT	1.82	30, 32
MJ2501	MOT	2.03	30, 32
MJ2955	MOT	.88	32
MJ3000	MOT	1.82	30, 32
MJ3001	MOT	2.03	30, 32
MJ3029	MOT	2.45	—
MJ3030	MOT	3.75	30
MJ4030	MOT	2.50	30, 32
MJ4031	MOT	2.84	30, 32
MJ4032	MOT	3.31	30, 32
MJ4033	MOT	2.50	30, 32
MJ4034	MOT	2.84	30, 32
MJ4035	MOT	3.31	30, 32
MJ4502	MOT	3.04	32
MJ9000	MOT	7.30	30, 32
MJ10000	MOT	5.94	30, 32
MJ10002	MOT	4.39	30, 32
MJ10004	MOT	8.44	30, 32
MJ10012	MOT	3.71	30
MJ11012	MOT	2.84	30, 32
MJ11015	MOT	3.98	32
MJ11016	MOT	3.98	32
MJ11401	MOT	9.38	—
MJ14002	MOT	10.13	32
MJE31	MOT	.57	31
MJE31C	MOT	.70	31
MJE32	MOT	.61	31
MJE32C	MOT	.74	31
MJE105	MOT	2.09	31
MJE170	MOT	.50	31
MJE171	MOT	.57	31
MJE172	MOT	.66	31
MJE180	MOT	.47	31
MJE181	MOT	.52	31
MJE182	MOT	.61	31
MJE200	MOT	.78	31
MJE205	MOT	1.70	31
MJE210	MOT	.89	31
MJE220	MOT	.88	—
MJE223	MOT	1.00	—
MJE224	MOT	.93	—
MJE225	MOT	.85	—
MJE233	MOT	1.12	—
MJE234	MOT	1.05	—
MJE240	MOT	1.13	—
MJE243	MOT	1.22	31
MJE244	MOT	1.08	—
MJE251	MOT	1.24	31
MJE253	MOT	1.34	31
MJE254	MOT	1.23	—
MJE340	MOT	.85	31
MJE340K	MOT	1.15	—
MJE344	MOT	.72	31
MJE350	MOT	1.32	31
MJE370	MOT	.74	31
MJE371	MOT	.89	—
MJE520	MOT	.55	31
MJE521	MOT	.88	—
MJE700	MOT	1.10	30, 31
MJE702	MOT	1.30	31
MJE703	MOT	1.51	—
MJE710	MOT	.58	—
MJE711	MOT	.67	—
MJE712	MOT	.79	—
MJE720	MOG	.53	—
MJE721	MOT	.61	—
MJE722	MOT	.74	—
MJE800	MOT	.94	30, 31
MJE801	MOT	1.08	—
MJE802	MOT	1.10	31
MJE803	MOT	1.29	—
MJE1090	MOT	2.65	31
MJE1091	MOT	2.85	31
MJE1092	MOT	3.10	31
MJE1093	MOT	3.40	31
MJE1100	MOT	1.80	31
MJE1101	MOT	1.95	31
MJE1102	MOT	2.20	31
MJE1103	MOT	2.40	31
MJE1290	MOT	2.45	—
MJE1291	MOT	2.90	—
MJE1660	MOT	2.05	—
MJE2361	MOT	1.42	—
MJE2801	MOT	1.25	32
MJE2901	MOT	2.25	32
MJE2955	MOT	2.25	32
MJE3055	MOT	1.55	32
MJE3439	MOT	.95	31
MJE6043	MOT	1.55	30, 32
MJE13009	MOT	5.33	30, 32
MLED60	MOT	.62	28
MLED90	MOT	.58	28
MLED900	MOT	.85	28
MLED910	MOT	3.60	28
MLED930	MOT	3.50	28
MM420	MOT	.92	37
MM421	MOT	1.03	37
MM1941	MOT	1.98	38
MM3000	MOT	1.35	—
MM3001	MOT	1.45	37
MM3002	MOT	1.70	37
MM3003	MOT	1.95	37
MM3005	MOT	1.65	37
MM3007	MOT	2.60	37
MM3009	MOT	1.80	37
MM4001	MOT	1.48	38
MM4002	MOT	1.75	38
MM4003	MOT	1.95	37
MM4005	MOT	1.95	—
MM4007	MOT	2.85	—
MM4049	MOT	3.45	—
MM5005	MOT	1.12	38
MM5007	MOT	1.73	38
MMH0026CP1	MOT	1.75	45
MMT74	MOT	1.06	—
MMT918	MOT	1.60	—
MMT930	MOT	1.16	—
MMT2369	MOT	1.68	—
MMT2857	MOT	2.68	—
MMT2907	MOT	1.78	—
MMT3823	MOT	1.16	—
MMT3960A	MOT	5.76	—
MOC3010	MOT	1.85	28
MOC3011	MOT	1.95	28
MP110	LAN	2.09	100
MP110B	LAN	4.38	100
MP500	LAN	5.15	100
MP501	LAN	6.40	100
MP502	LAN	8.48	100
MP503	LAN	12.09	100
MP504	LAN	5.33	100
MP505	LAN	6.60	100
MP506	LAN	8.69	100
MP507	LAN	12.33	100
MP600A	LAN	4.44	100
MG601A	LAN	4.83	100
MP602A	LAN	5.30	100
MP603A	LAN	5.95	100
MP2000B	LAN	3.61	100
MP2100B	LAN	5.31	100
MP2200B	LAN	5.95	100
MP2300B	LAN	6.91	100
MP2357	LAN	6.84	100
MP2358	LAN	9.93	100
MG2359	LAN	13.45	100
MP2400B	LAN	8.70	100
MP4276	LAN	4.91	—
MP4277	LAN	5.06	—
MP4278	LAN	5.86	—
MP4279	LAN	6.01	—
MP4280	LAN	7.03	—
MP4281	LAN	7.19	—
MP4282	LAN	9.08	—
MP4283	LAN	9.25	—
MP5435	LAN	13.68	—
MP5436	LAN	17.66	—
MP5437	LAN	22.58	—
MP5438	LAN	14.85	—
MP5439	LAN	18.83	—
MP5440	LAN	23.94	—
MPD200	GE	1.21	—
MPD300	GE	1.49	—
MPF102	MOT	.45	40
MPF108	MOT	.87	—
MPF111	MOT	.38	—
MPF112	MOT	.38	—
MPF131	MOT	1.00	—
MPF161	MOT	.67	—
MPF256	MOT	.80	40
MPN3401	MOT	.52	—
MPQ918	MOT	2.70	—
MPQ2222	MOT	3.15	41
MPQ2906	MOT	3.00	—
MPQ3725	MOT	3.70	41
MPQ6001	MOT	3.60	41
MPQ6002	MOT	3.80	41
MPS404	MOT	.37	—
MPS404A	MOT	.45	—
MPS706	MOT	.45	—
MPS706A	MOT	.63	—
MPS834	MOT	.52	39
MPS918	MOT	.83	40
MPS2222	MOT	.32	39
MPS2369	MOT	.53	39
MPS2714	MOT	.43	—
MPS2907	MOT	.39	39
MPS2923	MOT	.28	—
MPS2924	MOT	.30	—
MPS2925	MOT	.34	—
MPS2926	MOT	.27	—
MPS3391	MOT	.39	—
MPS3392	MOT	.27	—
MPS3393	MOT	.28	—
MPS3394	MOT	.27	—
MPS3395	MOT	.35	—
MPS3563	MOT	.28	40
MPS3566-5	MOT	.29	—
MPS3568-5	MOT	.30	—
MPS3569	MOT	.29	—
MPS3638	MOT	.26	—
MPS3638A	MOT	.27	—
MPS3639	MOT	.26	39
MPS3640	MPT	.29	39
MPS3646	MOT	.28	39
MPS3693	MOT	.31	—
MPS3702	MOT	.34	39
MPS3703	MOT	.30	—
MPS3704	MOT	.34	39
MPS3705	MOT	.29	—
MPS3707	MOT	.34	—
MPS3711	MOT	.29	—
MPS4354	MOT	.39	—
MPS4355	MOT	.40	—
MPS4356	MOT	.43	—
MPS5172	MOT	.19	39
MPS6172	MOT	.19	—
MPS6507	MOT	.53	—
MPS6512	MOT	.28	—
MPS6513	MOT	.44	39
MPS6514	MOT	.46	39
MPS6515	MOT	.44	39
MPS6516	MOT	.55	39
MPS6516	GE	.56	83
MPS6517	MOT	.54	39
MPS6517	GE	.55	83
MPS6518	MOT	.59	39
MPS6518	GE	.58	83
MPS6519	MOT	.71	39
MPS6520	MOT	.49	39
MPS6521	MOT	.54	39
MPS6522	MOT	.52	39
MPS6523	MOT	.58	39

NEW TYPES STOCKED AS SOON AS RELEASED

DISCRETE DEVICES

Type	Mfr	1-24	Page
MPS6530	MOT	.44	—
MPS6530	GE	.46	83
MPS6531	MOT	.52	39
MPS6531	GE	.51	83
MPS6532	GE	.41	83
MPS6533	MOT	.54	—
MPS6533	GE	.54	83
MPS6534	MOT	.55	39
MPS6534	GE	.55	83
MPS6535	MOT	.46	—
MPS6535	GE	.46	83
MPS6543	MOT	1.32	39
MPS6544	MOT	.54	—
MPS6547	MOT	1.35	40
MPS6560	MOT	.48	39
MPS6561	MOT	.45	—
MPS6562	MOT	.54	39
MPS6563	MOT	.51	—
MPS6565	MOT	.47	—
MPS6566	MOT	.50	—
MPS6568	MOT	1.50	—
MPS6571	MOT	.53	—
MPS6595	MOT	.55	—
MPS8099	MOT	.39	39
MPS8599	MOT	.41	39
MPSA05	MOT	.48	39
MPSA05	GE	.48	83
MPSA06	MOT	.50	39
MPSA06	GE	.40	83
MPSA09	MOT	.54	39
MPSA10	MOT	.25	—
MPSA12	MOT	.58	39
MPSA13	MOT	.42	39
MPSA14	MOT	.51	39
MPSA16	MOT	.36	—
MPSA17	MOT	.36	—
MPSA18	MOT	.72	39
MPSA20	MOT	.26	39
MPSA20	GE	.26	83
MPSA42	MOT	.53	39
MPSA43	MOT	.68	39
MPSA55	MOT	.52	39
MPSA55	GE	.52	83
MPSA56	MOT	.60	39
MPSA56	GE	.60	83
MPSA63	MOT	.42	39
MPSA64	MOT	.51	39
MPSA70	MOT	.30	39
MPSA92	MOT	.58	39
MPSA93	MOT	.53	—
MPSH02	MOT	.76	—
MPSH04	MOT	.38	40
MPSH10	MOT	.49	40
MPSH11	MOT	.54	40
MPSH32	MOT	.63	40
MPSH55	MOT	.38	40
MPSH83	MOT	1.15	40
MPSL01	MOT	.54	39
MPSL51	MOT	.61	39
MPSU01	MOT	.54	31
MPSU01A	MOT	.61	31
MPSU02	MOT	.58	31
MPSU03	MOT	.67	31
MPSU04	MOT	.72	31
MPSU05	MOT	.54	31
MPSU06	MOT	.61	31
MPSU07	MOT	.67	31
MPSU10	MOT	.70	31
MPSU45	MOT	.72	30
MPSU51	MOT	.57	31
MPSU51A	MOT	.63	31
MPSU52	MOT	.61	31
MPSU55	MOT	.79	31
MPSU56	MOT	.80	31
MPSU57	MOT	.87	31
MPSU60	MOT	1.65	31
MPSU95	MOT	1.01	30
MPT32	MOT	.53	—
MPU131	MOT	.71	33
MPU133	MOT	.90	33
MPU6027	MOT	.73	—
MPZ5-32C	MOT	55.38	—
MR1-1600	MOT	1.40	—
MR250-1	MOT	.60	—
MR250-2	MOT	1.40	—
MR250-3	MOT	1.60	—
MR250-4	MOT	1.60	—
MR250-5	MOT	1.67	—
MR328	MOT	2.58	36
MR328R	MOT	2.58	—
MR331	MOT	5.58	36
MR331R	MOT	5.58	—
MR501	MOT	.32	36
MR502	MOT	.36	36
MR504	MOT	.44	36
MR506	MOT	.58	36
MR508	MOT	.90	36
MR510	MOT	1.10	36
MR751	MOT	.80	36
MR752	MOT	.88	36
MR754	MOT	1.00	36
MR756	MOT	1.56	36
MR810	MOT	.33	36
MR811	MOT	.37	36
MR812	MOT	.42	36
MR814	MOT	.46	36
MR831	MOT	2.00	36
MR832	MOT	2.40	36
MR834	MOT	3.60	36
MR850	MOT	.85	36
MR851	MOT	.90	36
MR852	MOR	1.00	36
MR856	MOT	1.65	36
MR876	MOT	10.18	36
MR1120	MOT	1.22	36
MR1121	MOT	1.40	36
MR1121R	MOT	1.40	—
MR1122	MOT	1.50	36
MR1123	MOT	1.68	—
MR1123R	MOT	1.68	—
MR1124	MOT	1.86	36
MR1126	MOT	3.30	36
MR1126R	MOT	3.30	—
MR1128	MOT	6.37	36
MR1130	MOT	8.89	36
MR1205FL	MOT	7.15	35
MR1205FLR	MOT	7.15	—
MR1209FL	MOT	11.60	35
MR1215SL	MOT	8.75	35
MR1215SLR	MOT	8.75	—
MR1245FL	MOT	32.25	35
MR1245FLR	MOT	32.25	—
MR1249FL	MOT	54.70	35
MR1815SL	MOT	9.35	35
MR2001S	MOT	1.08	36
MR2266	MOT	1.30	—
MR2272	MOT	.68	—
MR2502SR	MOT	1.47	—
MR4936	MOT	.90	—
MRA163B	MOT	109.00	35
MRA333	MOT	34.80	35
MRA363	MOT	53.40	35
MRA363B	MOT	112.00	35
MRD14B	MOT	.55	28
MRD150	MOT	1.20	—
MRD160	MOT	.75	28
MRD300	MOT	2.50	28
MRD310	MOT	2.25	28
MRD450	MOT	1.13	28
MRD500	MOT	10.90	28
MRD510	MOT	9.90	28
MRD3050	MOT	1.20	28
MRD3051	MOT	1.35	28
MRD3055	MOT	1.45	28
MRD3056	MOT	1.65	28
MRF454	MOT	29.20	40
MRF502	MOT	.48	—
MRF8004	MOT	1.44	—
MSD6100	MOT	.36	—
MSS1000	MOT	.20	—
MT1	MON	6.15	—
MT2	MON	6.15	—
MU20	MOT	.50	34
MU4891	MOT	.90	34
MU4892	MOT	1.15	34
MU4893	MOT	.96	34
MU4894	MOT	1.05	34
MUS4987	MOT	.65	—
MV104	MOT	.89	—
MV839	MOT	1.35	—
MV840	MOT	1.35	—
MV1401	MOT	8.95	—
MV1404	MOT	8.95	—
MV1405	MOT	8.95	—
MV1620	MOT	1.42	—
MV1628	MOT	1.42	—
MV1632	MOT	1.42	—
MV1642	MOT	1.42	—
MV1650	MOT	1.42	—
MV2101	MOT	.90	—
MV2105	MOT	.90	—
MV2106	MOT	.90	—
MV2107	MOT	.90	—
MV2109	MOT	.90	—
MV2112	MOT	.90	—
MV2115	MOT	.90	—
MV2201	MOT	.53	—
MV2205	MOT	.53	—
MV2209	MOT	.53	—
MV3140	MOT	1.20	—
MW4050D	RCA	15.39	—
MZ2360	MOT	.28	—
MZ2361	MOT	.57	—
MZ4614	MOT	3.85	29
MZ4615	MOT	3.85	29
MZ4616	MOT	3.85	29
MZ4617	MOT	3.85	29
MZ4619	MOT	3.85	29
MZ4622	MOT	3.85	29
MZ4623	MOT	3.85	29
MZ4624	MOT	3.85	29
MZ4625	MOT	3.85	29
MZ4626	MOT	3.85	29
NR231A	RCA	.02	—
P101KW	IR	30.00	—
P101W	IR	25.60	—
P102KW	IR	37.75	—
P102W	IR	33.75	—
Q2T2222	TI	3.43	58
Q2T2905	TI	3.58	58
Q2T3244	TI	5.64	58
Q2T3725	TI	4.12	58
Q4B	IR	4.27	—
RC4136J	TI	1.58	60
RC4136N	TI	1.30	60
RC4558P	TI	.48	—
RCA1A03	RCA	1.31	—
RCA1A04	RCA	1.50	—
RCA1A05	RCA	.78	—
RCA1A06	RCA	.71	—
RCA1B01	RCA	1.65	—
RCA29	RCA	.55	68
RCA30B	RCA	.68	69
RCA30C	RCA	.74	69
RCA410	RCA	2.30	—
RCA411	RCA	2.55	—
RCA413	RCA	2.56	—
RCA423	RCA	3.90	—
RCA3055	RCA	.93	69
RCA8350B	RCA	2.64	—
RM4136J	TI	3.39	—
S1V1P	IR	1.32	—
S2Y1P	IR	1.50	—
S5V5P	IR	1.54	—
S5Y5P	IR	1.74	—
S5Z5P	IR	2.35	—
S6W6P	IR	6.23	—
S2060B	RCA	.79	—
S2060D	RCA	1.16	—
S2060M	RCA	1.60	—
S2600B	RCA	1.41	72
S2600D	RCA	1.69	72
S2600M	RCA	2.03	72
S2610B	RCA	1.58	72
S2710D	RCA	1.94	—
S2800B	RCA	1.06	72
S2800D	RCA	1.25	72
S2800D	MOT	1.62	34
S3705M	RCA	2.72	—
S3700D	RCA	4.44	—
S6210D	RCA	5.89	72
S6220B	RCA	4.94	72
S6220D	RCA	6.32	—
S6220M	RCA	8.28	—
S6420D	RCA	8.05	—
S6420M	RCA	9.78	—
S6200B	MOT	3.23	—
S6220B	MOT	3.95	—
S6220D	MOT	5.05	—
SC136B	GE	.91	79
SC136D	GE	1.09	79
SC137A2	GE	1.08	—
SC141B	GE	1.25	79
SC141D	MOT	1.39	34
SC141D	GE	1.39	79
SC142B	GE	1.73	79
SC142D	GE	2.01	79

Key	Mfr.
GE	General Electric
GI	General Instrument
IDI	International Devices Inc.
IR	International Rectifier
LAN	Lansdale
MON	Monsanto
MOT	Motorola Motorola—HEP
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr	1-24	Page
SC146B	GE	1.50	79
SC146B	MOT	1.50	—
SC146D	GE	1.84	79
SC146E	GE	2.64	79
SC146M	MOT	3.28	—
SC151D	GE	2.61	79
SC240B	GE	3.00	79
SC240D	GE	3.54	79
SC240E	GE	4.25	79
SC241B	GE	2.60	79
SC241D	GE	3.12	79
SC245B	GE	3.09	79
SC245B3	MOT	3.57	—
SC245D	GE	3.65	—
SC245D3	MOT	4.13	—
SC245M3	MOT	5.21	33
SC246B	GE	2.80	79
SC246D	GE	3.35	79
SC250B	GE	3.28	79
SC250B2	GE	3.76	79
SC250D	GE	3.85	—
SC250D2	GE	4.33	79
SC250E	GE	4.64	—
SC251D	GE	3.55	79
SC251D	MOT	3.55	—
SC260B	GE	3.92	79
SC260B	MOT	3.92	—
SC260B2	GE	4.84	79
SC260B3	MOT	4.84	—
SC260D	GE	4.63	—
SC260D2	GE	5.58	79
SC260D3	MOT	5.58	—
SC260E	GE	5.44	—
SC260E	MOT	5.44	—
SC260E2	GE	6.29	79
SC260M	MOT	5.69	—
SC260M3	MOT	6.63	—
SC266B	GE	5.08	79
SF13X40	IR	2.74	88
SF25X20	IR	1.48	88
SF25X150	IR	6.72	88
SF50P200	IR	7.64	88
SG2524J	TI	15.99	60
SG3524J	TI	6.99	60
SG3524N	TI	5.99	60
SK3003	RCA	1.05	—
SK3004	RCA	1.60	—
SK3005	RCA	1.55	—
SK3006	RCA	2.30	—
SK3007	RCA	1.85	—
SK3008	RCA	1.65	—
SK3009	RCA	3.10	—
SK3010	RCA	1.90	—
SK3011	RCA	1.75	—
SK3012	RCA	6.20	—
SK3013	RCA	6.20	—
SK3014	RCA	5.70	—
SK3015	RCA	11.40	—
SK3016	RCA	.70	—
SK3017A	RCA	.65	—
SK3018	RCA	1.65	—
SK3019	RCA	1.85	—
SK3020	RCA	1.05	—
SK3021	RCA	2.20	—
SK3024	RCA	2.10	—
SK3025	RCA	2.85	—
SK3026	RCA	2.40	—
SK3027	RCA	3.65	—
SK3029	RCA	7.25	—
SK3030	RCA	.70	—
SK3031	RCA	.80	—

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr	1-24	Page
SK3032	RCA	.90	—
SK3033	RCA	1.00	—
SK3034	RCA	6.40	—
SK3035	RCA	7.05	—
SK3036	RCA	6.20	—
SK3038	RCA	.95	—
SK3039	RCA	2.95	—
SK3040	RCA	3.05	—
SK3041	RCA	2.70	—
SK3042	RCA	5.15	—
SK3044	RCA	3.35	—
SK3045	RCA	5.65	—
SK3046	RCA	2.60	—
SK3047	RCA	3.05	—
SK3048	RCA	4.20	—
SK3049	RCA	8.55	—
SK3051	RCA	1.25	—
SK3052	RCA	2.20	—
SK3053	RCA	4.95	—
SK3054	RCA	2.85	—
SK3055	RCA	.80	—
SK3056	RCA	.80	—
SK3057	RCA	.80	—
SK3058	RCA	.80	—
SK3062	RCA	.90	—
SK3063	RCA	.80	—
SK3064	RCA	.80	—
SK3080	RCA	.25	—
SK3081	RCA	.75	—
SK3082	RCA	2.95	—
SK3083	RCA	2.70	—
SK3084	RCA	3.05	—
SK3088/ 1N60MP	RCA	.34	—
SK3105	RCA	1.95	—
SK3112	RCA	1.75	—
SK3113	RCA	3.65	—
SK3114	RCA	1.55	—
SK3115	RCA	13.15	—
SK3116	RCA	1.45	—
SK3122	RCA	1.35	—
SK3123	RCA	3.15	—
SK3124	RCA	1.35	—
SK3133	RCA	8.00	—
SK3137	RCA	1.85	—
SK3500	RCA	4.30	—
SK3501	RCA	6.60	—
SK3502	RCA	2.85	—
SK3503	RCA	2.50	—
SK3504	RCA	9.50	—
SK3505	RCA	13.30	—
SK3506	RCA	2.85	—
SK3507	RCA	3.25	—
SK3509	RCA	8.55	—
SK3511	RCA	6.65	—
SK3512	RCA	4.30	—
SK3513	RCA	4.75	—
ST2	GE	.66	79
ST2	IR	7.22	—
ST4	GE	.60	79
STB567	GE	.48	—
T2300A	RCA	1.18	70
T2300B	RCA	1.30	70
T2300D	RCA	1.63	70
T2301B	RCA	1.15	70
T2301D	RCA	1.54	70
T2302B	RCA	1.12	70
T2302D	RCA	1.42	70
T2306D	RCA	1.40	71
T2310B	RCA	1.42	70
T2310D	RCA	1.75	70
T2311D	RCA	1.66	70
T2312B	RCA	1.24	70
T2312D	RCA	1.55	70
T2316B	RCA	1.21	71
T2500B	RCA	1.29	70
T2500B	MOT	1.03	34
T2500D	MOT	1.24	34
T2700B	RCA	1.57	70
T2700D	RCA	1.89	70
T2706D	RCA	2.39	71
T2710B	RCA	1.74	70
T2710D	RCA	2.05	70
T2800B	RCA	1.45	70
T2800B	MOT	1.16	—
T2800D	RCA	1.72	70
T2800D	MOT	1.37	—
T2800M	MOT	1.98	—
T2801DF	MOT	1.27	—
T2806B	RCA	1.62	71
T2806D	RCA	2.18	71
T2850B	RCA	1.62	—
T2850D	RCA	1.88	70
T4111M	RCA	4.92	—
T4116D	RCA	4.39	—
T4117B	RCA	3.55	70
T4120B	MOT	3.79	—
T4120D	RCA	5.38	—
T4121B	RCA	4.54	70
T4121D	RCA	5.15	70
T4700B	RCA	2.07	70
T4700D	RCA	2.48	70
T4706B	RCA	2.48	71
T4706D	RCA	3.27	71
T6401D	RCA	5.41	70
T6401M	MOT	5.41	—
T6411B	RCA	5.74	71
T6411D	MOT	4.59	—
T6411M	RCA	7.10	71
T6416D	RCA	7.26	72
T6416M	RCA	8.96	72
T6417D	RCA	5.91	71
T6420B	MOT	5.70	33
T6420D	RCA	8.25	—
T6420D	MOT	6.60	33
T6420M	MOT	7.96	33
T6421B	MOT	4.80	—
T6421D	MOT	5.52	—
T6420M	RCA	9.95	—
T6421D	RCA	6.90	71
T6421M	MOT	6.60	—
T6421M	RCA	8.25	71
TD-9	GE	8.54	—
TD-100	SPR	2.40	—
TD-101	SPR	1.60	—
TD-401	SPR	1.80	—
TD-601	SPR	1.80	—
TI-51	TI	.38	—
TI-53	TI	.39	—
TI-55	TI	.41	—
TI-56	TI	.42	—
TI-57	TI	.43	—
TI-58	TI	.44	—
TI145A2	TI	1.99	—
TI145A3	TI	2.35	—
TI-480	TI	3.60	—
TI-481	TI	4.30	—
TI-483	TI	6.22	—
TI-484	TI	7.59	—
TI-486	TI	4.80	54
TI-487	TI	4.80	54
TI-492	TI	3.04	—
TI-493	TI	3.80	—
TI-494	TI	4.90	—
TI-495	TI	5.88	—
TI-496	TI	4.02	53
TIC44	TI	.44	53
TIC45	TI	.52	53
TIC46	TI	.59	53
TIC106A	TI	.48	53
TIC106B	TI	.53	53
TIC106C	TI	.59	53
TIC106D	TI	.74	53
TIC216A	TI	1.01	53
TIC216B	TI	.94	53
TIC216D	TI	1.21	53
TIC226D	TI	1.26	50
TID40	TI	.37	39
TID121	TI	1.78	—
TID124	TI	1.68	—
TID125	TI	1.99	—
TID126	TI	1.89	—
TID136N	TI	3.24	—
TIL23	TI	1.44	63
TIL24	TI	2.72	63
TIL31	TI	1.75	63
TIL32	TI	.62	63
TIL63	TI	2.21	—
TIL65	TI	2.94	—
TIL66	TI	3.31	—
TIL67	TI	3.16	—
TIL78	TI	.35	62
TIL81	TI	1.41	62
TIL102	TI	4.82	63
TIL107	TI	5.88	63
TIL109	TI	11.76	63
TIL111	TI	1.01	63
TIL112	TI	.93	63
TIL113	TI	1.10	63
TIL115	TI	.99	63
TIL116	TI	1.22	63
TIL117	TI	1.37	63
TIL118	TI	.91	63
TIL119	TI	.96	63
TIL124	TI	1.16	63
TIL126	TI	1.76	63
TIL127	TI	1.65	63
TIL138	TI	2.58	62
TIL139	TI	2.58	62
TIL154	TI	1.29	63
TIL156	TI	1.68	63
TIL209A	TI	.21	63
TIL211	TI	.27	—
TIL212-1	TI	.35	63
TIL212-2	TI	.46	—
TIL216-1	TI	.25	63
TIL216-2	TI	.46	—
TIL220	TI	.24	63
TIL220M	TI	.12	—
TIL221	TI	.24	63
TIL222	TI	.30	63
TIL224-1	TI	.29	63
TIL224-2	TI	.57	—
TIL228-1	TI	.29	63
TIL228-2	TI	.57	—
TIL232-1	TI	.25	63
TIL232-2	TI	.46	—
TIL234-2	TI	.57	—
TIL240-1	TI	.57	—
TIL240-2	TI	.91	—
TIL241-1	TI	.57	—
TIL241-2	TI	.91	—
TIL242-1	TI	.57	—
TIL242-2	TI	.91	—
TIL302	TI	5.93	62
TIL304	TI	5.93	62
TIL305	TI	5.60	62
TIL306	TI	11.28	62
TIL307	TI	11.28	62
TIL308	TI	11.28	62
TIL309	TI	11.28	62
TIL311	TI	11.58	62
TIL313	TI	1.68	62
TIL321	TI	1.81	62
TIL322	TI	1.81	62
TIL330	TI	1.81	63
TIL401	TI	6.17	62
TIL601	TI	1.44	62
TIL602	TI	1.53	62
TIL604	TI	1.76	62
TIL804-12	TI	14.36	62
TIP-29	TI	.54	54
•TIP29	RCA	.55	—
•TIP-29A	TI	.58	54
•TIP-29B	TI	.63	54
•TIP-29C	TI	.70	54
TIP-30	TI	.58	54
•TIP-30	RCA	.59	69
•TIP-30A	TI	.63	54
•TIP-30B	TI	.67	54
•TIP-30C	TI	.74	54
•TIP-31	TI	.63	54
•TIP-31A	TI	.67	54
•TIP-31B	TI	.72	54
•TIP-31C	TI	.75	54
•TIP-32	TI	.67	54
•TIP-32A	TI	.70	54
•TIP-32B	TI	.75	54
•TIP-32C	TI	.82	54
TIP-33	TI	.91	54
TIP-33A	TI	.97	54
TIP-33B	TI	1.05	54
TIP-33C	TI	1.21	54
TIP-34	TI	1.03	54
TIP-34A	TI	1.13	54
TIP-34B	TI	1.21	54
TIP-34C	TI	1.36	54
TIP-35	TI	2.04	54
TIP-35A	TI	2.20	54
TIP-35B	TI	2.35	54
TIP-35C	TI	2.70	54
TIP-36	TI	2.20	54
TIP36A	TI	2.35	54
TIP36B	TI	2.54	54
TIP36C	TI	2.75	54
TIP41	TI	.82	54
TIP41	MOT	.81	32
TIP41A	TI	.89	—
TIP41A	MOT	.88	32
TIP41B	TI	.96	—
TIP41C	TI	1.09	—
TIP41C	MOT	1.07	32
TIP42	TI	.91	54
TIP42	MOT	.89	32
TIP42A	TI	1.00	54
TIP42A	MOT	.99	32
TIP42B	TI	1.09	54
TIP42B	MOT	1.07	32
TIP42C	TI	1.23	55
TIP42C	MOT	1.20	32
TIP47	TI	.82	54
TIP48	TI	.89	54
TIP51	TI	1.96	54
TIP52	TI	2.27	55
TIP53	TI	2.60	54
TIP54	TI	2.91	54
TIP73	TI	1.07	54
TIP107	TI	1.56	54
TIP110	TI	.91	54
TIP111	TI	.96	54
TIP115	TI	.96	54
TIP120	TI	1.27	54
TIP120	MOT	1.16	30, 32
TIP120	RCA	1.16	69
TIP121	MOT	1.30	30, 32
TIP121	TI	1.40	54
TIP121	RCA	1.30	64
TIP122	MOT	1.49	30, 32
TIP125	MOT	1.24	30, 32
TIP126	TI	1.49	—
TIP126	MOT	1.39	30, 32
TIP127	MOT	1.59	30, 32
TIP140	TI	2.00	54
TIP141	TI	2.27	54
TIP142	TI	2.71	54
TIP145	TI	2.31	54
TIP146	TI	2.60	54
TIP147	TI	3.09	54
TIP645	TI	2.64	54
TIP2955	TI	1.09	54
TIP3055	TI	.91	54
TIS-37	TI	.37	—
TIS-43	TI	.74	—
TIS-58	TI	.34	57
TIS-59	TI	.34	57
TIS70(PAIR)	TI	3.45	—
TIS-73	TI	1.72	57
TIS-74	TI	1.51	57
TIS-75	TI	1.57	57
TIS-87	TI	.61	—
TIS-92	TI	.37	—
TIS-92M	TI	.39	58
TIS-93	TI	.36	—
TIS-93M	TI	.38	58
TIS-97	TI	.33	—
TIS-98	TI	.28	—
TIS-99	TI	.29	—
TIS-100	TI	.64	—
TIV-308	TI	1.14	—
TN-59	SPR	.96	—
TQ59	SPR	1.00	—
TSP102A	TI	.87	57
TSP102F	TI	1.50	57
TSP102G	TI	1.46	57
TSP102K	TI	.73	57
U308	MOT	1.90	—
U309	MOT	2.20	—
U310	MOT	2.00	40

NEW TYPES STOCKED AS SOON AS RELEASED

DISCRETE DEVICES

Type	Mfr	1-24	Page
UHP400	SPR	2.72	99
UHP400-1	SPR	3.35	99
UHP401	SPR	3.35	—
UHP402	SPR	2.72	99
UHP402-1	SPR	3.35	99
UHP403	SPR	2.98	99
UHP403-1	SPR	3.60	99
UHP406	SPR	2.98	99
UHP406-1	SPR	3.60	99
UHP407	SPR	2.98	99
UHP407-1	SPR	3.60	99
UHP408	SPR	2.72	99
UHP408-1	SPR	3.35	99
UHP432-1	SPR	3.35	99
UHP433	SPR	2.98	99
UHP433-1	SPR	3.60	99
UHP500	SPR	4.45	99
UHP502	SPR	4.45	—
UHP503	SPR	4.72	99
UHP506	SPR	4.72	99
UHP507	SPR	4.72	99
UHP508	SPR	4.45	99
UHP532	SPR	4.45	99
UHP533	SPR	4.72	99
V22ZA1	GE	1.04	87
V22ZA3	GE	1.75	87
V24ZA1	GE	1.04	87
V24ZA4	GE	1.75	87
V27ZA1	GE	1.04	—
V27ZA4	GE	1.75	87
V33MA1A	GE	.75	—
V33MA1B	GE	.83	—
V33ZA1	GE	1.04	87
V33ZA5	GE	1.75	87
V39MA2A	GE	.75	—
V39MA2B	GE	.83	—
V39ZA1	GE	1.04	87
V39ZA6	GE	1.75	87
V40LA2A	GE	1.04	—
V40LA2B	GE	1.20	—
V47ZA1	GE	1.04	87
V47ZA7	GE	1.75	87
V56MA2B	GE	.83	—
V56ZA2	GE	1.04	87
V56ZA8	GE	1.75	87
V60LA3A	GE	1.10	—
V60LA3B	GE	1.28	—
V68ZA2	GE	1.04	87
V68ZA10	GE	1.75	87
V82ZA2	GE	1.04	87
V95LA7A	GE	1.60	87
V95LA7B	GE	1.75	87
V100MA4A	GE	.75	—
V100MA4B	GE	.83	—
V100ZA3	GE	1.04	87
V100ZA15	GE	1.75	87
V120MA1A	GE	1.05	—
V120MA2B	GE	1.16	—
V120ZA1	GE	1.04	87
V120ZA6	GE	1.75	87
V130HE150	GE	24.75	87
V130LA1	GE	1.23	87
V130LA2	GE	1.38	87
V130LA10A	GE	1.75	87
V130LA20A	GE	2.60	87
V130LA20B	GE	2.85	87
V130PA10A	GE	3.94	87
V130PA20A	GE	4.70	87
V130PA20B	GE	4.95	—
V130PA20C	GE	5.18	87
V150HE150	GE	24.75	87
V150LA1	GE	1.23	87
V150LA2	GE	1.38	87
V150LA10A	GE	1.75	87
V150LA20A	GE	2.60	87
V150PA10A	GE	3.94	87
V150PA20A	GE	4.70	87
V180ZA1	GE	1.04	87
V180ZA10	GE	1.75	87
V220MA2	GE	1.22	87
V220MA4B	GE	1.34	87
V250HE250	GE	30.91	87
V250LA2	GE	1.53	87
V250LA4	GE	1.77	87
V250LA15A	GE	2.18	87
V250LA20A	GE	2.60	87
V250LA40A	GE	4.30	87
V250LA40B	GE	4.73	87
V250PA40A	GE	6.23	—
V250PA40B	GE	6.55	—
V250PA40C	GE	6.86	—
V275LA2	GE	1.53	87
V275LA4	GE	1.77	87
V275LA15A	GE	2.18	87
V275LA20A	GE	2.60	87
V275LA40A	GE	4.30	87
V275PA40A	GE	6.23	—
V420LB20A	GE	3.93	87
V420LB40A	GE	5.58	—
V460LB20A	GE	3.93	87
V460LB40A	GE	5.58	87
V460LB40B	GE	6.13	87
V480LB40A	GE	5.58	87
V480LB80A	GE	7.90	87
V480LB80B	GE	8.97	87
V480PA80A	GE	10.94	87
V510LB20A	GE	4.20	87
V510LB40A	GE	5.85	87
V510LB80A	GE	9.25	87
V510LB80B	GE	10.18	87
V510PA40A	GE	8.15	87
V510PA80A	GE	11.21	87
V550PA80C	GE	12.33	—
V660HE600	GE	41.14	87
V1000LB80A	GE	12.75	87
WV2BE25C	GE	26.65	—
WV2BE25E	GE	37.45	—
1M130ZS10	MOT	2.26	29
1M150ZS10	MOT	2.26	—
1M200ZS10	MOT	2.26	29
5MA4	IR	1.12	—
5MA6	IR	1.99	—
10D1	IR	.35	—
10D2	IR	.38	—
10D3	IR	.40	—
10D4	IR	.43	—
10D5	IR	.45	—
10D6	IR	.50	—
10D8	IR	.60	—
10D10	IR	.83	—
10RC5	IR	3.70	—
12F40	IR	1.86	—
18DB05A	IR	1.40	—
18DB1A	IR	1.40	—
18DB2A	IR	1.40	—
18DB3A	IR	1.64	—
18DB4A	IR	1.88	—
18DB5A	IR	2.12	—
18DB6A	IR	2.36	—
18DB7A	IR	2.58	—
18DB8A	IR	2.85	—
18DB10A	IR	3.07	—
20D05	IR	.36	—
20D1	IR	.44	—
20D2	IR	.50	—
20D4	IR	.60	—
20D6	IR	.70	—
20D10	IR	1.31	—
22DB6A	IR	2.50	—
30DB1T	IR	4.53	—
30DB2T	IR	5.03	—
30DB4T	IR	5.37	—
30DB6T	IR	5.90	—
30S1	IR	.50	—
30S2	IR	.56	—
30S3	IR	.61	—
30S4	IR	.66	—
30S5	IR	.73	—
30S6	IR	.80	—
30S10	IR	1.40	—
36RA120	IR	70.79	—
60FB05L	IR	4.13	—
60FB1L	IR	4.68	—
60FB2L	IR	5.23	—
60FB3L	IR	5.78	—
60FB4L	IR	6.88	—
60FB6L	IR	8.53	—
60S05	IR	.80	—
60S1	IR	.84	—
60S2	IR	.88	—
60S4	IR	1.00	—
60S6	IR	1.56	—
60S10	IR	2.50	—
75JB1L	IR	2.92	—
75JB2L	IR	3.25	—
75JB4L	IR	3.50	—
75JB5L	IR	3.83	—
75JV6L	IR	4.17	—
100AC40	IR	43.65	—
100JB5P	IR	6.35	—
100JB1L	IR	3.00	—
100JB2L	IR	3.42	—
100JB3L	IR	3.50	—
100JB4L	IR	3.67	—
100JB6L	IR	4.33	—
250JB1L	IR	3.17	—
250JB2L	IR	3.67	—
250JB3L	IR	3.75	—
250JB4L	IR	3.92	—
250JB05L	IR	3.08	—
250JB6L	IR	4.66	—
250PA120	IR	118.58	—
471PDA120	IR	41.91	—
500JB6L	IR	9.66	—
5082-4550	TI	.35	63
5082-4550A	TI	.57	63
5082-4555	TI	.91	—
5082-4650	TI	.35	63
5082-4650A	TI	.57	63
5082-4655	TI	.91	63
5082-4850	TI	.24	63
5082-4950	TI	.35	63
5082-4950A	TI	.57	63
40082	RCA	4.04	—
40250	RCA	1.24	68
40250V1	RCA	1.44	—
40251	RCA	1.71	—

Key	Mfr.
GE	General Electric
GI	General Instrument
IDI	International Devices Inc.
IR	International Rectifier
LAN	Lansdale
MON	Monsanto
MOT	Motorola Motorola—HEP
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr	1-24	Page
40280	RCA	4.62	—
40290	RCA	2.48	—
40310	RCA	1.10	—
40311	RCA	.64	—
40312	RCA	1.26	—
40313	RCA	1.55	—
40314	RCA	.64	—
40316	RCA	.99	—
40317	RCA	.64	—
40318	RCA	1.55	—
40319	RCA	.76	—
40321	RCA	.98	68
40322	RCA	1.57	—
40327	RCA	1.17	—
40346	RCA	.77	68
40347	RCA	1.12	68
40347V1	RCA	1.16	—
40347V2	RCA	1.16	—
40348	RCA	1.06	68
40349	RCA	1.37	68
40349V1	RCA	1.64	—
40361	RCA	.89	—
40363	RCA	1.49	69
40372	RCA	1.44	—
40373	RCA	1.70	—
40374	RCA	1.57	—
40389	RCA	.68	—
40390	RCA	1.06	—
40391	RCA	.87	—
40392	RCA	.79	—
40394	RCA	.87	—
40406	RCA	.81	—
40407	RCA	.61	—
40409	RCA	.94	—
40411	RCA	3.47	—
40412	RCA	1.06	68
40446	RCA	4.29	—
40468A	RCA	.75	—
40513	RCA	1.65	—
40514	RCA	1.66	—
40539	RCA	.69	—
40559A	RCA	.70	—
40603	RCA	1.04	—
40604	RCA	.98	—
40631	RCA	.90	—
40673	RCA	1.01	—
40822	RCA	.86	—
40823	RCA	.81	—
40841	RCA	.68	—
40852	RCA	3.25	—
40854	RCA	9.80	—

Micro Systems

Type	Mfr	1-24	Page
M68ASMR-013M *FX*	MOT	150.00	—
M68ASMR-012D *FX*	MOT	500.00	—
M68EDTR-013M *FX*	MOT	150.00	—
M68MASR-010M *FX*	MOT	550.00	—
M68MM01 *FX*	MOT	495.00	49
M68MM01A *FX*	MOT	495.00	49
M68MM02 *FX*	MOT	350.00	49
M68MM03 *FX*	MOT	375.00	49
M68MM04 *FX*	MOT	210.00	49
M68MM05A *FX*	MOT	725.00	49
M68MMLC2 *FX*	MOT	635.00	—
M68MMSC1 *FX*	MOT	858.00	—
M68SFD1000 *FX*	MOT	3,300.	47
M68XAE6813M *FX*	MOT	250.00	—
M6833 *FX*	MOT	10.00	—
MEK6800D2	MOT	235.00	—
MEX68PP2D *FX*	MOT	795.00	47
MEX68PP2M *FX*	MOT	795.00	47
MEX6812-1 *FX*	MOT	365.00	48
MEX6815-3 *FX*	MOT	595.00	48
MEX6816-1 *FX*	MOT	895.00	48
MEX6850 *FX*	MOT	395.00	47
MWS5101DL-1	RCA	9.90	—
MWS5101DL-3	RCA	9.50	—
MWS5101DL-8	RCA	9.35	—
TM900/100M-1	TI	450.00	64
TM990/100M-2	TI	450.00	64
TM990/100M-3	TI	572.00	64
TM990/180M-1	TI	435.00	64
TM990/180M-3	TI	495.00	64
TM990/201-41	TI	595.00	64
TM990/201-42	TI	928.00	64
TM990/201-43	TI	1430.00	64
TM990/206-41	TI	585.00	64
TM990/206-42	TI	790.00	64
TM990/310	TI	295.00	64
TM990/301	TI	100.00	64
TM990/401-1	TI	100.00	—
TM900/401-2	TI	100.00	—
TM900/402-1	TI	100.00	—
TM990/402-2	TI	100.00	—
TM990/510	TI	190.00	—
TM990/511	TI	130.00	64
TM990/512	TI	80.00	64
TM990/501	TI	30.00	—
TM990/502	TI	60.00	—
TM990/503	TI	60.00	—
TM990/504	TI	60.00	—
TM990/505	TI	60.00	—

Motorola Selector Guide

INDEX

	Page
Optoelectronics	28
System Development Equipment & Options	
M6800 Development Systems	48
EXORciser Peripherals	47
Micromodules	51
Microprocessors	51
Memories	43
Cardcages, Chassis, & Power Supplies	51
Integrated Circuits	
LS Low Power Schottky	42
CMOS	44
Linear Integrated Circuits	45, 46
Zener & Avalanche Regulator Diodes	29
SCR's, Triacs	33, 34
Rectifiers	35, 36
Transistors	
Switchmode Power Transistors	30
Power Darlingtons	30
Power Switching Transistors	30
Silicon Power Transistors	31, 32
Small Signal Metal Transistors	37, 38
Plastic-Encapsulated Small Signal Transistors	39, 40
Field Effect Transistors	40
RF Power Transistors	40
Multiple Transistors	41
Small Signal Darlington Transistors	41
MiniBlock Hybrid Semiconductors	38
Subsystem Products	
Power Supplies	52
Solid State Relays	52
Input/Output Modules	52

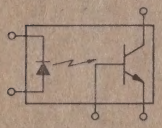
3

OPTOELECTRONICS

OPTO ISOLATORS and COUPLERS

Couplers are designed to provide isolation protection from high-voltage transients, surge voltage, or low-level noise that can damage the input or generate erroneous info. They allow interfacing systems of different logic levels, different grounds, etc., that would otherwise be incompatible. All DIP optocouplers have 7500 volts Motorola tested isolation voltage.

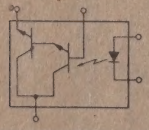
TRANSISTOR COUPLER



Offers moderate speed (approx. 300kHZ) and sensitivity. Collector-base junction can be used as a photodiode to achieve higher speeds. Output in diode mode is lower requiring amplification for more useable output levels.

Device Type	House/JEDEC Reg. Isol. Volts Min.	DC Curr. Trans. Ratio	BV_{CEO} Volts	Coll. Output mA
4N28	500	10	30	2.0
4N26	1500	20	30	3.5
4N27	1500	10	30	2.0
4N38	1500	20	80	3.5
4N37	1500	100	30	2.0
4N36	2500	100	30	2.0
4N25	2500	20	30	3.5
4N25A**	2500	20	30	3.5
4N38A**	2500	20	80	3.5
4N35	3550	100	30	2.0
MOC1005	5000	20	30	5.0
MOC1006	5000	10	30	3.0
H11A1	2500	50	30	5.5
H11A2	1500	20	30	3.5
MCT2	1500	20	30	3.5
TIL111	1500	20	30	3.5

(**) U.L. Recognized

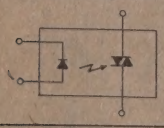


DARLINGTON TRANSISTOR COUPLER

Used when high transfer ratios and increased output current capability are needed. Speed is approx. 30kHZ, transfer ratio can be 20 times as high as the single transistor type.

4N30	1500	100	.....	30
(MOC1200)	1500	100	.....	30
4N31	1500	50	30	10
4N33	1500	500	30	60
MOC119	1500	300	30	45
MOC8030	1500	300	80	45
MOC8050	1500	500	80	60
4N29	2500	100	30	30
4N29A**	2500	100	30	30
4N32	2500	500	30	60
4N32A**	2500	500	30	60
MCA230	3550	100	30	20
MCA255	3550	100	55	20

(**) U.L. Recognized



OPTICALLY ISOLATED TRIAC DRIVER

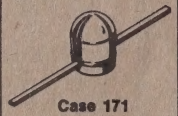
Gallium-arsenide LED, optically coupled to a silicon bilateral switch designed for applications requiring isolated triggering.

Device Type	Isolation Voltage Volts Min.	Typ. LED Trigger Current IFT (mA)	Peak Blocking Voltage (V)
MOC3010**	7500	8	250
MOC3011**	7500	5	250

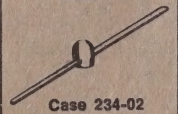
(**) U.L. Recognized

Case 209-01

Case 81A-01



Case 171



Case 234-02

Case 29-02

Case 210-01

Case 81A-10

Case 82-01

Case 29-01

INFRARED-EMITTING DIODES

- **SPECTRALLY MATCHED FOR USE WITH SILICON DETECTORS**
- **GALLIUM-ARSENIDE**

Infrared gallium-arsenide emitters for use in light-modulators, shaft or position encoders, punched card and tape readers, optical switching, and logic circuits.

Device Type	Emission Angle	Instantaneous Power Output
MLED910	30°	150 μW @ 50 mA
MLED930	30°	650 μW @ 100 mA
MLED900	30°	550 μW @ 50 mA
MLED60	65°	550 μW @ 50 mA
MLED90	65°	350 μW @ 50 mA
MLED92	110°	650 μW @ 100 mA

PHOTODETECTORS

High sensitivity, good temperature stability, and proven silicon reliability. Applications include card and tape readers, pattern and character recognition, shaft encoders, position sensors, and counters. Maximum sensitivity occurs at approx. 800 nm.

PIN PHOTODIODES

Type Number	Light Current @ Typ A	Light Current @ H mW/cm²	BV_R Volts Min.	Dark Current @ nA Max	Dark Current @ V
MRD500	9.0	5.0	100	2.0	20
MRD510	2.0	5.0	100	2.0	20

PHOTOTRANSISTORS

Type Number	Light Current @ Typ. mA	Light Current @ H mW/cm²	B_{CEO} Volts Min.	Dark Current @ nA Max	Dark Current @ V_{CE} Volts
MRD604	8.5	20	50	25	30
MRD603	6.0	20	50	25	30
MRD602	3.5	20	50	25	30
MRD601	1.5	20	50	25	30
MRD310	2.5	5.0	50	25	20
MRD300	7.5	5.0	50	25	20
L14H4	0.5	10	30	100	10
L14H1	0.5	10	60	100	10
L14H2	2.0	10	30	100	10
L14H3	2.0	10	60	100	10
MRD3054	1.2	5.0	30	100	20
MRD3056	2.5	5.0	30	100	20
MRD3055	1.8	5.0	30	100	20
MRD3051	0.2	5.0	30	100	20
MRD3050	0.2	5.0	30	100	20
MRD450	4.0	5.0	40	100	20
MRD160	1.5	5.0	40	100	20

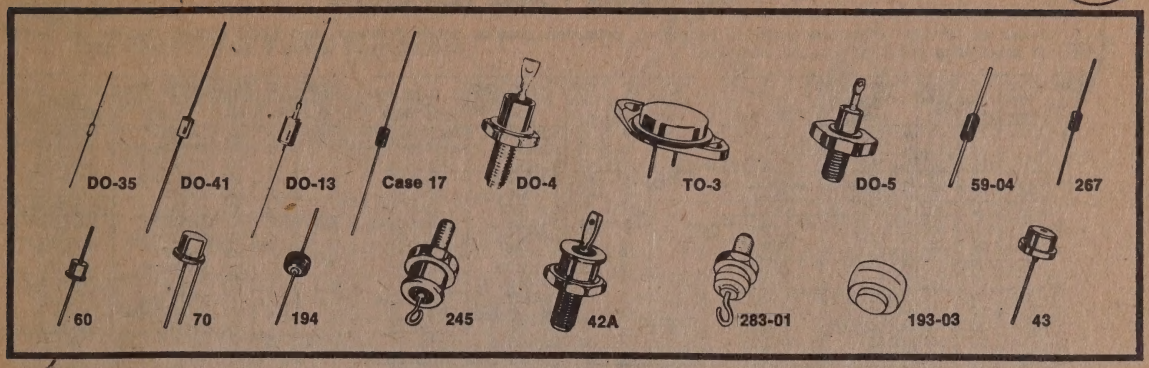
PHOTODARLINGTONS

Used where max. sensitivity is required.

MRD360	20	0.5	40	100	10
MRD370	10	0.5	40	100	10
2N5780	8.0	2.0	40	100	12
2N5779	8.0	2.0	25	100	12
2N5778	4.0	2.0	25	100	12
2N5777	4.0	2.0	25	100	12
MRD14B	2.0	2.0	12	100	12

Motorola Selector Guide

ZENER AND AVALANCHE REGULATOR DIODES



The devices depicted in the accompanying list represent a basic profile of Motorola's large inventory of zener-diodes. Available tolerances from 20% (low cost) to as tight as 1% for critical applications. Use Plastic (surmetic) for lowest cost, Glass for highest reliability and Metal for highest power. (**NOTE:** Also available in 50 watt)

Nominal Zener Voltage	250** MILLIWATT	400 MILLIWATT**		500 MILLIWATT**	
		Glass			
	*Glass Case 51	*Case 299 DO-35	Case 51 DO-7	Surmetic 20 Case 51 (DO-7)	Glass Case 299-01 (DO-35)
1.8	MZ4614				
2.0	MZ4615				
2.2	MZ4616				
2.4	MZ4617	1N4370		1N5221	1N5985
2.7	MZ4618	1N4371		1N5223	1N5986
3.0	MZ4619	1N4372		1N5225	1N5987
3.3	MZ4620	1N746	1N5518	1N5226	1N5988
3.6	MZ4621	1N747	1N5519	1N5227	1N5989
3.9	MZ4622	1N748	1N5520	1N5228	1N5990
4.3	MZ4623	1N749	1N5221	1N5229	1N5991
4.7	MZ4624	1N750	1N5522	1N5230	1N5992
5.1	MZ4625	1N751	1N5523	1N5231	1N5993
5.6	MZ4626	1N752	1N5524	1N5232	1N5994
6.2	MZ4627	1N753	1N5525	1N5234	1N5995
6.8	1N4099	1N754 1N957†	1N5526	1N5236	1N5996
7.5	1N4100	1N755 1N958†	1N5527	1N5236	1N5997
8.2	1N4101	1N756 1N959†	1N5528	1N5237	1N5998
9.1	1N4103	1N757 1N960†	1N5529	1N5239	1N5999
10	1N4104	1N758 1N961†	1N5530	1N5240	1N6000
11	1N4105	1N962	1N5531	1N5241	1N6001
12	1N4106	1N759 1N963	1N5532	1N5242	1N6002
13	1N4107	1N964	1N5533	1N5243	1N6003
15	1N4109	1N965	1N5535	1N5245	1N6004
16	1N4110	1N966	1N5536	1N5246	1N6005
18	1N4112	1N967	1N5538	1N5248	1N6006
20	1N4114	1N968	1N5540	1N5250	1N6007
22	1N4115	1N969	1N5541	1N5251	1N6008
24	1N4116	1N970	1N5542	1N5252	1N6009
27	1N4118	1N971		1N5254	1N6010
30	1N4120	1N972	1N5545	1N5256	1N6011
33	1N4121	1N973	1N5546	1N5257	1N6012
36	1N4122	1N974		1N5258	1N6013
39	1N4123	1N975		1N5259	1N6014
43	1N4124	1N976		1N5260	1N6015
47	1N4125	1N977		1N5261	1N6016
51	1N4126	1N978		1N5262	1N6017
56	1N4127	1N979		1N5263	1N6018
62	1N4129	1N980		1N5265	1N6019
68	1N4130	1N981		1N5266	1N6020
75	1N4131	1N982		1N5267	1N6021
82	1N4132	1N983		1N5268	1N6022
91	1N4134	1N984		1N5270	1N6023
100	1N4135	1N985		1N5271	1N6024
110		1N986		1N5272	1N6025
120		1N987		1N5273	1N6026
130		1N988		1N5274	1N6027
140		1N989		1N5275	
150		1N990		1N5276	1N6028
160		1N991		1N5277	1N6029
170		1N992		1N5278	
180				1N5279	1N6030
200				1N5281	1N6031

Nominal Zener Voltage	1 WATT**	1 WATT††	5 WATT**	10 WATT#
	Surmetic 30 Case 59 (DO-41)	Metal Case 52 (DO-13)	Surmetic 40 Case 17	Metal Case 56 (DO-4)
3.3	1N4728	1N3821	1N5333	
3.6	1N4729	1N3822	1N5334	
3.9	1N4730	1N3823	1N5335	1N3993&R
4.3	1N4731	1N3824	1N5336	1N3994&R
4.7	1N4732	1N3825	1N5337	1N3995&R
5.1	1N4733	1N3826	1N5338	1N3996&R
5.6	1N4734	1N3827	1N5339	1N3997&R
6.2	1N4735	1N3828	1N5341	1N3998&R
6.8	1N4736	1N3829 1N3016	1N5342	1N3999&R 1N2970&R
7.5	1N4737	1N3830 1N3017	1N5343	1N4000&R 1N2971&R
8.2	1N4738	1N3018	1N5344	1N2972&R
9.1	1N4739	1N3019	1N5346	1N2973&R
10	1N4740	1N3020	1N5347	1N2974&R
11	1N4741	1N3021	1N5348	1N2975&R
12	1N4742	1N3022	1N5349	1N2976&R
13	1N4743	1N3023	1N5350	1N2977&R
15	1N4744	1N3024	1N5352	1N2979&R
16	1N4745	1N3025	1N5353	1N2980&R
18	1N4746	1N3026	1N5355	1N2982&R
20	1N4747	1N3027	1N5357	1N2984&R
22	1N4748	1N3028	1N5358	1N2985&R
24	1N4749	1N3029	1N5359	1N2986&R
27	1N4750	1N3030	1N5361	1N2988&R
30	1N4751	1N3031	1N5363	1N2989&R
33	1N4752	1N3032	1N5364	1N2990&R
36	1N4753	1N3033	1N5365	1N2991&R
39	1N4754	1N3034	1N5366	1N2992&R
43	1N4755	1N3035	1N5367	1N2993&R
47	1N4756	1N3036	1N5368	1N2996&R
51	1N4757	1N3037	1N5369	1N2997&R
56	1N4758	1N3038	1N5370	1N2999&R
62	1N4759	1N3039	1N5372	1N3000&R
68	1N4760	1N3040	1N5373	1N3001&R
75	1N4761	1N3041	1N5374	1N3002&R
82	1N4762	1N3042	1N5375	1N3003&R
91	1N4763	1N3043	1N5377	1N3004&R
100	1N4764	1N3044	1N5378	1N3005&R
110	1M110ZS10	1N3045	1N5379	1N3007&R
120	1M120ZS10	1N3046	1N5380	1N3008&R
130	1M130ZS10	1N3047	1N5381	1N3009&R
150	1M140ZS10	1N3048	1N5383	1N3011&R
160	1M160ZS10	1N3049	1N5384	1N3012&R
180	1M180ZS10	1N3050	1N5386	1N3014&R
200	1M200ZS10	1N3051	1N5388	1N3015&R

(*) Devices shown in 250 mW column and Case 299 of the 400 mW column are JAN/JANTX available ±5% only except items marked with (†).

R, RA, and RB reverse polarity types available. (*) JAN/JANTX available in 1 Watt — cathode to case, 10 Watt, and 50 Watt columns except items marked with (†).

(**) Cathode=polarity mark (††) cathode to case.
(#) IN3993—Cathode to case, IN2970 anode to case.

Motorola Selector Guide

SWITCHMODE POWER TRANSISTORS

Useful for "off line" converters, switching regulators, deflection circuits, solenoid drivers, and motor control. Devices are listed in descending order of V_{CEO}, I_C, and V_{CEX}.

V_{CEO} Volts Min	I_C Amps Max	V_{CEX} Volts Min	Device Type NPN unless noted	Case JEDEC/Mot.
750	8	1500	MJ12005	TO-3/11
	5	1500	MJ12004	TO-3/11
	2.5	1500	MJ12002	TO-3/11
700	8	1400	MJ10011#	TO-3/11
600	15	700	MJ10014##	TO-3/11
550	15	650	MJ10013##	TO-3/11
500	50	750	MJ10016##	TO-3 Mod/197
	20	750	MJ10009##	TO-3/11
	20	600	MJ13335	TO-3/11
450	20	650	MJ10008##	TO-3/11
	20	550	MJ13334	TO-3/11
400	50	600	MJ10015##	TO-3 Mod/197
	20	500	MJ10001#	TO-3/11
	20	500	MJ10005##	TO-3/11
	20	500	MJ13333	TO-3/11
	15	850	2N6547	TO-3/11
	12	700	MJE13009	TO-220/21A
	10	550	MJ10012#	TO-3/11
	10	500	MJ10003#	TO-3/11
	10	500	MJ10007##	TO-3/11
	10	450	MJ13015	TO-3/11
	8	850	2N6545	TO-3/11
	8	700	MJE13007	TO-220/221A
	5	850	2N6543	TO-3/11

V_{CEO} Volts Min	I_C Amps Max	V_{CEX} Volts Min	Device Type NPN unless noted	Case JEDEC/Mot.
400	4	700	MJE13005	TO-220/221A
	1.5	700	MJE13003	TO-126/77R
	0.5	400	MJ4647	TO-39/79
350	20	450	MJ10000#	TO-3/11
	20	450	MJ10004##	TO-3/11
	20	450	MJ13332	TO-3/11
	15	375	2N6251	TO-3/11
	10	400	MJ13014	TO-3/11
	8	700	2N6308	TO-3/11
	8	450	MJ10002#	TO-3/11
	8	450	MJ10006##	TO-3/11
	5	450	2N6499	TO-220/221A
	2	400	2N6213-PNP	TO-66/80
325	8	700	MJ9000	TO-3/11
	5	700	MJ3030	TO-3/11
	5	350	2N6235	TO-66/80
300	15	650	2N6546	TO-3/11
	12	600	MJE13008	TO-220/221A
	8	650	2N6544	TO-3/11
	8	600	2N6307	TO-3/11
	8	600	MJE13006	TO-220/221A
	5	650	2N6542	TO-3/11
	5	400	2N6498	TO-220/221A
	4	600	MJE13004	TO-220/221A

V_{CEO} Volts Min	I_C Amps Max	V_{CEX} Volts Min	Device type NPN unless noted	Case JEDEC/Mot
300	2	500	2N3585	TO-66/80
	2	500	2N6422-PNP	TO-66/80
	2	350	2N6212-PNP	TO-66/80
	1.5	600	MJE13002	TO-126/77R
	1	300	2N5345	TO-66/80
	0.5	300	MJ4646	TO-39/79
275	15	300	2N6250	TO-3/11
	8	500	2N6306	TO-3/11
	7	300	2N6077	TO-66/80
	5	500	MJE3029	TO-3/11
	5	275	2N6234	TO-66/80
	2	375	2N3584	TO-66/80
	2	375	2N6421-PNP	TO-66/80
	1	250	2N5344	TO-66/80
250	20	350	MJ13331	TO-3/11
	7	275	2N6078	TO-66/80
	5	350	2N6497	TO-220/221A
225	5	250	2N6233	TO-66/80
	2	275	2N6211-PNP	TO-66/80
200	20	300	MJ13330	TO-3/11
	15	225	2N6249	TO-3/11
	2	200	2N5052	TO-66/80
	0.5	200	MJ4645	TO-39/79

(#) Darlington (# #) Darlington with speed-up diode

POWER DARLINGTONS

High gain, high input impedance and reduced component count, with subsequent space savings.

I_C Amps Max	V_{CEO} Volts Min	Device,Type NPN	Device,Type PNP	PD Watts	Case JEDEC/ MOD
0.5	30	D40C1		10	TO-202/306
		D40C2		6.25	
	40	D40C4		10	TO-202/306
		D40C5		6.25	
2	30	D40K1	D41K1	10	TO-202/306
		D40K3	D41K3	10	
	40	2N6548		10	TO-202/306
		2N6549		10	TO-202/306
		MPS-U45	MPS-U95	10	/152
	50	D40K2	D41K2	10	TO-202/306
		D40K4	D41K4	10	
	60	TIP110	TIP115	50	TO-220/221A
	80	TIP111	TIP116	50	TO-220/221A
	100	TIP112	TIP117	50	TO-220/221A
4	40	MJ3300	MJ3310	15	TO-126/77R
		2N6037	2N6034	40	TO-126/77
	60	MJE3301	MJE3311	15	TO-126/77R
		MJE800	MJE700	40	TO-126/77
		2N6038	2N6035	40	TO-126/77
		2N6294	2N6296	50	TO-66/80
	80	MJE3302	MJE3312	15	TO-126/77R
		2N6039	2N6036	40	TO-126/77
		2N6295	2N6297	50	TO-66/80
5	60	TIP120	TIP125	65	TO-220/221A
	80	TIP121	TIP126	65	TO-220/221A
	100	TIP122	TIP127	65	TO-220/221A
7	300	MJ3041		100	TO-3/11
	350	MJ3042		100	TO-3/11
8	40	2N6386		65	TO-220/221A
	60	MJ1000	MJ900	90	TO-3/11
		TIP100	TIP105	80	TO-220/221A
		2N6043	2N6040	75	TO-220/221A

I_C Amps Max	V_{CEO} Volts Min	Device,Type NPN	Device,Type PNP	PD Watts	Case JEDEC/ MOD
8	60	2N6300	2N6298	75	TO-66/80
		2N6055	2N6053	100	TO-3/11
		MJE6043	MJE6040	75	TO-127/90
	80	MJ1001	MJ901	90	TO-3/11
		TIP101	TIP106	80	TO-220/221A
		2N6044	2N6041	75	TO-220/221A
		2N6301	2N6299	75	TO-66/80
		2N6056	2N6054	100	TO-3/11
		MJE6044	MJE6041	75	TO-127/90
	100	MJE6045	MJE6042	75	TO-127/90
		TIP102	TIP107	80	TO-220/221A
		2N6045	2N6042	75	TO-220/221A
	1400*	MJ10011		80	TO-3/11
10	40	2N6383		100	TO-3/11
	60	MJ3000	MJ2500	150	TO-3/11
		2N6387		65	TO-220/221A
		2N6374		100	TO-3/11
	80	MJ3001	MJ2501	150	TO-3/11
		2N6388		65	TO-220/221A
		2N6385		100	TO-3/11
	150	MJ11018	MJ11017	200	TO-3/11
	200	MJ11020	MJ11019	200	TO-3/11
	250	MJ11022	MJ11021	200	TO-3/11
	350	MJ10002		150	TO-3/11
		MJ10006		150	TO-3/11
	400	MJ10003		150	TO-3/11
		MJ10007		150	TO-3/11
		MJ10012		175	TO-3/11
12	60	2N6057	2N6050	150	TO-3/11
	80	2N6058	2N6051	150	TO-3/11
	100	2N6059	2N6052	150	TO-3/11
15	60	2N6576		120	TO-3/11

I_C Amps Max	V_{CEO} Volts Min	Device,Type NPN	Device,Type PNP	PD Watts	Case JEDEC/ MOD
15	90	2N6577		120	TO-3/11
	120	2N6578		120	TO-3/11
	550	MJ10013		175	TO-3/11
	600	MJ10014		175	TO-3/11
16	60	MJ4033	MJ4030	150	TO-3/11
	80	MJ4034	MJ4031	150	TO-3/11
	100	MJ4035	MJ4032	150	TO-3/11
20	60	2N6282	2N6285	160	TO-3/11
	80	2N6283	2N6286	160	TO-3/11
	100	2N6284	2N6287	160	TO-3/11
	350	MJ10000		175	TO-3/11
		MJ10004		175	TO-3/11
	400	MJ10001		175	TO-3/11
		MJ10005		175	TO-3/11
	450	MJ10008		175	TO-3/11
	500	MJ10009		175	TO-3/11
30	60	MJ11012	MJ11011	200	TO-3/11
	90	MJ11014	MJ11013	200	TO-3/11
	120	MJ11016	MJ11015	200	TO-3/11
50	60	MJ11028	MJ11029	300	TO-3 Mod/197
	90	MJ11030	MJ11031	300	TO-3 Mod/197
	120	MJ11032	MJ11033	300	TO-3 Mod/197
	400	MJ10015		250	TO-3 Mod/197
	500	MJ10016		250	TO-3 Mod/197

POWER SWITCHING TRANSISTORS

I_C Amps Max.	V_{CEO} Volts Min	Device Type NPN	Device Type PNP	PD Watts	Case JEDEC MOD
1	40	.....	2N3244	5	TO-39/79
	40	.....	2N3467	5	TO-39/79
	50	.....	2N3245	5	TO-39/79
	50	.....	2N3468	5	TO-39/79
	65	.....	MM4036	7	TO-39/79
1.5	40	.....	2N3762	4	TO-39/79
	50	2N3734	.....	4	TO-39/79
	60	.....	2N3763	4	TO-39/79
	75	2N3735	.....	4	TO-39/79
2	120	2N5050	.....	40	TO-66/80
	150	2N5051	.....	40	TO-66/80
3	40	.....	2N3719	6	TO-5/31
		.....	2N3867	6	TO-5/31
	60	.....	2N3720	6	TO-5/31
		.....	2N3868	6	TO-5/31
	80	.....	2N6303	6	TO-5/31
4	60	2N4877	.....	10	TO-39/79
5	60	.....	MJ8100	10	TO-39/79

Note: Cases shown on pages 31 & 32.

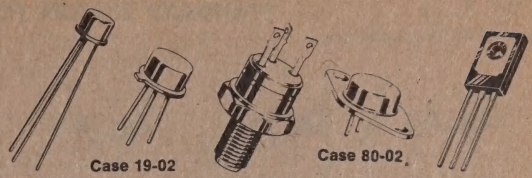
I_C Amps Max.	V_{CEO} Volts Min	Device Type NPN	Device Type PNP	PD Watts	Case JEDEC MOD
7	80	2N5337	2N6191	10	TO-39/79
		2N5339	2N6193	10	TO-39/79
	60	2N6315	2N6317	90	TO-66/80
		2N5428	.....	60	TO-66/80
7	80	2N5347	2N6187	60	TO-59/160
		2N6316	2N6318	90	TO-66/80
		2N5430	.....	60	TO-66/80
		2N5349	2N6189	60	TO-59/160
		2N3447	.....	115	TO-3/11
		2N3448	.....	115	TO-3/11
10	60	.....	MJ6700	60	TO-59/160
		2N5877	2N5875	150	TO-3/11
	80	2N5878	2N5876	15	TO-3/11
15	60	2N5881	2N5879	160	TO-3/11
	80	2N5882	2N5880	160	TO-3/11
20	75	MJ5039	.....	115	TO-3/11
	80	2N5303	2N5745	200	TO-3/11

I_C Amps Max.	V_{CEO} Volts Min	Device Type NPN	Device Type PNP	PD Watts	Case JEDEC MOD
20	90	MJ5038	.....	115	TO-3/11
25	60	2N5885	2N5883	200	TO-3/11
	80	2N5886	2N5884	200	TO-3/11
		.....	2N6436	200	TO-3/11
	100	2N6338	.....	200	TO-3/11
		.....	2N6437	200	TO-3/11
	120	2N6339	.....	200	TO-3/11
		.....	2N6438	200	TO-3/11
	140	2N6340	.....	200	TO-3/11
	150	2N6341	.....	200	TO-3/11
30	40	2N5301	2N4398	200	TO-3/11
	60	2N5302	2N4399	200	TO-3/11
50	80	.....	2N6377		TO-3 Mod/197
	100	2N6274	2N6378	250	TO-3 Mod/197
	120	2N6275	2N6379	250	TO-3 Mod/197
	140	2N6276	.....	250	TO-3 Mod/197
	150	2N6277	.....	250	TO-3 Mod/197

Motorola Selector Guide

Standard Silicon Power Transistors

The device types are listed in increasing order of I_C continuous and V_{CEO} ratings. Other basic data is provided to enable the designer to have a wider field of choice—be it polarity, parameter, case style, process type, or complementary device types.



Case 19-02 Case 80-02

Case 31-03 Case 160-03 Case 77-03

I_C Cont Amps MAX	V_{CEO} Volts Min	Device Type NPN	Device Type PNP	hFE Min/Max	I_C @ Amp	f_T MHz Min	P_D Watts @ 25°C	Case JEDEC/MDT
0.3	120	D40P1	.....	40 min	.080	50	10	TO-202/306
	250	MJE3440	.....	40/160	0.02	15	15	TO-126/77
	350	MJE3439	.....	40/160	0.02	15	15	TO-126/77
0.5	150	MJE341	.....	25/200	0.05	15	20.8	TO-126/77
	150	2N6591	.....	40/200	0.1	35	10	TO-202/306
	180	D40P3	.....	40 min	.080	50	10	TO-202/306
	200	MJE344	.....	30/300	0.05	15	20.8	TO-126/77
	200	2N6592	.....	30/200	0.1	35	10	TO-202/306
	200	.....	MJ4645	20 min	0.5	40	5	TO-39/79
	225	D40P5	.....	40 min	.080	50	10	TO-202/306
	225	2N5655	.....	30/250	0.1	10	20	TO-126/77
	250	2N6557	.....	40/180	.030	45	10	TO-202/306
	250	D40N1	.....	20 min	.040	50	10	TO-202/306
	250	D40N2	.....	30 min	.040	50	10	TO-202/306
	250	2N6593	.....	30/200	0.1	35	10	TO-202/306
	300	MPS-U10	MPS-U60	30 min	.030	60	10	/152
	300	.....	MDS-60	30 min	.030	60	10	TO-202/306
	300	2N6558	.....	40/180	.030	45	10	TO-202/306
	300	D40N3	.....	20 min	.040	50	10	TO-202/306
	300	D40N4	.....	30 min	.040	50	10	TO-202/306
	300	MJE340	MJE350	30/240	0.05	50	20.8	TO-126/77
	300	2N5656	.....	30/250	0.1	10	20	TO-126/77
	300	.....	MJ4646	20 min	0.5	40	5	TO-39/79
	350	2N6559	.....	40/180	.030	45	10	TO-202/306
	350	2N5657	.....	30/250	0.1	10	20	TO-126/77
	400	.....	MJ4647	20 min	0.5	30	5	TO-39/79
0.8	40	MPS-U02	MPS-U52	30 min	0.5	150	10	/152
1	30	MJE520	MJE370	20/100	0.5			TO-126/77
	30	D40D1	D41D1	10 min	1	200 typ	10	TO-202/306
	30	D40D2	D41D2	20 min	1	200 typ	10	TO-202/306
	30	D40D3	.....	10 min	1	200 typ	10	TO-202/306
	30	D40E1	D41E1	10 min	1	230 typ	10	TO-202/306
	40	MJE29	MJE30	40 min	0.2	3	30	TO-126/77R
	40	2N4921	2N4918	20/100	0.5	3	30	TO-126/77
	45	D40D4	D41D4	10 min	1	200 typ	10	TO-202/306
	45	D40D5	D42D5	10 min	1	200 typ	10	TO-202/306
	60	MJE29A	MJE30A	40 min	0.2	3	30	TO-126/77R
	60	2N4922	2N4919	20/100	0.5	3	30	TO-126/77
	60	2N6551	2N6554	25 min	0.5	75	10	TO-202/306
	60	D40D7	D41D7	10 min	1	200 typ	10	TO-202/306
	60	D40D8	D41D8	10 min	1	200 typ	10	TO-202/306
	60	D40E5	D41E5	10 min	1	230 typ	10	TO-202/306
1	75	D40D13	D41D13	50/150	0.1	200 typ	10	TO-202/306
	75	D40D14	D41D14	50/150	0.1	200 typ	10	TO-202/306
	75	D40D10	D41D10	10 min	1	200 typ	10	TO-202/306
	75	D40D11	D41D11	10 min	1	200 typ	10	TO-202/306
	80	MJE29B	MJE30B	40 min	0.2	3	30	TO-126/77R
	80	2N4923	2N4920	20/100	0.5	3	30	TO-126/77
	80	2N6552	2N6555	25 min	0.5	75	10	TO-202/306
	80	D40E7	D41E7	10 min	1	220 typ	10	TO-202/306
	100	MJE29C	MJE30C	40 min	0.2	3	30	TO-126/77R
	100	2N6553	2N6556	25 min	0.5	75	10	TO-202/306
	120	MPS-U03	.....	40 min	.010	100	10	/152
	175	2N3583	2N6420	40/200	0.5	10	35	TO-66/80
	180	MPS-U04	.....	40 min	.010	100	10	/152
	225	2N3738	2N6424	40/200	0.1	10	20	TO-66/80
	250	.....	2N5344	25/100	0.5	60	40	TO-66/80
	300	2N3739	2N6425	40/200	0.1	10	20	TO-66/80
		.....	2N5345	25/100	0.5	60	40	TO-66/80
1.5	300	MJE13002	.....	5/25	1	5	40	TO-126/77R
	400	MJE13003	.....	5/25	1	5	40	TO-126/77R
	30	D40C1	.....	10K-60K	0.2	75 typ	10	TO-202/306
	30	D40C2	.....	40K min	0.2	75 typ	10	TO-202/306
	30	.....	D41K3	1K min	1	75 typ	10	TO-202/306
	30	MDS-01	MDS-51	50 min	1	50	10	TO-202/306
	30	MPS-U01	MPS-U51	50 min	1	50	10	/152
	30	D40K1	D41K1	1K min	1.5	75 typ	10	TO-202/306
	40	D40C4	.....	10K-60K	0.2	75 typ	10	TO-202/306
2	40	D40C5	.....	40K min	0.2	75 typ	10	TO-202/306
	40	2N6548	.....	5K min	1	100	10	TO-202/306
	40	2N6549	.....	3K min	1	100	10	TO-202/306
	40	MDS-01A	MDS-51A	50 min	1	50	10	TO-202/306
	40	MDS-45	MDS-95	50 min	1	100	10	/152
	40	MPS-U01A	MPS-U51A	50 min	1	50	10	/152
	60	MPS-U05	MPS-U55	60 min	0.25	50	10	/152
	80	MPS-U06	MPS-U56	60 min	0.25	50	10	/152
	100	MPS-U07	MPS-U57	30 min	0.25	50	10	/152

I_C Cont Amps Max	V_{CEO} Volts Min	Device Type NPN	Device Type PNP	hFE Min/ Max	I_C @ Amp	f_T MHz Min	P_D Watts @ 25°C	Case JEDEC/ MOT
	120	2N5059	.....	25/100	.075	10	40	TO-66/80
	150	2N5051	.....	25/100	0.75	10	40	TO-66/80
2	200	2N5052	.....	25/100	0.75	10	40	TO-66/80
	250	2N3584	2N6421	25/100	1	10	35	TO-66/80
	300	2N4240	2N6423	30/150	0.75	10	35	TO-66/80
	300	2N4585	2N6422	25/100	1	10	35	TO-66/80
3	40	MJE180	MJE170	50/250	0.1	50	12.5	TO-126/77
	40	MJE31	MJE32	25 min	1	3	40	TO-126/77R
	40	TIP31	TIP32	25 min	1	3	40	TO-220/221A
	40	.....	2N3719	25/180	2	60	6	TO-5/31
	40	.....	2N3867	40/200	2	60	6	TO-5/31
	60	MJE181	MJE171	60/250	0.1	50	12.5	TO-126/77
	60	MJE31A	MJE32A	25 min	1	4	40	TO-126/77R
	60	TIP31A	TIP32A	25 min	1	3	40	TO-220/221A
	60	.....	2N3720	25/180	2	60	6	TO-5/31
	60	.....	2N3868	40/150	2	60	6	TO-5/31
	65	MDS1678	.....	10 min	1.5		10	TO-202/306
	90	MJE182	MJE172	50/250	0.1	50	12.5	TO-126/77
	90	MJE31B	MJE32B	25 min	1	3	40	TO-126/77R
	90	TIP31B	TIP32B	25 min	1	3	40	TO-220/221A
	90	.....	2N6303	30/150	2	60	6	TO-5/31
	100	MJE31C	MJE32C	25 min	1	3	40	TO-126/77R
	100	TIP31C	TIP32C	25 min	1	3	40	TO-220/221A
3.5	325	2N3902	.....	30/90	1	2.8	100	TO-3/11
	400	2N5157	.....	30/90	1	2.8	100	TO-3/11
4	40	2N4910	2N4898	20/100	0.5	20#	25	TO-66/80
	40	MJE3300	MJE3310	1k min	1	20#	15	TO-126/77R
	40	2N5190	2N5193	25/100	1.5	2	40	TO-126/77
	45	2N6121	2N6124	25/100	1.5	2.5	40	TO-220/221A
	60	.....	2N3740	30/100	0.25	4	25	TO-66/80
	60	2N4911	2N4899	20/100	0.5	3	25	TO-66/80
	60	2N3054.A	2N6049	25/100	0.5	3	75	TO-66/80
	60	2N3766	.....	40/160	0.5	10	20	TO-66/90
	60	MJE3301	MJE3311	1k min	1	20#	15	TO-126/77R
	60	2N5191	2N5194	25/100	1.5	2	40	TO-126/77
	60	MJE800	MJE700	750 min	1.5	1#	40	TO-126/77
	60	2N6122	2N6125	25/100	1.5	2.5	40	TO-220/221A
	60	2N6294	2N6296	750/18k	2	4#	50	TO-66/80
	60	2N6037	2N6034	750/18k	25#	40	40	TO-126/77
	60	2N4877	.....	20/100	4	30	10	TO-39/79
4	80	MJE241	MJE251	40/120	0.2	40	15	TO-126/77
	80	.....	2N3641	30/100	0.25	4	25	TO-66/80
	80	2N4912	2N4900	20/100	0.5	3	25	TO-66/80
	80	2N3767	.....	40/160	0.5	10	20	TO-66/80
	80	MJE3302	MJE3312	1k min	1	20#	15	TO-126/77R
	80	2N5192	2N5195	25/100	1.5	2	40	TO-126/77
	80	MJE802	MJE702	750 min	1.5	1#	40	TO-126/77
	80	2N6123	2N6126	20/80	1.5	2.5	40	TO-220/221A
	80	2N6038	2N6035	750/18k	2	25#	40	TO-126/77
	80	2N6295	2N6297	759/10k	2	4#	50	TO-66/80
	100	MJE243	MJE253	40/120	0.2	40	15	TO-126/77
	100	2N6039	2N6036	750/18k	2	25#	40	TO-126/77
	300	MJE1300	.....	6/30	3	4	60	TO-220/221A
	400	MJE1300	.....	6/30	3	4	60	TO-220/221A
5	25	MJE200	MJE210	45/180	2	65	15	TO-126/77R
	40	2N5067	2N4961	20/180	1	4	87.5	TO-3/11
	40	2N4231A	2N6342	25/100	1.5	4	75	TO-66/80
	40	2N5977	2N5974	20/120	2.5	2	75	TO-127/90
	40	2N4904	2N4913	25/100	2.5	4	87.5	TO-3/11
	50	MJE205	MJE105	25/100	2		65	TO-127/90
	60	2N5068	2N4902	20/180	1	4	87.5	TO-3/11
	60	2N4232A	2N6313	25/100	1.5	4	75	TO-66/80
	60	.....	MJ8100	25/180	2	30	10	TO-39/79
	60	2N5978	2N5975	25/100	2.5	2	75	TO-27/90
	60	2N4914	2N4905	25/100	2.5	4	87.5	TO-3/11
	60	MJE1100	MJE1090	750 min	3	1#	70	YO-127/90
	60	MJE1101	MJE1091	750 min	4	1#	70	TO-127/90
	80	2N5069	2N4903	20/180	1	4	87.5	TO-3/11
	80	2N4233A	2N6314	25/100	1.5	4	75	TO-66/80
	80	2N5336	2N6190	30/120	2	30	10	TO-39/79
	80	2N5337	2N6191	60/240	2	30	10	RO-39/79
	80	2N5979	1N5976	20/120	2.5	2	75	TO-127/90
	80	2N4915	2N4906	25/100	2.5	4	87.5	TO-3/11
	80	MJE1102	MJE1092	750 min	3	1#	70	TO-127/90
	80	MJE1103	MJE1093	750 min	4	1#	70	TO-127/90
	100	2N5338	2N6192	30/120	2	30	10	TO-3/799
	100	2N5339	2N6193	60/240	2	30	10	TO-39/79
	200	MJ410	.....	30/90	1	2.5	100	TO-3/11
	225	2N6233	.....	25/125	1	20	50	TO-66/80

@ 1 MHz

Motorola Selector Guide

STANDARD SILICON POWER TRANSISTORS (Cont.)

Case 11-01

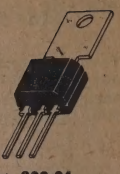
Case 12-01
50-mil pins

Case 197-01
60-mil pins

Case 90-05

Case 221A-02

Case 152-02



Case 306-04

IC Cont Amps Max	VCEO Volts Min	Device Type NPN	Device Type PNP	hFE Min/Max	IC Amp	fT MHz Min	PD Watts @ 25°C	Case JEDEC/MOT
5	250	2N6234	.....	25/125	1	20	50	TO-66/80
	250	MJ3029	.....	30 min	0.4		125	TO-3/11
	250	MJ1800	.....	40/120	0.4		100	TO-3/11
	300	MJ411	.....	30/90	1	2.5	100	TO-3/11
	300	2N6542	.....	7/35	3	6	100	TO-3/11
	325	MJ3030	.....	3.75 min	3		125	TO-3/11
	325	2N5241	.....	15/35	2.5	2.5	125	TO-3/11
	350	2N5840	.....	10/50	2	5	100	TO-3/11
	400	2N6543	.....	7/35	3	6	100	TO-3/11
	600	BU207	.....	2.25 min	4.5	7.5	125	TO-3/11
	700	BU208	.....	2.25 min	4.5	7.5	125	TO-3/11
6	40	TIP41	TIP42	15/75	3	3	65	TO-220/221A
	60	TIP41A	TIP42A	15/75	3	3	65	TO-220/221A
	80	TIP41B	TIP42B	15/75	3	3	65	TO-220/221A
	100	TIP416C	TIP42C	15/75	3	3	65	TO-220/221
	100	2N5758	2N6226	25/100	3	1	150	TO-3/11
	120	2N5759	2N6227	20/80	3	1	150	TO-3/11
	80	2N5427	.....	30/120	2	30	40	TO-66/80
	80	2N5346	2N6186	30/120	2	30	60	TO-59/160
	80	2N5428	.....	60/240	2	30	40	TO-66/80
	100	2N5429	.....	30/120	2	30	40	TO-66/80
	100	2N5348	2N6188	30/120	2	30	60	TO-59/160
	100	2N5430	.....	60/240	2	30	40	TO-66/80
	300	MJ3041	.....	250 min.	2.5		100	TO-3/11
	350	MJ3042	.....	250 min.	2.5		100	TO-3/11
7.5	60	2N3445	.....	20/60	3	10	115	TO-3/11
	60	2N3447	.....	40/120	5	10	115	TO-3/11
	80	2N3446	.....	20/60	3	10	115	TO-3/11
	80	2N3448	.....	40/120	5	10	115	TO-3/11
8	40	2N5983	2N5980	20/120	4	2	90	TO-127/90
	60	MJ1000	MJ900	1k min.	3		90	TO-3/11
	60	TIP120	TIP125	1k min.	3	4#	65	TO-220/221A
	60	2N6300	2N6298	750/18k	4	4#	75	TO-66/80
	60	2N6055	2N6053	750/18k	4	4#	100	TO-3/11
	60	MJE6043	MJE6040	1k/20k	4	4#	75	TO-127/90
	80	MJ1001	MJ901	1k min.	3		90	TO-3/11
	80	TIP121	TIP126	1k min.	3	4#	65	TO-220/221A
	80	2N5985	2N5982	20/120	4	2	90	TO-127/90
	80	2N6301	2N6299	750/1k	4	4#	75	TO-66/80
	80	2N6056	2N6054	750/1k	4	4#	100	TO-3/11
	80	TIP122	TIP127	1k min.	3	4#	75	TO-220/221A
	300	2N6307	.....	15/75	3	5	125	TO-3/11
	300	2N6544	.....	7/35	5	6	125	TO-3/11
	300	MJ7160	.....	25/100	3	30	140	TO-3/11
	350	2N6308	.....	12/60	3	5	125	TO-3/11
	350	2N6545	.....	7/35	5	6	125	TO-3/11
	350	MJ7161	.....	25/100	3	30	140	TO-3/11
10	60	.....	MJ6700	25/180	2	30	60	TO-59/160
	60	MJE2801	MJE2901	25/100	3		90	TO-127/90
	60	2N3713	2N3789	15 min.	3	4	150	TO-3/11
	60	2N3715	2N3791	30 min.	3	4	150	TO-3/11
	60	MJE3055	MJE2955	20/70	4	2	90	TO-127/90
	60	2N5877	2N5875	20/100	4	4	150	TO-3/11
	60	MJ3000	MJ2500	1k min.	5		150	TO-3/11
	80	2N3714	2N3790	15 min.	3	4	150	TO-3/11
	80	2N3716	2N3792	30 min.	3	4	150	TO-3/11
	80	2N5878	2N5876	20/100	4	4	150	TO-3/11
	80	MJ3001	MJ2501	1k min.	5		150	TO-3/11
	80	2N6495	.....	10/60	10	25	70	TO-66/80
	120	2N5633	2N6230	20/80	5	1	150	TO-3/11
	120	2N5634	2N6231	15/60	5	1	150	TO-3/11
	325	MJ413	.....	20/80	0.5	2.5	125	TO-3/11
	325	MJ423	.....	30/90	1	2.5	125	TO-3/11
	325	MJ431	.....	15/35	2.5	2.5	125	TO-3/11
	325	MJ9000	.....	3.75 min.	6		125	TO-3/11
	350	MJ10002	.....	30/300	5	10#	150	TO-3/11
	400	MJ10003	.....	30/300	5	10#	150	TO-3/11

IC Cont Amps Max	VCEO Volts Min	Device Type NPN	Device Type PNP	hFE Min/Max	IC Amp	fT MHz Min	PD Watts @ 25°C	Case JEDEC/MOT
12	40	2N6569	2N6594	15/200	4	1.5 to 15	100	TO-3/11
	40	2N5989	2N5986	20/120	6	2	100	TO-127/90
	60	2N5990	2N5987	20/120	6	2	100	TO-127/90
	60	2N6057	2N6050	750/18k	6	4#	150	TO-3/11
	80	2N5991	2N5988	20/120	6	2	100	TO-127/90
	80	2N6058	2N6051	750/18k	6	4#	150	TO-3/11
	100	2N6059	2N6052	750/18k	6	4#	150	TO-3/11
	300	MJE13008	.....	6/30	8	4	100	TO-220/221A
	400	MJE13009	.....	6/30	8	4	100	TO-220/221A
15	40	MJE1660	MJE1290	20/100	....	3	90	TO-127/90
	60	2N3055	MJ2955	20/70	....	2.5	115	TO-3/11
	60	2N3055A						
	60	2N6576	.....	2k/20k	....	10 to 200$	120	TO-3/11
	60	MJE1661	MJE1291	20/100	....	3	90	TO-127/90
	60	2M5881	2N5879	20/100	....	4	160	TO-3/11
	80	2N5882	2N5880	20/100	....	4	160	TO-3/11
	120	2N6578	.....	2k/20k	....	10 to 200#	120	TO-3/11
	200	2N6249	.....	10/50	10	2.5	175	TO-3/11
	275	2N6250	.....	8/50	10	2.5	175	TO-3/11
	300	MJ7260	.....	25/100	5	30	175	TO-3111
	300	2N6546	.....	6/30	10	6 to 24	175	TO-3/11
	350	2N6251	.....	6/50	10	2.5	175	TO-3/11
	400	2N6547	.....	6/30	10	6 to 24	175	TO-3/11
	400	MJ7261	.....	25/100	5	30	175	TO-3/11
16	60	MJ4033	MJ4030	1k min	10		150	TO-3/11
	80	MJ4034	MJ4031	1k min	10		150	TO-3/11
	100	2N5629	2N6029	25/100	8	1	200	TO-3/11
	100	MJ4035	MJ4032	1k min	10		150	TO-3/11
	120	2N5630	2N6030	20/80	8	1	200	TO-3/11
	140	2N3773	2N6609	15/60	8	4	150	TO-3/11
	140	2N5631	2N6031	15/60	8	1	200	TO-3/11
20	40	2N6257	.....	15/75	8	2	150	TO-3/11
	60	2N3772	.....	15/60	10	2	150	TO-3/11
	60	2N6282	2N6285	750/18k	10	4#	160	TO-3/11
	80	2N5303	2N5745	15/60	10	2	200	TO-3/11
	80	2N6283	2N6226	750/18k	10	4#	160	TO-3/11
	100	2N6284	2N6287	750/18k	10	4#	160	TO-3/11
	350	MJ10000	.....	40/400	10	10#	175	TO-3/11
	350	MJ10004	.....	40/400	10	10#	175	TO-3/11
	400	MJ10001	.....	40/400	10	10#	175	TO-3/11
	400	MJ10005	.....	40/400	10	10#	175	TO-3/11
	450	MJ10008	.....	30/300	10	8#	175	TO-3/11
	500	MJ10009	.....	30/300	10	8#	175	TO-3/11
25	60	2N5885	2N5883	20/100	10	4	200	TO-3/11
	80	2N5886	2N5884	20/100	10	4	200	TO-3/11
	80	.....	2N6436	20/80	10	40	200	TO-3/11
	100	2N6338	.....	30/120	10	40	200	TO-3/11
	100	.....	2N6437	20/80	10	40	200	TO-3/11
	120	2N6339	.....	30/120	10	40	200	TO-3/11
	120	.....	2N6438	20/80	10	40	200	TO-3/11
	140	2N6340	.....	30/120	10	40	200	TO-3/11
	150	2N6341	.....	30/120	10	40	200	TO-3/11
30	40	2N3771	.....	15/60	15	2	150	TO-3/11
	40	2N5301	2N4398	15/60	15	2	200	TO-3/11
	60	2N5302	2N4399	15/60	15	2	200	TO-3/11
	60	MJ11012	MJ11011	1k min	20	4#	200	TO-3/11
	90	MJ11014	MJ11013	1k min	20	4#	200	TO-3/11
	100	MJ802	MJ4502	25/160	7.5	2	200	TO-3/11
	120	MJ11016	MJ11015	1k min	20	4#	200	TO-3/11
50	60	2N5685	2N5683	15/60	25	2	300	TO-3 Mod 197
	80	2N5686	2N5684	15/60	25	2	300	TO-3 Mod 197
	80	.....	2N6377	30/120	20	30	250	TO-3 Mod 197
	100	2N6274	2N6378	30/120	20	30	250	TO-3 Mod 197
	120	2N6275	2N6379	30/120	20	30	250	TO-3 Mod 197
	140	2N6276	.....	30/120	20	30	250	TO-3 Mod 197
	150	2N6277	.....	30/120	20	30	250	TO-3 Mod 197
	450	MJ10015	.....	10 min	40	....	250	TO-3 Mod 197
	500	MJ10016	.....	10 min	40	....	250	TO-3 Mod 197
70	60	MJ14000	MJ14001	15/100	50	....	250	TO-3 Mod 197
	80	MJ14002	MJ14003	15/100	50	....	300	TO-3 Mod 197

@ 1 MHz

Motorola Selector Guide

ON-STATE (RMS) CURRENT

SCR's in Metal Packages		0.5 Amp	1.6 Amp				8.0 Amp		12.5 Amp	16 Amp
		Case 22-03 TO-18 Style 6	Case 79-02 TO-39 Style 3				Case 86 Style 1	Case 87L Style 1	Case 54 Style 2	Case 263-03 Style 1
V_{DRM} V_{RRM} Blocking Voltage (DC or Peak) Volts	25 V	MCR202	.....	2N2322	2N4212	MCR1906-1	2N4167	2N4183	.....	2N1842 2N1842A
	50 V	MCR203	2N1595	2N2323	2N4213	MCR1906-2	2N4168	2N4184	.....	2N1843 2N1843A
	100 V	MCR204	2N1596	2N2324	2N4214	MCR1906-3	2N4169	2N4185	2N3668	2N1844 2N1844A
	200 V	MCR206	2N1597	2N2326	2N4216	MCR1906-4	2N4170	2N4186	2N3669	2N1846 2N1846A
	300 V	.....	2N1598	2N2328	2N4218	MCR1906-5	2N4171	2N4187	.....	2N1848 2N1848A
	400 V	.....	2N1599	2N2329	2N4219	MCR1906-6	2N4172	2N4188	2N3670	2N1849 2N1849A
	500 V	.....	.....	.....	.....	MCR1906-7	2N4173	2N4189	2N4103	2N1850 2N1850A
	600 V	.....	.....	.....	.....	MCR1906-8	2N4174	2N4190	.....	.....
Elec. Char.	I_{TSM} (Amp)	6.0	15	15	15	15	100		200	125
	I_{GT} @25°C	0.2	10	0.2	0.1	1.0	30		40	80
	V_{GT} Max.	0.8	3.0	0.8	0.8	1.0	1.5		2.0	2.0
	I_H Max.	5.0	5.0	2.0	3.0	5.0	30		20	.....

ON-STATE (RMS) CURRENT

SCR's in Metal Packages (cont.)		20 Amp		25 Amp		35 Amp			55 Amp		
		Case 311-01 Style 1	Case 175-02 Style 1	Case 61 TO-41 Style 1	Case 263-03 Style 1	Case 174-03 Style 3	Case 175-02 Style 1	Case 311-01 Style 1	Case 174-03 Style 3	Case 175-02 Style 1	Case 311-01 Style 1
V_{DRM} V_{RRM} Blocking Voltage (DC or Peak) Volts	25 V	.....	MCR3918-1	2N2573	2N681	MCR3835-1	MCR3935-1	.....	MCR63-1	MCR64-1	MCR65-1
	50 V	.....	MCR3918-2	2N2574	2N682	MCR3835-2	MCR3935-2	.....	MCR63-2	MCR64-2	MCR65-2
	100 V	2N6167	MCR3918-3	2N2575	2N683	2N3870	2N3896	2N6171	MCR63-3	MCR64-3	MCR65-3
	200 V	2N6168	MCR3918-4	2N2576	2N685	2N3871	2N3897	2N6172	MCR63-4	MCR64-4	MCR65-4
	300 V	.....	MCR3918-5	2N2577	2N687	MCR3835-5	MCR3935-5	.....	MCR63-5	MCR64-5	MCR65-5
	400 V	2N6169	MCR3918-6	2N2578	2N688	2N3872	2N3898	2N6173	MCR63-6	MCR64-6	MCR65-6
	500 V	.....	MCR3918-7	2N2579	2N689	MCR3835-7	MCR3935-7	.....	MCR63-7	MCR64-7	MCR65-7
	600 V	2N6170	MCR3918A8	MCR649A8	2N690	2N3873 MCR3835-8	2N3899 MCR3935-8	2N6174	MCR63-8	MCR64-8	MCR65-8
	700 V	.....	MCR3918A9	MCR649A9	2N691	MCR3835-9	MCR3935-9	.....	MCR63-9	MCR64-9	MCR65-9
	800 V	.....	MCR3918A10	MCR649A10	2N692	MCR3835-10	MCR3935-10	.....	MCR63-10	MCR64-10	MCR65-10
Elec. Char.	I_{TSM} (amp)	240	240	260	200		350		550		
	I_{GT} @25 C	40	40	40	40		40		40		
	V_{GT} Max.	1.5	1.5	3.5	3.0		1.6		3.0		
	I_H Max.	20	50	20	20		50		60		

ON-STATE (RMS) CURRENT

Triacs in Metal Packages			10 Amp	15 Amp			30 Amp			40 Amp		
			Case 175-02 Style 3	Case 174-03 Style 3	Case 175-02 Style 3	Case 311-01 Style 1	Case 310-01 Style 2	Case 263-03 Style 2	Case 311-01 Style 2	Case 310-01 Style 2	Case 263-03 Style 2	Case 311-01 Style 2
V_{DRM} Blocking Voltage (DC or Peak)		200 V	2N5569	2N5571	2N5573	2N6145	2N6157	2N6160	2N6163	2N5441	2N5444	T6420B
		400 V	2N5570	2N5572	2N5574	2N6146	2N6158	2N6161	2N6164	2N5442	2N5445	T6420D
		600 V	SC245M	SC251M	SC250M	2N6147	2N6159	2N6162	2N6165	2N5443	2N5446	T6420M
		800 V	SC245N	SC251N	SC250N	T4120N*	T6401N	T6411N	T6421N	T6400N	T6410N	T6420N
Elec. Char.	I_{GT} @ 25 C											
	MT2(+),G(+)		25	50	50	50	60	60	60	70	70	70
	MT2(+),G(−)	Max.	40	80	80	80	70	70	70	70	70	70
	MT2(−),G(−)		25	50	50	50	70	70	70	70	70	70
	MT2(−),G(+)		40	80	80	80	100	100	100	100	100	100
Elec. Char.	V_{GT} @ 25 C											
	MT2(+),G(+)		2.5	2.5	2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0
	MT2(+),G(−)	Max.	2.5	2.5	2.5	2.5	2.1	2.1	2.1	2.0	2.0	2.0
	MT2(−),G(−)		2.5	2.5	2.5	2.5	2.1	2.1	2.1	2.0	2.0	2.0
	MT2(−),G(+)		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	I_{TSM} (Amp)		100	100	100	100	250	250	250	300	300	300

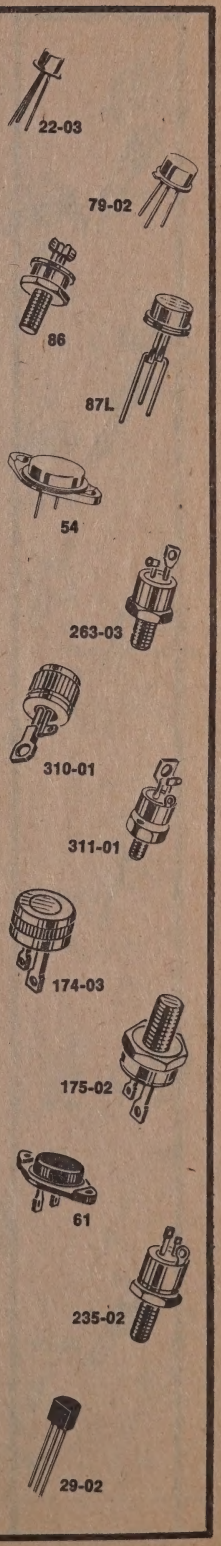
TRIGGER DEVICES

Type	I_P A Max. R_G = 10 kΩ	I_P A Max. R_G = 1.0 MΩ	I_{GAO} @ 40 V na Max.	I_V R_G = 10 kΩ	I_V R_G = 1.0 MΩ
2N6027	5	2.0	10	70	50
2N6028	1	.15	10	25	25
MPU131	5	2.0	5.0	70	50
MPU132	2	.3	5.0	50	50
MPU133	1	.15	5.0	50	25
2N6116*	5	2.0	5.0	70	50
2N6117*	2	.3	5.0	50	50
2N6118*	1	.15	5.0	50	25

(*) Also available as JAN and JANTX devices

PROGRAMMABLE UNIJUNCTION TRANSISTORS

Similar to UJTs, except that I_V and intrinsic standoff voltage are programmable (adjustable) by means of external voltage divider. General operating frequency range is from 0.01 Hz to 10kHz.



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TRIGGER DEVICES (Cont.)

BILATERAL TRIGGERS — DIACs Specifically designed as bi-directional triggers in line-operated Triac Control circuits.

Type	V_S Volts Min.	V_S Volts Max.	I_S μA Max.
1N5758/MPT20	20 ± 4.0		100
1N5759	24 ± 4.0		100
1N5760/MPT28	28 ± 4.0		100
1N5761/MPT32	32 ± 4.0		100
1N5762	36 ± 4.0		100
1N5758A	20 ± 2.0		25
1N5759A	24 ± 2.0		25
1N5760A	28 ± 2.0		25
1N5761A	32 ± 2.0		25
1N5762A	36 ± 2.0		25

SILICON BIDIRECTIONAL SWITCH-SBS Applications similar to DIAC, but has gate electrode that permits synchronization.

Type	V_S Volts Min.	V_S Volts Max.	I_S μA Max.	I_H mA Max.
MBS4991	6.0	10	500	1.5
MBS4992	7.5	9.0	120	0.5

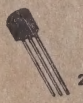
UNIJUNCTION TRANSISTORS — UJT Highly stable devices for general purpose trigger applications and as pulse generators and timing circuits. Useful at frequencies from 1Hz to 1MHz.

Type	Min.	Max.	IP μA	IEB20 μA	IV mA
MU10	.50	0.85	5.0	1.0	1.0
2N4870	.56	0.75	5.0	1.0	2.0

Unijunction Transistors

Type	Min.	Max.	IP μA	IEB20 μA	IV mA
2N4871	.70	0.85	5.0	1.0	4.0
MU2646	.56	0.75	5.0	12	4.0
MU4891	.55	0.82	5.0	0.01	2.0
MU4892	.51	0.69	2.0	0.01	2.0
MU4893	.55	0.82	2.0	0.01	2.0
MU4894	.74	0.86	1.0	0.01	2.0
MU20	.56	0.85	2.0	0.2	1.0
2N2646	.56	0.75	5.0	12	4.0
2N2647	.68	0.82	2.0	0.2	8.0
2N3980	.68	0.82	2.0	0.01	1.0
2N4851	.56	0.75	2.0	0.1	2.0
2N4852	.70	0.85	2.0	0.1	4.0
2N4853	.70	0.85	0.4	.05	6.0
2N4948	.55	.82	2.0	.01	2.0
2N4949	.74	0.86	1.0	.01	2.0
2N5431	.72	0.80	.4	.01	2.0

182-02


29-02

77-03

22A-01

90-05

221-02

SCR's In Plastic Packages		ON-STATE (RMS) CURRENT 0.8 AMP	4.0 AMP		8.0 AMP		12 AMP	16 AMP	25 AMP
		Case 29-02 TO-92 Style 10	Case 77-03 TO-126 Style 2		Case 90-05 Style 1	Case 221-02 TO-220AB Style 1		Case 221-02 TO-220AB Style 1	
V_{DRM} V_{RRM} Blocking Voltage (DC or peak) Volts	25 V	MCR102 2N5060	2N6236	MCR106-1	MCR3000-1	...	...	...	...
	50 V	MCR103 2N5061	2N6237	MCR106-2	2N4441 MCR3000-2	C122F1 S2800F	2N6394	2N6400	2N6504
	100 V	MCR104 2N5062	2N6238	MCR106-3	MCR3000-3	C122A1 S2800A	2N6395	2N6401	2N6505
	200 V	MCR120 2N5064	2N6239	MCR106-4	2N4442 MCR3000-4	C122B1 S2800B	2N6396	2N6402	2N6506
	300 V	MCR100-5	...	MCR106-5	MCR3000-5	C122C1 S2800C	MCR220-5	MCR221-5	...
	400 V	MCR100-6	2N6240	MCR106-6	2N4443 MCR3000-6	C122D1 S2800D	2N6397	2N6403	2N6507
	500 V	MCR100-7	...	MCR106-7	MCR3000-7	C122E1 S2800E	MCR220-7	MCR221-7	...
	600 V	MCR100-8	2N6241	MCR106-8	2N4444 MCR3000-8	C122M1 S2800M	2N6398	2N6404	2N6508
	700 V	...	...	MCR106-9	MCR3000-9	C122S1 S2800S	MCR220-9	MCR221-9	...
	800 V	...	...	MCR106-10	MCR3000-10	C122N1 S2800N	2N6399	2N6405	2N6509
Elec. Char.	I_{TSM} (Amp)	10	25	25	80	90	100	160	300
	I_{GT} @ 25°C (mA) Max	0.2	0.2	0.2	30	25	30	30	40
	V_{GT} @ 25°C (V) Max	0.8	1.0	1.0	1.5	1.5	1.5	1.5	1.5
	I_H @ 25°C (mA) Max	5.0	3.0	5.0	40	30	40	40	40

Triacs In Plastic Packages		ON-STATE (RMS) CURRENT 0.6 AMP	4.0 AMP			6.0 AMP	8.0 AMP	12 AMP		15 AMP	
		Case 29-02 TO-92 Style 12		Case 77-03 Style 5		Case 221-02 TO-220AB Style 2			Case 221-02 TO-220AB Style 2		
VDRM Blocking Voltage (DC or Peak) Volts	25 V	MAC92-1	2N6068	2N6068A	2N6068B	...	...	...	...	...	...
	50 V	MAC92-2	6069	2N6069A	2N6069B	...	MAC220-2 MAC221-2	...	...	...	...
	100 V	MAC92-3	2N6070	2N6070A	2N6070B	SC141A T2500A	MAC220-3 MAC221-3	...	...	...	...
	200 V	MAC92-4	2N6071	2N6071A	2N6071B	SC141B T2500B	2N6342 2N6346	2N6342A	2N6346A	MAC15-4	MAC15A-4
	300 V	MAC92-5	2N6072	2N6072A	2N6072B	SC141C T2500C	MAC220-5 MAC221-5	...	...	MAC15-5	MAC15A-5
	400 V	MAC92-6	2N6073	2N6073A	2N6073B	SC141D T2500D	2N6343 2N6347	2N6343A	2N6347A	MAC15-6	MAC15A-6
	500 V	MAC92-7	2N6074	2N6074A	2N6074B	SC141E T2500E	MAC220-7 MAC221-7	...	...	MAC15-7	MAC15A-7
	600 V	MAC92-8	2N6075	2N6075A	2N6075B	SC141M T2500M	2N6344 2N6348	2N6344A	2N6348A	MAC15-8	MAC15A-8
	700 V	...	...	...	...	SC141S T2500S	MAC220-9 MAC221-9	...	...	MAC15-9	MAC15A-9
	800 V	...	...	...	...	SC141N T2500N	2N6345 2N6349	2N6345A	2N6349A	MAC15-10	MAC15A-10
Max. Elec. Char.	I_{GT} @ 25°C (mA) MT2(+), G(+)	5.0	30	5.0	3.0	50	50	50	50	50	50
	MT2(+), G(−)	...	...	5.0	3.0	50	75#	...	75	...	75
	MT2(−), G(−)	5.0	30	5.0	3.0	50	50	50	50	50	50
	MT2(−), G(+)	...	...	10	5.0	50	75#	...	75	...	75
	V_{GT} @ 25°C (V)	...	@ −40°C	@ −40°C	@ −40°C	...	...	...	...	...	...
	MT2(+), G(+)	2.0	2.5	2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0
	MT2(+), G(−)	...	...	2.5	2.5	2.5	2.5#	...	2.5	...	2.5
	MT2(−), G(−)	2.0	2.5	2.5	2.5	2.5	2.5	2.0	2.0	2.0	2.0
	MT2(−), G(+)	...	...	2.5	2.5	2.5	2.5#	...	2.5	...	2.5
	I_{TSM} (Amp)	6.0	30	30	30	60/80	100	120	120	150	150

#Denotes 2N6346 thru MAC221 Series Only.

HIGH-CURRENT MULTI-CELL RECTIFIER DIODES

I_O, AVERAGE RECTIFIED FORWARD CURRENT

V_{RRM} (Volts)	50A Case 100	100A Case 167	100A Case 189	450A Case 135	700A Case 136
300	MR1205FL	MR1215FL	MR1815SL	MR1245SL, FL	MR1265FL
600	MR1209FL	MR1219SL	MR1819SL	MR1249SL, FL	MR1269FL
I_{FSM} (Amp)	800	2000	2000	8000	12000
T_C @ Rated I_O (°C)	150	135	135	150	150
T_J (Max) (°C)	190	190	190	190	190

HIGH-CURRENT MULTI-CELL RECTIFIER CIRCUITS

I_O, AVERAGE RECTIFIER FORWARD CURRENT (Forced Convection at 1500 LFM)

All Full Wave Circuit	300 A				600 A		650 A	
	1-Phase C. Tap	1-Phase Bridge	3-Phase C. Tap	3-Phase Bridge	1-Phase C. Tap	1-Phase Bridge	3-Phase C. Tap	3-Phase Bridge
Waveforms								
Case	154A	155A	154	155	156A	157A	156	157
V_{RRM} (Volts)								
300	MRA133	MRA133B	MRA333	MRA333B	MRA163	MRA163B	MRA363	MRA363B
I_{FSM} (Amps)	3000	3000	2000	2000	6000	6000	5000	5000
I_O Free Convection (Amps)	75	75	75	75	125	125	150	150
T_A @ Rated I_O (1500 FLM or Free Convection) (°C)	75	75	75	75	75	75	75	75
T_J (Max) (°C)	150	150	150	150	150	150	150	150

Schottky Rectifiers

V_{RRM} (volts)	I_O AVERAGE RECTIFIED FORWARD CURRENT (Amperes)								
	0.5	1.0		3.0		3.0	5.0	15	
	51-02	59-04		267		60		245	
20	MBR020	IN5817	MBR120P	IN5820	MBR320P	MBR320M	IN5823	IN5826	MBR1520
30	MBR030	IN5818	MBR130P	IN5821	MBR330P	MBR330M	IN5824	IN5827	MBR1530
35	.....	.....	MBR135P	.....	MBR335P	MBR335M	.....	.....	NBR1535
40	MBR040	IN5819	MBR140P	IN5822	MBR340P	MBR340M	IN5825	IN5828	MBR1540
I_{FSM}	5.0	100	50	250	200	500	500	500	500
T_C @ I_O†	.....	.....	.....	.....	.....	.....	.....	85	80
T_A @ I_O	50	.....	.....	.....	.....	.....	.....	.....	.....
T_L @ I_O†	.....	90	80	95	85	90	80	.....	.....
T_J max	125	125	125	125	125	125	125	125	125
Max V_F @ $I_{FM}=I_O$	0.55*	0.60*	0.65	0.525*	0.60	0.45 @ 5A‡	0.38* ‡	0.50* ‡	0.55‡

* Values are for the 40-Volt units. The lower voltage parts provide lower limits.
† Must be derated for reverse power dissipation
‡ T_C = 25 C, all others T_L = 25 C

Schottky Rectifiers (cont.)

V_{RRM} (volts)	I_O AVERAGE RECTIFIED FORWARD CURRENT (AMPERES)								
	25		35	40			50	60	75
	245 (DO-4)			257 (DO-5)		430-2 (DO-21)	257 (DO-5)		
20	IN5829	MBR2520	MBR3520	IN5832	MBR4020	MBR4020PF	.....	MBR6020	MBR7520
30	IN5830	MBR2530	SD41	IN5833	MBR4030	MBR4030PF	IN6097	SD51	MBR7530
35	.....	MBR2535	MBR3535	.....	MBR4035	MBR4035PF	.....	MBR6035	MBR7535
40	IN5831	MBR2540	.....	IN5834	MBR4040	.....	IN6098	.....	MBR7540
45	.....	.....	MBR3545	.....	.....	.....	.....	MBR6045	MBR7545
I_{FSM}	800	800	600	800	800	800	800	800	1000
T_C @ I_O	85	80	90	75	70	50	70	90	90
T_J (Max)	125	125	150	125	125	125	125	150	150
Max V_F @ $I_{FM}=I_O$*	0.48	0.55	0.7 @ 78.5A	0.59	0.63	0.63	0.86 @ 157A	0.80 @ 157A	0.90 @ 220A

*Values are for the 40-Volt units. The lower voltage parts provide lower limits.
†Must be derated for reverse power dissipation.
‡Tc=25 C, all others T_L=25 C.

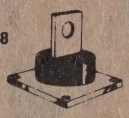
Case 100

Case 189

Case 167

Case 128

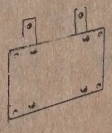
Case 135


Case 136

245 DO-4

257 DO-5

430-2 DO-21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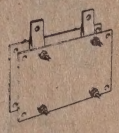
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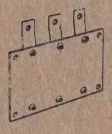
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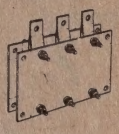
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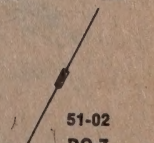
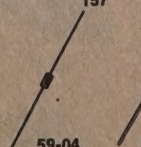

51-02 DO-7

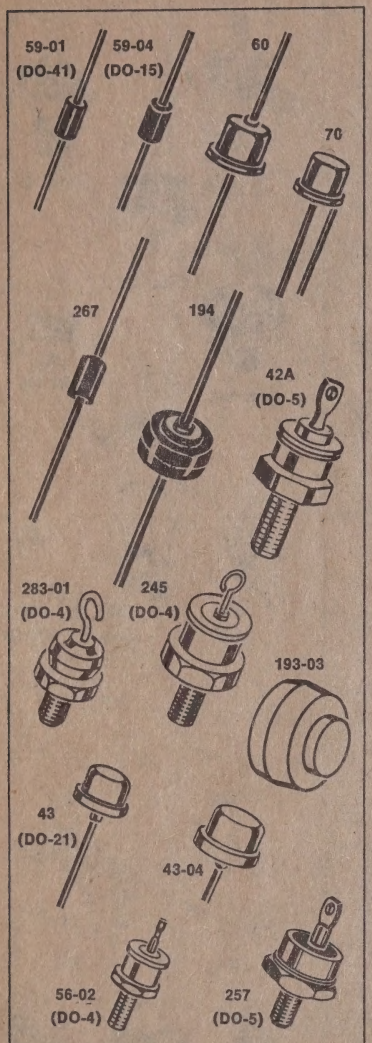

59-04

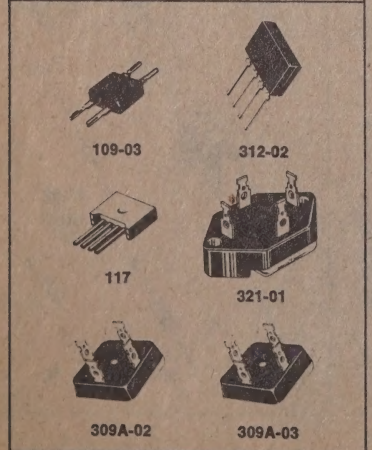
267

60

Motorola Selector Guide

RECTIFIERS—GENERAL PURPOSE RECTIFIERS





IO, AVERAGE RECTIFIED FORWARD CURRENT (Amperes)

VRRM Volts	1.0	1.5	3.0				6.0	12	
	59-01 (DO-41)	59-04 (DO-15)	60	70	267		194	245 (DO-4)	283-01 (DO-4)
50	1N4001	1N5391	1N4719	1N4997	MR500	1N5400	MR750	* MR1120	1N1199C
100	1N4002	1N5392	1N4720	1N4998	MR501	1N5401	MR751	MR1121	1N1200C
200	1N4003	1N5393	1N4721	1N4999	MR502	1N5402	MR752	MR1122	1N1202C
400	1N4004	1N5395	1N4722	1N5000	MR504	1N5404	MR754	MR1124	1N1204C
600	1N4005	1N5397	1N4723	1N5001	MR506	1N5406	MR756	MR1126	1N1206C
800	1N4006	1N5398	1N4724	1N5002	MR508	1N5407	MR758	MR1128	.....
1000	1N4007	1N5399	1N4725	1N5003	MR510	1N5408	MR760	MR1130	.....
IFSM (Amps)	30	50	300	300	100	200	400	300	400
TA @ Rated Io (°C)	75	TL = 75	85	75	95	TL = 105°C	60	.....	.....
TJ (Max) (°C)	175	175	175	175	175	175	175	190	200

VRRM Volts	General Purpose Rectifiers (cont.)								
	15	20		25			30	35	40
	42A (DO-5)	42A (DO-5)	273-01 (DO-4)	283-01 (DO-4)	193-03	43 (DO-21)	43 (DO-21)	42A (DO-5)	42A (DO-5)
50	1N3208	1N248B	MR2000S	MR2500S	MR2500	1N3491	1N3659	1N1183	1N1183A
100	1N3209	1N249B	MR2001S	MR2501S	MR2501	1N3492	1N3660	1N1184	1N1184A
200	1N3210	1N250B	MR2002S	MR2502S	MR2502	1N3493	1N3661	1N1186	1N1186A
400	1N3212	1N1196	MR2004S	MR2504S	MR2504	1N3495	1N3663	1N1188	1N1188A
600	1N3214	1N1198A	MR2006S	MR2506S	MR2506	MR328	CF	1N1190	1N1190A
800	CF	CF	MR2008S	MR2508S	MR2508	MR330	CF	1N3766	CF
1000	CF	CF	MR2010S	MR2510S	MR2510	MR331	CF	1N3768	CF
IFSM (Amps)	250	350	400	600	400	300	400	400	800
TJ (Max) (°C)	175	...	...	...	...	175	175	190	190

CF: Consult Factory

FAST RECOVERY RECTIFIERS

VRRM (Volts)	1.0		3.0				5.0	6.0	12	20
	59-04		60	70	267-01		194	56-02 (DO-4)		257 (DO-5)
50	1N4933	MR810	MR830	MR800	MR850	MR910	MR820	1N3879	1N3889	1N3899
100	1N4934	MR811	MR831	MR801	MR851	MR911	MR821	1N3880	1N3890	1N3900
200	1N4935	MR812	MR832	MR802	MR852	MR912	MR822	1N3881	1N3891	1N3901
400	1N4936	MR814	MR834	MR804	MR854	MR914	MR824	1N3883	1N3893	1N3903
600	1N4937	MR816	MR836	MR806	MR856	MR916	MR826	MR1366	MR1376	MR1386
800	.....	MR817	.....	.....	.....	MR917	.....	.....	.....	.....
1000	.....	MR818	.....	.....	.....	MR918	.....	.....	.....	.....
IFSM (Amps)	30	30	100	100	100	100	300	150	200	250
TA @ Rated Io (°C)	75	75	.....	.....	90*	90*	55*	.....	.....	.....
TJ (Max) (°C)	150	150	150	150	175	175	175	150	150	150
trr (μs)	0.2	0.75	0.2	0.2	0.2	0.75	0.2	0.2	0.2	0.2

*Must be devated for power dissipation

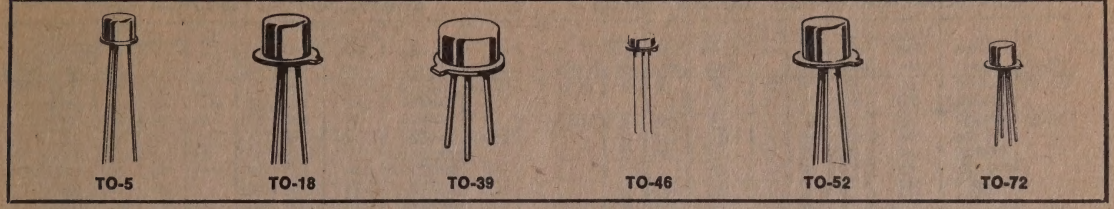
RECTIFIER BRIDGES

VRRM Volts	IO, DC OUTPUT CURRENT (Amperes)						
	1.5	1.0	2.0	4.0/8.0*	12	25	35
	109-03	312-02	312-02	117	321-01	309A-03	309A-02
50	MDA920A2	MDA100A	MDA200	MDA970-1	MDA1200	MDA2500	MDA3500
100	MDA920A3	MDA101A	MDA201	MDA970-2	MDA1201	MDA2501	MDA3501
200	MDA920A4	MDA102A	MDA202	MDA970-3	MDA1202	MDA2502	MDA3502
400	MDA920A6	MDA104A	MDA204	MDA970-5	MDA1204	MDA2504	MDA3504
600	MDA920A7	MDA106A	MDA206	CF	MDA1206	MDA2506	MDA3506
800	MDA920A8	MDA108A	MDA208	.....	.....	.....	MDA3508
1000	MDA920A9	MDA110A	MDA210	.....	.....	.....	MDA3510
IFSM (Amp)	32	45	60	100	400	400	400
TA @ Rated Io (°C)	50	75	55	.....	.....	.....	.....
TJ (Max) (°C)	175	150	175	150	175	175	175

CF: Consult Factory *4.0A @ TA = 25°C
8.0A @ TC = 53°C

Motorola Selector Guide

SMALL-SIGNAL METAL TRANSISTORS



SWITCHING TRANSISTORS

Intended for use in general-purpose switching and amplifier applications. Within each package group shown, devices are listed in order of decreasing turn-on time (t_{ON}).

Pkg.	Device Type	t_{on} ns max.	BV_{CEO} volts min.	I_C mA max.	h_{fe} @ I_C min.	mA	f_T MHz @ I_C min	mA
				NPN				
TO-18	2N2845	40	30	.....	30	150	250	50
	2N2540	40	30	.....	100	150	250	20
	2N2539	40	30	.....	50	150	250	20
TO-39	2N3507	45	50	3000	30	1500	60	100
	2N3506	45	50	3000	40	1500	60	100
TO-39	2N3444	50	50	.....	20	500	175	50
	2N3253	50	40	.....	25	500	175	50
	2N3735	48	75	1500	20	1000	250	50
	2N3734	48	50	1500	30	1000	250	50
	2N3252	45	30	.....	30	500	200	50
	2N3725	35	50	2000	35	500	300	50
	2N3724	35	30	2000	35	500	300	50
	2N5859	35	40	2000	15	1000	250	50
	MM5262	30	50	2000	25	1000	350	50
	2N5861	25	50	2000	25	500	200	50
TO-18	2N4014	35	50	1000	35	500	300	50
	2N4013	35	30	1000	35	500	300	50
TO-18	2N3227	12	20	500	30	100	500	10
	2N2369	12	15	500	20	100	500	10
	2N2369A	12	15	200	40	10	500	10
TO-46	2N2206	40	12	200	40	10	200	10
	2N3508	12	20	500	40	10	500	10
	2N3509	12	20	500	100	10	500	10
TO-46	2N3647	20	10	500	25	150	350	15
	2N3648	16	15	500	30	150	450	15
TO-46	2N3737	48	50	1500	20	1000	250	50
	2N3736	48	30	1500	30	1000	250	50
				PNP				
TO-18	2N2894	60	12	200	40	30	400	30
	2N3012	60	12	200	30	30	400	30
	2N869A	50	18	200	40	30	400	10
TO-18	2N3546	40	12	.....	25	50	700	10
TO-39	MM4036	75	65	1000	40	150	60	50
	MM4037	75	40	1000	50	150	60	50
	2N4405	40	80	1000	25	500	200	50
	2N4404	40	80	1000	15	500	200	50
TO-39	MM4031	100	80	1000	25	500	100	50
	MM4033	100	80	1000	70	500	150	50
	MM4032	100	60	1000	70	500	150	50
	MM4030	100	60	1000	25	500	100	50
	2N4407	75	80	2000	15	1000	150	50
	2N4406	75	80	2000	10	1000	150	50
TO-39	2N3763	43	60	1500	20	1000	150	50
	2N3762	43	40	1500	30	1000	180	50
TO-39	2N3245	55	50	1000	30	500	150	50
	2N3244	50	40	1000	50	500	175	50
	2N3468	40	50	1000	45	500	150	50
	2N3467	40	40	100	40	500	175	50
	MM3726	35	50	1500	45	1000	200	50
TO-18	2N4208	15	12	200	30	10	700	10
	MM4258	15	12	80	30	10	700	10
	MM4257	15	6.0	80	30	10	500	10
TO-39	2N3636	400	175	1000	50	50	150	30
	2N3635	400	140	1000	100	50	200	30
	2N3634	400	1000	50	50	150	30	....

HIGH-GAIN LOW-NOISE TRANSISTORS

These transistors are characterized for high-gain and low noise applications. Devices listed in decreasing order of NF.

Pkg.	Device Type	NF Wideband Max. dB	BV_{CEO} volts min.	I_C mA min.	h_{FE} @ I_C min.	max.	uA* mA	f_T MHz @ I_C min.	mA
				NPN					
TO-18	2N2483	8.0	60	50	40	120	10	12	0.05
	2N2484	8.0	60	50	100	500	10	15	0.05

HIGH-GAIN LOW-NOISE TRANSISTORS (cont.)

Pkg.	Device Type	NF Wideband Max. dB	BV_{CEO} Volts min.	I_C mA min.	h_{FE} @ I_C min.	max.	uA* mA	f_T MHz @ I_C min.	mA
	2N929	4.0	45	30	40	120	10	30	0.5
	2N930A	3.0	45	30	100	300	10	45	0.5
	2N930	3.0	45	30	100	300	10	30	0.5
				NPN DARLINGTON					
TO-18	MM6427	.....	40	300	5000	...	10*	125	100
				PNP					
TO-18	2N3798	3.5	60	50	150	450	500	30	0.5
	2N3799	2.5	60	50	300	900	500	30	0.5

HIGH-VOLTAGE/HIGH-CURRENT AMPLIFIERS

The following table lists standard devices that have High Collector-Emitter Breakdown Voltage. Devices are listed in decreasing order of BV_{CEO} within each family.

Pkg.	Device Type	BV_{CEO} Volts Min	I_C mA Max	h_{FE} @ I_C Min	mA	$V_{CE}sat$ Volts Max	f_T MHz @ I_C Min	mA	Family
				NPN					
TO-39	MM3009	180	400	40	10	.....	50	20	6
	MM3008	120	400	40	10	.....	50	20	
TO-39	MM2259	175	300	35	10	0.4	150	20	26R
	2N3501	150	300	100	150	0.4	150	20	
	2N3500	150	300	40	150	0.4	150	20	
	2N3114	150	200	30	30	1.0	40	30	
	2N3712	150	200	30	30	2.0	40	30	
	MM3001	150	200	20	10	.....	150	10	
	MM2258	120	500	50	10	0.4	150	20	
	2N3499	100	500	100	150	0.5	150	20	
	2N3498	100	500	40	150	0.5	150	20	
	2N4924	100	200	40	150	0.4	160	20	
	2N657	100	....	30	200	4.0	...	...	
	2N1990	....	1000	20	30	0.5	...	...	
TO-39	MM3007	100	2500	50	250	0.35	50	50	88
	MM3006	80	2500	50	200	0.35	50	50	
	MM3005	60	2500	50	150	0.3	50	50	
TO-39	2N5058	300	150	35	30	1.0	30	10	210R
	2N3742	300	50	20	30	1.0	30	10	
	2N5059	250	150	30	30	1.0	30	10	
	2N4927	250	50	20	30	2.0	30	10	
	MM3003	250	50	20	10	.....	150	10	
	2N4926	200	50	20	30	2.0	30	10	
	MM3002	200	50	20	10	.....	150	10	
TO-39	2N5682	120	1000	40	250	0.6	30	100	212
	2N5681	100	1000	40	250	0.6	30	100	
TO-39	2N3439	350	1000	40	20	0.5	15	10	242
	MM421	325	1000	25	30	5.0	15	10	
	2N3440	250	1000	40	20	0.5	15	10	
	MM420	250	1000	25	30	5.0	15	10	
TO-39	2N4239	80	3000	30	250	0.3	2	100	244
	2N4238	60	3000	30	250	0.3	2	100	
	2N4237	40	3000	30	250	0.3	2	100	
				PNP					
TO-39	2N3495	120	100	40	10	0.35	150	20	46
	2N4928	100	100	25	10	0.5	100	20	
	MM4000	100	100	20	10	0.6	...	...	
	2N3494	80	100	40	10	0.3	200	20	
TO-18	2N3497	120	100	40	10	0.35	150	20	47
	2N3496	80	100	40	10	0.3	200	20	
TO-39	2N5680	120	1000	40	250	0.6	30	100	211
	2N5679	100	1000	40	250	0.6	30	100	
TO-39	2N4236	80	3000	30	250	0.6	3	100	243
	2N4235	60	3000	30	250	0.6	3	100	
	2N4234	40	3000	30	250	0.6	3	100	
TO-39	2N5416	300	1000	30	50	2.5	15	10	247
	MM5416	300	1000	30	50	2.5	15	10	
	2N5415	200	1000	30	50	2.5	15	10	
	MM5415	200	1000	30	50	2.5	15	10	
TO-39	2N3743	300	50	25	30	8.0	30	10	452R
	2N4931	250	500	20	20	5.0	20	20	
	MM4003	250	500	20	10	5.0	...	...	

Motorola Selector Guide

SMALL SIGNAL METAL TRANSISTORS

HIGH-VOLTAGE/HIGH-CURRENT AMPLIFIERS (cont.)

Pkg.	Device Type	BV_{CEO} Volts Min	I_C mA Max	h_{FE} @ I_C Min	mA	V_{CE}sat Volts Max	f_T MHz Min	@ I_C mA	Family
TO-39	2N4930	200	500	20	20	5.0	20	20	452R
	MM4002	200	500	20	10	5.0	...	...	
TO-39	2N3637	175	1000	100	50	0.5	200	30	454R
	2N3636	175	1000	50	50	0.5	150	30	
	2N4929	150	500	25	10	0.5	100	20	
	MM4001	150	500	20	10	0.6	...	...	
	2N3635	140	1000	100	50	0.5	200	30	
	2N3634	140	1000	50	50	0.5	150	30	

HIGH-FREQUENCY AMPLIFIERS/OSCILLATORS

For use as both oscillators and amplifiers at UHF and VHF frequencies. Devices are listed in decreasing order of BV_{CEO} within each family.

Pkg.	Device	BV_{CEO}	h_{FE} @ I_C Min	mA	NF dB @ f Max	MHz	f_T MHz @ I_C Min	mA	Family
			NPN						
TO-72	2N917	15	20	3.0	6.0	60	500	4.0	72
	2N918	15	20	3.0	6.0	60	600	4.0	
TO-18	2N3544	25	25	10	...	...	600	10	75
	MM1941	20	25	10	...	...	600	10	
			PNP						
TO-18	2N3307	35	40	2.0	4.5	200	300	2.0	63
	2N3308	25	25	2.0	6.0	200	300	2.0	
TO-72	2N4261	15	30	10	...	...	1600	10	65
	2N4260	15	30	10	...	...	2000	10	

GENERAL-PURPOSE AMPLIFIERS

Designed for dc to VHF amplifier applications, general purpose switching applications, and complementary circuitry. Devices are listed in decreasing order of BV_{CEO} within each family.

Pkg.	Device Type	BV_{CEO} Volts Min	f_T MHz @ I_C Min	mA	I_C Max	h_{FE} @ I_C Min	Max	mA	Family
			NPN						
TO-39	2N1711	80	70	50	...	100	300	150	2R
	2N1613	50	60	50	500	40	120	150	
	2N2219A	40	300	20	800	100	300	150	
	2N2218A	40	250	20	800	40	120	150	
	2N697	40	50	50	...	40	120	150	
	2N3300	30	250	50	500	100	300	150	
	2N2218	30	250	20	800	40	120	150	
	2N2219	30	250	20	800	100	300	150	

GENERAL-PURPOSE AMPLIFIERS (cont.)

Pkg.	Device Type	BV_{CEO} Volts min	f_T MHz @ I_C min	mA	I_C mA max	h_{FE} min	max	@ I_C mA	Family
TO-46	2N5582	40	300	20	800	100	300	150	2S
	2N5581	40	250	20	800	40	120	150	
	2N4450	30	250	50	500	100	300	150	
TO-18	2N956	50	70	50	....	40	120	150	3
	2N2222A	40	300	20	800	100	300	150	
	2N2221A	40	250	20	800	40	120	150	
	2N718	40	50	50	....	40	120	150	
	2N3302	30	250	50	500	100	300	150	
	2N2222	30	250	20	800	100	300	150	
TO-39	2N3019	80	100	50	1000	100	300	150	14R
	2N3020	80	80	50	1000	40	120	150	
	2N656	60	...	...	....	30	90	200	
	2N2193A	50	50	50	1000	40	120	150	
	2N2270	45	100	50	1000	50	200	150	
	2N3110	40	600	10	1000	40	120	150	
	2N3053	40	100	50	700	50	250	150	
TO-18	2N915	50	250	10	....	50	200	10	23
	2N3946	40	300	10	200	50	150	10	
	2N3947	40	300	10	200	100	300	10	
	2N916	25	300	10	....	50	200	10	
TO-52	MM3904	40	300	10	200	100	300	10	221
	MM3903	40	250	10	200	50	150	10	
					PNP				
TO-18	2N3251A	60	300	10	200	100	300	10	35
	2N3250A	60	250	10	200	50	150	10	
	2N3251	40	300	10	200	100	300	10	
	2N3250	40	250	10	200	50	150	10	
TO-46	2N3485A	60	200	50	600	40	120	150	48
	2N3486A	60	200	50	600	100	300	150	
	2N3673	50	200	50	600	75	225	150	
	2N3486	40	200	50	600	100	300	150	
TO-39	MM5007	100	30	50	2000	50	250	250	49
	MM5006	80	30	50	2000	50	250	200	
	MM5005	60	30	50	2000	50	250	150	
TO-39	2N4405	80	200	50	1000	100	300	150	50
	2N4404	80	200	50	1000	40	120	150	
	MM4036	65	50	60	1000	20	140	150	
	MM4037	40	60	50	1000	50	250	150	
TO-18	2N2906A	60	200	50	600	40	120	150	333
	2N2907A	60	200	50	600	100	300	150	
	2N2906	40	200	50	600	40	120	150	
	2N2907	40	200	50	600	100	300	150	
TO-39	2N2904A	60	200	50	600	40	120	150	
	2N2905A	60	200	50	600	100	300	150	
	2N2904	40	200	50	600	40	120	150	
	2N2905	40	200	50	600	100	300	150	
	2N1132A	40	60	50	600	30	90	150	
	2N1131A	40	50	50	600	30	90	150	
	2N1132	35	60	50	600	30	90	150	
TO-52	MM3906	40	250	10	200	100	300	10	271
	MM3905	40	200	10	200	50	150	10	

MiniBloc—A Standard Package for Hybrid Circuit Semiconductors

An internationally standardized alternative to conventional "chip-and-wire" hybrid assembly techniques already adopted by major European hybrid assemblers under the standard "SOT23." A wide variety of discrete components are available in MiniBloc packages, including Bipolar and Unipolar (Field Effect) transistors, and Switching and Varactor Diodes. Bulk-packaged units are sold in multiples of 10, 100, or 1000.

Device	NPN/ PNP	Mark.	V_{CBO} Max	V_{CEO} Max	V_{EBO} Max	I_{CBO} Max (nA)	@ V_{CB}	h_{FE} Min	Max	@ I_C (mA)	V_{CE}	V_{CE}sat Max	f_T Min MHz	@ I_C (mA)	t_{off} Max (ns)	NF Typ (dB)	c_{ob} Max (pF)
MMBTA20	N	1C	...	40	4	100	30	40	400	5	10	.25	125	5	....	....	4
MMBTA70	P	2C	...	40	4	100	30	40	400	5	10	.25	125	5	....	....	4
MMBT3904	N	1A	60	40	6	...	...	100	300	10	1	.2	200	10	....	5(1)	4
MMBT3906	P	2A	40	40	5	...	...	100	300	10	1	.25	250	10	....	4(1)	4.5
MMBT2222	N	1B	60	30	5	50	50	100	300	150	10	.4	250	20	....	....	8
MMBT2907	P	2B	60	40	5	20	50	100	300	150	10	200	200	50	....	....	8
MMBT2222A	N	1P	75	40	6	10	50	100	300	150	10	.3	200	20	....	....	8
MMBT2907A	P	2F	60	60	5	10	50	100	300	150	10	.4	200	50	....	....	8
MMBTA42	N	1D	300	300	6	100	200	40	....	10	10	.5	50	10	....	....	3†
MMBTA92	P	2D	300	300	5	250	200	40	....	10	10	.5	50	10	....	....	6†
MMBTA43	N	1E	200	200	6	100	160	40	....	10	10	.4	50	10	....	....	4†
MMBTA93	P	2E	200	200	5	250	160	40	....	10	10	.4	50	10	....	....	8†
MMBT5550	N	1F	160	140	6	100	100	60	250	10	5	.15	100	10	....	....	6
MMBTA06	N	1G	80	80	4	100	80	50	....	10	1	.25	100	10	....	....	...
MMBTA56	P	2G	80	80	4	100	80	50	....	10	1	.25	100	10	....	....	...
MMBTA05	N	1H	60	60	4	100	60	50	....	10	1	.25	100	10	....	....	...
MMBTA55	P	2H	60	60	4	100	60	50	....	10	1	.25	100	10	....	....	...
MMBT2369	N	1J	40	15	4	400	20	40	120	10	1	.25	...	10	18(2)	....	4
MMBT3640	P	2J	12	12	4	10	...	30	120	10	.3	*2	500	10	35(3)	....	3.5
MMBT6428	N	1K	60	50	6	10	30	250	650	.1	5	.2	100	1	....	3(5)	...
MMBT6429	N	1L	55	45	6	10	30	500	1250	.1	5	.2	100	1	....	....	...
MMBTH24	N	3A	40	30	4	50	15	30	....	8	10	.2	400	8	....	....	.36†
MMBT918	N	3B	30	15	3	50	15	20	....	3	10	.5	600	4	....	....	1.7
MMBTH81	P	3D	20	20	3	100	10	60	....	5	10	.5	600	5	....	....	.85†
MMBTA13	N	1M	30	30	10	100	30	10k	....	100	5	1.5	...	..	....	2(7)	...
MMBTA14	N	1N	30	30	10	100	...	20k	....	100	5	1.5	...	..	....	....	...

†C_{cb}

Metal-Encapsulated Small-Signal Transistors (cont.) —RF Transistors

Device	NPN-PNP	Mark	BV_{CBO} Min	BV_{CEO} Min	BV_{EBO} Min	I_{CBO} Max	I_{CBO} @ V_{CB}	hFE Min	hFE Max	hFE @ I_C	hFE @ V_{CE}	C_{cb} Max	C_{cb} @ V_{cb}	f_T Typ GHz	f_T @ I_C (mA)	f_T @ V_{CE}	NF Typ dB	NF @ I_C (mA)	NF @ V_{CE}	Mag Typ (dB)	Mag @ I_C (mA)	Mag @ V_{CE}	Mag f MHz
MMBR901		7A	25			50	15	30	200	5	5	1	10	4	15	10	2.3	5	6	10.5	15	10	1000
MMBR920		7B	20	15	2	50	10	25	250	14	10	1	10	5	14	10	2.4	2	10	17	14	10	500
MMBR930		7C	15	12		50	5	25	250	30	5	1	10	5.5	30	5	1.9	2	5	15.5	30	5	500
MMBR931	N	7D	10	5*		-		30	150	.25	1	.5	1	3.5	1	1	2.7	.5	1	18	1	1	500
MMBR2060		7E	30	14	4	50	10	40	185	5	5	1	10	2.5	20	10	2.0	1.5	10	15	20	10	500
MMBR5031		7G	15	10	3	10	6	25	300	1	6	1.5	6	2	5	6	1.9	1	6	13.5	5	6	450
MMBR5179		7H	20	12	2.5	20	15	25	250	3	1	1	10	1.5	5	6	4.0	1.5	6	11.0	5	6	450
MMBR4957	P	7F	30	30	3	100	20	20	150	2	10	.8	10	2	2	10	2.5	2	10	14.5	2	10	450

*I_C = 100 μA

JUNCTION FIELD-EFFECT TRANSISTORS

Device	N, P Channel	Mark	V_{BRGSS} Min	V_{BRGSS} @I_G MA	I_{GSS} Max	I_{GSS} @ V_{GS}	V_{GS} off Min	V_{GS} off Max	V_{GS} off @I_D (nA)	V_{GS} off @ V_{DS}	I_{DSS} Min	I_{DSS} Max	I_{DSS} @ VDS	Yfs (mmhos) Min	Yfs (mmhos) Max	Yfs (mmhos) @ VDS	NF Typ (dB)	NF @f (MHz)	r_{DS} (on) Max (Ω)	toff Max (ns)
MMBF4416		6A	−30	−1	−.1	−20		6	1	15	5	15	15	4.5	7.5	15	2	100		
MMBF5484	N	6B	−25	−1	−1	−20	−.3	−3	10	15	1	5	15	3	6	15	2	100		
MMBFU310		6C			−.15	−15	−2.5	−6	1	10	24	60	10	10	18	10	1.5	100		
MMBF5457	N	6D	−25	−10	−1	−15	−.5	−6	10	15	1	5	15	1	5	15				
MMBF5460	P	6E	40	10	5	20	.75	6	1000	15					4		1	(1)		
MMBF4860	N	6F	−30	−1	−.25	−20	−2	−6	.5	15	20	100	15						40	50(2)

TUNING DIODES

Device	Freq. Range	Mark	BV_R Min	BV_R @I_{RMA}	C_T Min(pF)	C_T Max(pF)	C_T @V_R	Cap. Ratio Min	Cap. Ratio Max	Q Min	Q @V_R	Q @f MHz	R_S Max(Ω)
MMBV109	VHF	4A	30	.1	26	32	3	5	6.5	280	3	50	
MMBV3102	VHF	4C			20	25	3	4.5		300	3	50	
MMBV3401		4D	35	.1		1	20						.7

HIGH SPEED SATURATED SWITCHING TRANSISTORS

Specially optimized for high-speed saturated switches. Heavily gold doped and processed to provide very short switching times and low output capacitance.

Device Type	t_{ON} ns	BV_{CEO} Volts	hFE Min	$V_{CE(sat)}$ Volts	$V_{CE(sat)}$ @I_C
NPN					
MPD706, A	40	15	20	0.6	10
2N4264	25	15	40	0.22	10
2N4265	25	12	100	0.22	10
MPS835	20	....	20	0.3	10
MPS3646	18	15	30	0.2	30
MPS834	16	....	25	0.25	10
MPS3013	15	15	15	0.5	300
MPS2369	12	15	40	0.25	10
PNP					
2N5228	75	5	30	0.4	10
MPS3640	25	12	30	0.2	10
MPS3639	25	6	30	0.2	10
MPS4258	15	12	30	0.15	10
2N5771	15	15	50	0.18	10
MPS4257	15	6	30	0.15	10

GENERAL-PURPOSE TRANSISTORS

Designed for small-signal amplification from dc to low radio frequencies. Also useful as oscillators and general-purpose switches.

Device and Polar. NPN	Device and Polar. PNP	BV_{CEO} Volts	f_T MHz	I_C mA	hFE min	hFE @ IC
MPS8099	MPS8599	80	150	200	100	1.0
MPS-A06	MPS-A56	80	100	500	50	100
MPS8098	MPS8598	60	150	200	100	1.0
MPS-A05	MPS-A55	60	100	500	50	100
2N3904	2N3906	40	300	200	100	10
2N4401	2N4403	40	250	600	100	150
2N3903	2N3905	40	250	200	50	10
2N4400	2N4402	40	200	600	50	150
MPS-A20	MPS-A70	40	125	100	40	5.0
MPS6531	MPS6534	40	...	600	100	150
MPS2222	MPS2907	30	250	600	100	150
2N4123	2N4125	30	250	200	50	2.0
MPS3704	MPS3702	30	100	600	100	50
MPS6513	MPS6517	30	330	100	90	2.0
2N4124	2N4126	25	300	300	120	2.0
MPS6514	MPS6518	25	200	200	50	10
MPS6515	MPS6519	25	480	100	250	2.0
MPS5172	.....	25	...	100	100	10
MPS6560	MPS6562	25	60	500	50	500

PLASTIC-ENCAPSULATED SMALL-SIGNAL TRANSISTORS

TO-92 DARLINGTON TRANSISTORS

Darlington amplifiers are cascaded transistors used in applications requiring very high gain and input impedance. Devices have monolithic construction and are listed in decreasing order of BV_{CEO}.

Type and Pol. NPN	Type and Pol. PNP	BV_{CEO} Volts	hFE @ IC Min	hFE @ IC mA	I_C Max	f_T MHz
MPSA-24	.....	100	5000	1000	2000	100
MPS-A23	.....	80	5000	1000	2000	100
2N6426	.....	40	30000	100	500	150
2N6427	.....	40	20000	100	500	130
.....	MPS-A65	30	50000	10	300	100
MPS-A14	MPS-A64	30	20000	100	500	125
MPS-A13	MPS-A63	30	10000	100	500	125
MPS-D04	MPS-D54	25	1000	100	300	100
MPS-A12	MPS-A62	20	20000	10	500	...

LOW-NOISE AMPLIFIER TRANSISTORS

Characterized for low-noise amplification at low frequencies. Listed in decreasing order of noise figure (NF).

Device Type	NF dB	BV_{CEO} volts	hFE @ IC min	hFE @ IC mA	f_T MHz
NPN					
2N4123	6.0	30	50	2.0	250
2N4124	5.0	25	120	2.0	300
2N5209	3.0	50	150	10	30
2N5088	3.0	30	100	300	50
MPS6520	3.0	25	200	2.0	390
MPS6521	3.0	25	300	2.0	390
2N5210	2.0	5.0	250	10	30
MPS8097	2.0	40	250	0.1	200
2N5089	2.0	25	400	10	50
MPS-A18	1.5	45	500	10	100
MPS-A09	1.4	50	100	1.0	30
PNP					
2N4125	5.0	30	50	2.0	200
2N4126	4.0	25	120	2.0	250
2N5086	3.0	50	150	150	40
MPS6522	3.0	25	200	2.0	340
MPS6523	3.0	25	300	2.0	340
MPS4249	3.0	60	100	10	100
2N5087	2.0	50	250	10	40
MPS4250	2.0	40	250	10	250
MPS4250A	2.0	60	250	0.1	250

HIGH-VOLTAGE TRANSISTORS

Designed for driving neon bulbs and Nixie indicator tubes, for direct line operation and other applications requiring high-voltage capability at relatively low collector current.

Device Type	BV_{CEO} Volts	I_C Amp.	hFE min.	hFE @ IC	f_T MHz
NPN					
2N6517	350	0.5	40	30	40
2N6516	300	0.5	45	30	40
MPS-A42	300	0.5	40	10	50
2N6515	250	0.5	50	30	40
MPS-A43	200	0.5	40	10	50
MPS-D01	200	0.1	20	30	40
2N5551	160	0.6	80	10	100
2N5550	140	0.6	60	10	100
MPS-D02	140	0.05	20	30	40
MPS-D03	100	0.05	50	10	60
MPS-L01	100	0.05	20	30	40
PNP					
2N6520	350	0.5	30	30	40
2N6519	300	0.5	45	30	40
MPS-A92	300	0.5	40	10	50
2N6518	250	0.5	50	30	40
MPS-D51	200	0.1	20	30	40
2N5401	150	0.6	60	10	100
MPS-D52	140	0.05	20	30	40
2N5400	120	0.6	40	10	100
MPS-D53	100	0.05	20	30	40
MPS-L51	100	0.6	40	50	60

RF/UHF/VHF AMPLIFIERS AND CATV TRANSISTORS

High performance, high frequency standard transistors. Listed in order of decreasing f_T min.

Device Type	f_T min	C_{cb} pF	BV_{CEO}	NF max	NF @ f
NPN					
FMT1091	1300	1.2	14	3.5	450
MPS3571	1200	0.9	25	4	450
MPS3572	1000	0.9	25	6	450
FMT1092	1000	1.2	14	4	450
BF363	800	....	20	5	800
MPS-H17	800	0.9	15	6	200
FMT1190	800	1.2	12	5	450
MPS6543	750	1.0	25	..	....

Motorola Selector Guide

PLASTIC-ENCAPSULATED SMALL-SIGNAL TRANSISTORS

RF/UHF/VHF AMPLIFIERS and CATV TRANSISTORS (cont.)

Device Type	fT MHz	Ccb pF	BVCEO Volts	NF dB Max.	@ f MHz
MPS-H10	650	1500	4	0.65	25
MPS-H11	650	0.7	25	...	...
MPS-H33	600	0.3	30	6.5	850
MPS6546	600	0.35	25	...	...
MPS6547	600	0.35	25	...	...
MPS918	600	1.7	15	6	60
MPS3563	600	1.7	12	...	...
MPS-H08	500	0.3	30	3.5	200
MPS-H34	500	0.32	45	...	...
MPS6539	500	0.7	20	4.5	100
2N5222	450	1.3	15	...	...
MPS-H07	400	0.3	30	3.2	100
MPS-H24	400	0.36	30	...	...

Device Type	fr MHz	Ccb pF	BVCEO Volts	NF db Max.	@ f MHz
MPS-H20	400	0.65	30	...	...
MPS-H6540	350	0.65	30	...	...
MPS-H32	300	0.22	30	3.3	45
BF367	300	0.3	30	...	...
MPS-H19	300	0.65	25	...	...
MPS-H30	300	0.65	20	6	45
MPS-H31	300	0.65	20	6	45
MPS-H37	300	0.7	40	...	...
MPS3639	200	0.2	45	...	...
MPS3694	200	0.2	45	4	1
MPS8001	100	0.65	25	...	...
MPS-H04	80	1.6	80	2	1
MPS-H05	80	1.6	80	2	1

Device Type	fr MHz	Ccb pF	BVCEO Volts	NF db Max.	@ f MHz
PNP					
BF479	1400	0.7	25	5.5	800
BF679	850	0.6	35	5	800
BF509	800	0.2	35	2.5	200
BF680	650	0.6	35	5.5	800
MPS-H83	600	0.3	30	6.5	850
MPS-H81	600	0.65	20	...	...
MPS-H85	350	0.2	30	6.5	200
2N5208	300	1.0	25	3	100
MPS-H54	80	1.6	80	2	1
MPS-H55	80	1.6	80	...	...

FIELD-EFFECT TRANSISTORS
GENERAL-PURPOSE DEVICES
JFET's- N-CHANNEL

Pkg.	Type	Yfs mmhos min/ max	IDSS mA min/ max	V (BR) GSS V (BR) DSS* Volts
TO-92	2N5457	1.0/5.0	1.0/5.0	25
TO-92	2N5458	1.5/5.5	2.0/9.0	25
TO-92	2N5459	2.0/6.0	4.0/16	25
TO-72	2N4220	1.0/4.0	0.5/3.0	30
TO-72	2N4221	2.0/5.0	2.0/6.0	30
TO-72	2N4222	2.5/6.0	5.0/15	30
TO-72	2N3823	3.5/6.5	4.0/20	30
TO-72	2N3824	..../....	..../....	50
JFET's P-CHANNEL				
TO-92	2N5460	1.0/4.0	1.0/5.0	40
TO-92	2N5461	1.5/5.0	2.0/9.0	40
TO-92	2N5462	2.0/6.0	4.0/16	40
MOSFET N-CHANNEL				
TO-72	2N4351	1.0/..	10/...	25*
MOSFET P-CHANNEL				
TO-72	2N4352	1.0/..	−10/...	−25*

GENERAL-PURPOSE AMPLIFIERS
JFET N-CHANNEL

TO-92	2N5457	1.0/5.0	1.0/5.0	−25
TO-92	2N5458	1.5/5.5	2.0/9.0	−25
TO-92	2N5459	2.0/6.0	4.0/16	−25
TO-72	2N4220A	1.0/4.0	0.5/3.0	−30
TO-72	2N4221A	2.0/5.0	2.0/6.0	−30
TO-72	2N4222A	2.5/6.0	5.0/15	−30
JFET P-CHANNEL				
TO-92	2N5460	1.0/4.0	1.0/5.0	40
TO-92	2N5461	1.5/5.0	2.0/9.0	40
TO-92	2N5462	2.0/6.0	4.0/16.0	40
TO-72	2N3330	1.5/3.0	2.0/6.0	20
MOSFET N-CHANNEL				
TO-18	MFE824	1.0/..	1.0/15	20*
TO-72	MFE3001	0.7/3.5	0.5/6.0	20*
TO-72	2N3796	0.9/1.8	0.5/6.0	25
TO-72	2N3797	1.5/3.0	2.0/6.0	20

MOSFET P-CHANNEL

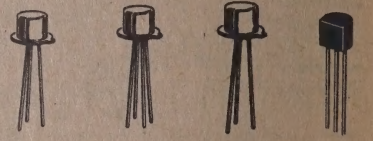
TO-18	MFE823	1.0/..	./−20	25*

CHOPPERS and SWITCHES
JFET's N CHANNEL

Pkg.	Type	rds (on) ohms max	ID IDSS* nA	Crss pF max	V (BR) GSS V (BR) DSS* min
TO-92	2N5638	30	1.0	4.0	−30
TO-92	2N5639	60	1.0	4.0	−30
TO-92	2N5640	100	1.0	4.0	−30
TO-18	2N4856	25	0.25	8.0	−40
TO-18	2N4857	40	0.25	8.0	−40
TO-18	2N4858	60	0.25	8.0	−40
JFET's P CHANNEL					
TO-92	MPF970	100	10	5.0	30
TO-92	MPF971	250	10	5.0	30
TO-72	2N3993	150	1.2	4.5	25
TO-72	2N3994	300	1.2	5.0	25
MOSFET N CHANNEL					
TO-72	2N4351	300	10*	1.3	25*
MOSFET P CHANNEL					
TO-72	2N4352	600	−10*	1.3	25*

RF AMPLIFIERS

Pkg.	Type	Test Freq. MHz	Gps Gc* min/ max	Crss Cgd min/ max	NF dB
TO-92	MPF102	100	.....	../3.0	..
TO-92	2N5484	100	16/25	../3.0	3.0
TO-92	MPF256	400	12/..	1.2	4.0
TO-92	2N5485	400	10/20	../1.0	4.0
TO-92	2N5486	400	10/20	../1.0	4.0
TO-72	2N4416	400	10/..	../0.8	4.0
TO-72	2N4416A	400	10/..	../0.8	4.0
TO-52	U310	450	11	../2.5	3.0
TO-92	J310	100	16	../2.5	1.5



TO-72 TO-18 TO-52 TO-92

• N or P Channel Polarity with Single & Dual Gates

Field-effect transistors encompassing latest technology and covering full range of FET applications. Included is a wide variety of junction FET's and MOSFET's with N or P Channel polarity with both single and dual gates. These FET's include devices developed for operation across a frequency range from dc to UHF in switching and amplifying appilcations.

RF Amplfiers (cont)

Pkg.	Type	Test Freq. MHz	Gps GC* min/ max	Crss Ggd min/ max	NF dB
MOSFET N CHANNEL					
TO-72	3N203	45	20/30	../0.03	6.0
TO-72	MFE130	105	17/..	../.05	5.0
TO-72	3N201	200	15/25	−0.03	4.5
TO-72	MFE131	200	17/..	../.05	5.0
TO-72	3N209	500	10/20	../.05	6.0
TO-72	3N213	45	27/35	../.05	4.0
TO-72	3N211	200	29/37	../.05	3.5
TO-72	MFE521	500	21/..	../.02	3.5
TO-72	3N202	200	15/25*	../.03	..
TO-72	3N212	200	21/28*	../.05	..

RF POWER TRANSISTORS

Pout	1.5-30 MHZ 12V	1.5-30 MHZ 28V	136-174MHZ 12V	30-200MHZ 28V	220MHZ 12V	407-512MHZ 12V	225-400MHZ 28V
1W	.....	.....	2N4427	2N3866	MRF207	.....	MRF313
1.75W	.....	.....	MRF607	.....	MRF225	.....	.....
2.0W	.....	.....	.....	2N3553	.....	2N5944	.....
3.0W	MRF476	.....	2N6255	.....	MRF227	.....	.....
4.0W	.....	.....	MRF237	.....	.....	2N5945	.....
7.0W	.....	.....	.....	2N5641	.....	.....	.....
9.0W	2N6367	.....	.....	.....	.....	.....	.....
10W	.....	2N6370	.....	.....	MRF208	2N5946	MRF321
12.5W	MRF432	.....	.....	.....	MRF226	.....	.....
15W	.....	MRF485	2N6081	.....	.....	MRF618	.....
20W	MRF406	.....	.....	.....	.....	.....	MRF323
25W	.....	MRF401	2N6082	.....	MRF209	MRF644	.....
30W	MRF449	.....	2N6083	MRF314	.....	.....	MRF325
40W	MRF460	2N5941	2N6084	.....	.....	.....	MRF326
45W	.....	.....	.....	MRF315	.....	MRF646	.....
50W	MRF450	.....	MRF250	.....	.....	.....	MRF309

RF Power Transistors (cont.)

Pout	1.5-30 MHZ 12V	1.5-30 MHZ 28V	136-174MHZ 12V	30-200MHZ 28V	220MHZ 12V	407-512MHZ 12V	225-400MHZ 28V
60W	MRF455	.....	MRF243	.....	.....	MRF648	2N6439
70W	.....	.....	.....	.....	.....	.....	.....
80W	MRF454	MRF464	MRF245	MRF316	.....	.....	MRF327
100W	MRF421	.....	.....	MRF317	.....	.....	.....
150W	.....	MRF422	.....	.....	.....	.....	.....

RF MODULES

	10—15V Operation
30W	MHW603 VHF
13W	MHW710 UHF

RF LOW DISTORTION WIDEBAND MODULE

10—400MHz	1.0—250MHz
12V, 34dB Gain, MHW593 24V, 34dB Gain, MHW590	12V, 34dB Gain, MHW591 24V, 34dB Gain, MHW592

MULTIPLE TRANSISTORS

HIGH SPEED SWITCHES, HIGH FREQUENCY OSCILLATORS

Motorola Type	Case	Polarity	BVceo V	DC Current Gain Ratio hFE1/hFE2
MD708A†	654	NPN	15	0.9/1.0
MD918A†	654	NPN	15	10%
MD2369A†	654	NPN	15	
MD708B†	654	NPN	15	0.8/1.0
MD918B	654	NPN	15	20%
MD708†	654	NPN	15	0.8/1.0 > or
MD918†	654	NPN	15	unmatched
MD2369†	654	NPN	15	20%
MD2219A	654	.....		
MD2905A	654	.....		

†For case 610, add suffix F

SILICON DUAL TRANSISTORS

Devices listed in descending order of magnitude of h_{FE}.

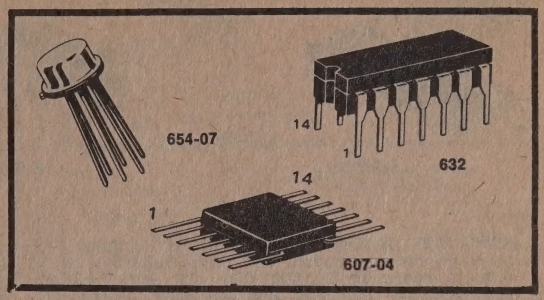
LOW NOISE—HIGH GAIN AMPLIFIERS

Motorola Type	Case	Polarity	BVceo V	DC Current Gain Ratio hFE1/hFE2
2N2919	654	NPN	60	
2N2920*	654	NPN	60	0.9/1.0
2N3810	654	PNP	60	10%
2N3811	654	PNP	60	
2N2639	654	NPN	40	
2N2642	654	NPN	40	0.9/1.0
2N2915	654	NPN	40	10%
2N2916	654	NPN	40	
2N3808	654	PNP	60	0.8/1.0
2N3809	654	PNP	60	20%
2N2913	654	NPN	40	0.8/1.0
2N2914	654	NPN	40	> or
2N3806	654	PNP	60	unmatched
2N3807	654	PNP	60	20%

GENERAL PURPOSE AMPLIFIERS AND SWITCHES

Motorola Type	Case	Polarity	BVCEO V	DC Current Gain Ratio HFE1/hFE2
2N2060*	654	NPN	60	
2N2903A	654	NPN	30	0.9/1.0
MD3250A†	654	PNP	40	10%
MD3251A†	654	PNP	40	
2N2480A	654	NPN	40	
2N2652	654	NPN	60	0.8/1.0
2N2903	654	NPN	30	20%
2N4938	654	PNP	40	
MD2218†	654	NPN	30	
MD2219†	654	NPN	30	
MD2905†	654	PNP	40	0.8/1.0
MD3251†	654	PNP	40	> or
2N5793	654	NPN	40	unmatched
2N5794	654	NPN	40	20%
2N5795	654	PNP	60	
2N5796	654	PNP	60	
2N4854*	654	‡	40	.....
MD6001†	654	‡	30	.....
MD6002†	654	‡	30	.....

‡Complementary pairs, one NPN/one PNP
†For case 610, add suffix F



NPN-PNP SILICON QUAD TRANSISTORS

Each quad transistor contains four similar transistors that can be used to reduce space requirements. Listed in order of decreasing BV_{CEO} (min.). NPN except as otherwise noted.

PLASTIC DUAL-IN-LINE (CASE 646)

Motorola Type	BV CEO V	hFE at IC Min.	hFE at IC mA	Maximum ton ns	Maximum toff ns	Min. fT MHz
MPQ3799*	60	300	0.1	.....		60
MPQ3467*	40	20	500	40	90	250
MPQ3725	40	25	500	35	60	250
MPQ2483	40	150	1.0	.....		50
MPQ3798*	40	150	0.1	.....		60
MPQ2484	40	300	1.0	.....		50
MPQ2222	.....	100	150	.....		200
MPQ6001†	30	40	150	30‡	225‡	200
MPQ6002†	30	100	150	30‡	225‡	200
MPQ3303	12	40	300	15	20	400

CERAMIC DUAL-IN-LINE (CASE 632)

MHQ2907*	60	100	150	30‡	100‡	350
MHQ3799*	60	300	0.1	.....		325
MHQ2906*	40	40	150	30‡	100‡	350
MHQ2221	40	40	150	30	225	350
MHQ2222	40	100	150	25	250	350
MHQ3798*	40	150	0.1	.....		325
MHQ6100†	40	75	1.0	.....		175§
MHQ3467*	40	20	500	40	120	.....
MHQ6001†	30	40	150	.....		400
MHQ6002†	30	100	150	.....		400
MHQ2483	25	150	1.0	.....		175
MHQ2369	15	40	10	9‡	15‡	550
MHQ3546*	12	25	50	15‡	25‡	1000

FLAT PACK (CASE 607)

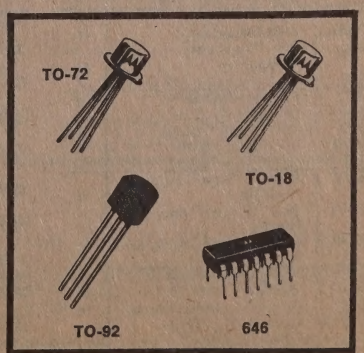
MQ2905A*	60	100	150	45	130	225
MQ3799*	60	300	0.1	.....		130
MQ930	45	150	1.0	.....		70
2N5146*	40	20	1000	40	120	200
MQ3467*	40	20	500	40	120	200
MQ3725	40	30	500	45	75	300
MQ2219A	40	100	150	60	350	270
MQ2904*	40	40	150	.....	130	225
MQ3251*	40	100	10	.....		350
MQ2218	30	40	150	60	350	220

*PNP; all other types NPN. †Complementary. ‡Typical. §NPN; 130 MHz, PNP.

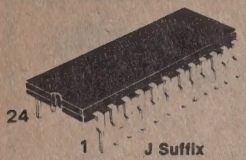
SMALL-SIGNAL DARLINGTON AMPLIFIER TRANSISTORS

Darlington amplifiers are cascaded transistors used in applications requiring high-current gain and input impedance. Plastic transistors have monolithic construction, metal package transistors are two chip construction.

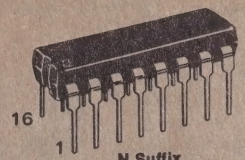
Device Type NPN	Device Type PNP	BV_{CES}* $V_{CE(sus)}$# BV_{CEO} Volts Min	I_C mA Max	hFE @ IC Min	hFE @ IC mA	fT MHz Min	Pkg.
MPS-A12	.....	20*	500	20,000	10	0.035	TO-92
MPS-D04	MPS-D54	25*	300	1000	10	100	TO-92
MPS-A13	.....	30*	500	5000	10	125	TO-92
MPS-A14	.....	30*	500	10,000	10	125	TO-92
.....	MPS-A65	30*	300	50,000	10	100	TO-92
.....	MPS-A66	30*	300	75,000	10	100	TO-92
2N2785	.....	40	200	1200	10	10	TO-72
MM6427	.....	40	300	5000	10	.....	TO-18
MPQ6426	.....	40	500	5000	10	.....	646
2N6427	.....	40	500	10,000	10	.....	TO-92
2N6426	.....	40	500	20,000	10	.....	TO-92
2N998	.....	60	500	1600	10	.....	TO-72
2N2723	.....	60	40	2000	10	100	TO-72



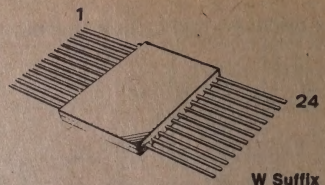
Motorola Selector Guide



J Suffix



N Suffix



W Suffix

3

INTEGRATED CIRCUITS LS Low Power Schottky TTL family combines a current and power reduction by a factor 5 (compared to 7400 TTL) with anti-saturation Schottky diode clamping and advanced processing, using shallower diffusions and higher sheet resistivity to achieve circuit performance better than conventional TTL. All devices listed are available in J, N, and W packages.

Device	Description	Pins
SN74LS00	Quad 2-Input NAND Gate	14
SN74LS01	Quad 2-Input NAND Gate 00/C	14
SN74LS02	Quad 2-Input NOR Gate	14
SN74LS03	Quad 2-Input NAND Gate 0/C	14
SN74LS04	Hex Inverter	14
SN74LS05	Hex Inverter 0/C	14
SN74LS08	Quad 2-Input AND Gate	14
SN74LS09	Quad 2-Input AND Gate 0/C	14
SN74LS10	Triple 3-Input	14
SN74LS11	Triple 3-Input AND Gate	14
SN74LS12	Triple 3-Input NAND Gate 0/C	14
SN74LS13	Dual 4-Input Schmitt Trigger	14
SN74LS14	Hex Schmitt Trigger	14
SN74LS15	Triple 3-Input AND Gate 0/C	14
SN74LS20	Dual 4-Input NAND Gate	14
SN74LS21	Dual 4-Input AND Gate	14
SN74LS22	Dual 4-Input NAND Gate 0/C	14
SN74LS26	Quad 2-Input NAND (Hi Voltage)	14
SN74LS27	Triple 3-Input NOR Gate	14
SN74LS30	8-Input NAND Gate	14
SN74LS32	Quad 2-Input OR Gate	14
SN74LS33	Quad 2-Input NOR 0/C	14
SN74LS37	Quad 2-Input NAND Buffer	14
SN74LS38	Quad 2-Input NAND Buffer 0/C	14
SN74LS40	Dual 4-Input NAND Buffer	14
SN74LS42	1-of-10 Decoder	16
SN74LS47	BCD-to-Seven Segment Dcdr/Dvr 0/C	16
SN74LS48	BCD-to-Seven Segment Dcdr/Dvr	16
SN74LS49	BCD-to-Seven Segment Dcdr/Dvr 0/C	16
SN74LS51	Dual AOI Gate	14
SN74LS54	2-3-3-2-Input AOI Gate	14
SN74LS55	2-Wide 4-Input AOI Gate	14
SN74LS73	Dual J-K Flip-Flop	14
SN74LS74	Dual D Flip-Flop	14
SN74LS75	4-Bit Bi-Stable Latch	16
SN74LS76	Dual J-K Flip-Flop	16
SN74LS77	4-Bit Bi-Stable Latch	14
SN74LS78	Dual J-K Flip-Flop	14
SN74LS83A	4-Bit Full Adder	16
SN74LS85	4-Bit Magnitude Comparator	16
SN74LS86	Quad Exclusive OR Gate	14
SN74LS90	Decade Counter	14
SN74LS92	Divide-by-12 Counter	14
SN74LS93	4-Bit Binary Counter	14
SN74LS95B	4-Bit Shift Register	14
SN74LS109	Dual J-K Flip-Flop	16
SN74LS112	Dual J-K Edge-Triggered Flip-Flop	16
SN74LS113	Dual J-K Edge-Triggered Flip-Flop	14
SN74LS114	Dual J-K Edge-Triggered Flip-Flop	14
SN74LS122	Retrig Mono Multvib (Int Res)	14
SN74LS123	Dual Retrig Mono Multvib	16
SN74LS125A	Quad 3-State Buffer (LOW Enable)	14

Device	Description	Pins
SN74LS126A	Quad 3-State Buffer (HIGH Enable)	14
SN74LS132	Quad 2-Input Schmitt Trigger	14
SN74LS133	13-Input NAND Gate	16
SN74LS136	Quad Exclusive OR 0/C	14
SN74LS138	1-of-8 Dcdr/Demux	16
SN74LS139	Dual 1-of-4 Dcdr/Demux	16
SN74LS151	8-Input Mux	16
SN74LS153	Dual 4-Input Mux	16
SN74LS155	Dual 1-of-4 Decoder	16
SN74LS156	Dual 1-of-4 Decoder 0/C	16
SN74LS157	Quad 2-Input Mux (Non-Inverting)	16
SN74LS158	Quad 2-Input Mux (Inverting)	16
SN74LS160	BCD Decade Ctr Asyn Reset	16
SN74LS161	4-Bit Ctr Asyn Reset	16
SN74LS162	BCD Decade Ctr Synch Reset	16
SN74LS163	4-Bit Binary Ctr Synch Reset	16
SN74LS164	8-Bit Serial In/Parallel Out S.R.	14
SN74LS165	8-Bit Parallel In/Serial Out S.R.	16
SN74LS168	Up/Down Decade Counter	16
SN74LS169	Up/Down Binary Counter	16
SN74LS170	4x4 Register File 0/C	16
SN74LS173	4-Bit D Register, 3-State	16
SN74LS174	Hex D Flip-Flop w/Clear	16
SN74LS175	Quad D Flip-Flop w/Clear	16
SN74LS181	4-Bit ALU	24
SN74LS189	16x4 RAM (3-State)	16
SN74LS190	Up/Down Decade Counter	16
SN74LS191	Up/Down Binary Counter	16
SN74LS192	Up/Down Decade Counter	16
SN74LS193	Up/Down Binary Counter	16
SN74LS194A	4-Bit Right/Left S.R.	16
SN74LS195A	4-Bit S.R. (9300 TYPE)	16
SN74LS196	Decade Counter	14
SN74LS197	4-Bit Binary Counter	14
SN74LS221	Dual One-Shot Very Stable	16
SN74LS240	Octal Inv. Bus/Line Driver 3-State	20
SN74LS241	Octal Bus/Line Driver, 3-State	20
SN74LS242	Quad Bus Transceiver/ Inverting	14
SN74LS243	Quad Bus Transceiver/ Non-Inverting	14
SN74LS244	Octal 3-State Driver/ Non-Inverting	20
SN74LS245	Octal Bus Transceiver/ Non-Inverting	20
SN74LS247	BCD-to-Seven Segment Dcdr/Dvr 0/C	16
SN74LS248	BCD-to-Seven Segment Dcdr/Dvr	16
SN74LS249	BCD-to-Seven Segment Dcdr/Dvr 0/C	16
SN74LS251	8-Input Mux, 3-State	16
SN74LS253	Dual 4-Input Mux, 3-State	16
SN74LS256	Dual 4-Bit Addressable Latch	16
SN74LS257	Quad 2-Input Mux, 3-State	16
SN74LS258	Quad 2-Input Mux, 3-State	16

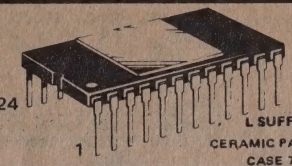
Device	Description	Pins
SN74LS259	8-Bit Addressable Latch (9334)	16
SN74LS260	Dual 5-Input NOR Gate	14
SN74LS266	Quad Exclusive NOR Gate 0/C	14
SN74LS273	Octal D Flip-Flop w/M.R.	20
SN74LS279	Quad Set/Reset Latch	16
SN74LS283	4-Bit Full Adder (Rotated LS83)	16
SN74LS290	Decade Counter	14
SN74LS293	4-Bit Binary Counter	16
SN74LS295A	4-Bit S.R., 3-State	14
SN74LS298	Quad 2-Mux w/Output Register	16
SN74LS365A	Hex Buffer, 3-State, Common Enable	16
SN74LS366A	Hex Inv, 3-State, Common	16
SN74LS367A	Hex Buffer, 3-State, 4-Bit & 2-Bit	16
SN74LS368A	Hex Inv, 3-State, 4-Bit & 2-Bit	16
SN74LS375	Quad Latch	16
SN74LS377	Octal D Flip-Flop w/Enable	20
SN74LS378	Hex D Flip-Flop w/Enable	16
SN74LS379	4-Bit Flip-Flop w/Enable	16
SN74LS384	8-Bit Multiplier	16
SN74LS385	Quad Adder/Subtractor (4-Bit)	20
SN74LS386	Quad Exclusive-OR Gates	14
SN74LS390	Dual Decade Counter	16
SN74LS393	Dual 4-Bit Binary Counter	14
SN74LS395	S.R., 3-State	16
SN74LS398	LS399 w/Q & Q Outputs	16
SN74LS399	Quad 2-Mux w/Output Register	20
SN74LS490	Dual Decade Counter	16
SN74LS540	240 w/Input One Side—Output on Other	20
SN74LS541	241 w/Input One Side—Output on Other	20
SN74LS573	373 w/Input One Side—Output on Other	20
SN74LS574	374 w/Input One Side—Output on Other	20
SN74LS670	4x4 Reg File (3-State)	16

2900 MPU FAMILY

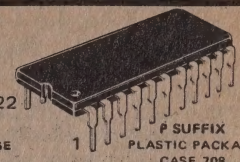
Device	Description
MC2901	4-Bit ALU Slice
MC2901A	4-Bit ALU Slice
MC2902	Look-Ahead Carry
MC2903	4-Bit ALU Slice
MC2905	Quad Bus Transceiver
MC2906	Quad Bus Transceiver
MC2907	Quad Bus Transceiver
MC2909	Sequencer
MC2910	Sequencer
MC2911	Sequencer
MC2915A	Quad 3-S Bus Transceiver
MC2916A	Quad 3-S Bus Transceiver
MC2917A	Quad 3-S Bus Transceiver
MC2918	2-Port Register
MC82100	FPLA
MC82101	FPLA
MACE 29/800	Processor Development System

Motorola Selector Guide

A very broad range of MOS and bipolar memories for virtually any digital data processing system application. For those whose requirements go beyond individual components there are also Memory Systems and Micro-modules. Memories are available in plastic or ceramic packages.



L SUFFIX
CERAMIC PACKAGE
CASE 716



P SUFFIX
PLASTIC PACKAGE
CASE 708

3

MOS DYNAMIC RAMs

Org.	Part Number	Acc. Time (ns max)	No. of Power Supp.[1]	No. of Pins
4096 x 1	MCM4096C-6†	250	3	16
4096 x 1	MCM4096C-16†	300	3	16
4096 x 1	MCM4096C-11†	350	3	16
4096 x 1	MCM4047C-2†	150	3	16
4096 x 1	MCM4027C-3†	200	3	16
4096 x 1	MCM4027C-4†	250	3	16
4094 x 1	MCM6604AC	350	3	16
4096 x 1	MCM6604AC-2	250	3	16
4096 x 1	MCM6604AC-4	300	3	16
4096 x 1	MCM6605AL	300	3	22
4096 x 1	MCM6605AL-2	200	3	22
16,384 x 1	MCM4116C-15†	150	3	16
16,384 x 1	MCM4116C-20†	200	3	16
16,384 x 1	MCM4116C-25†	250	3	16
16,384 x 1	MCM4116C-30†	300	3	16

MOS STATIC RAMs

Org.	Part Number	Acc. Time (ns max)	No. of Power Supp.[1]	No. of Pins
1024 x 1	MCM2114P-20†	200	1	18
1024 x 4	MCM2114P-25†	250	1	18
1024 x 4	MCM2114P-30†	300	1	18
1024 x 4	MCM2114P-45†	450	1	18
1024 x 4	MCM21L14P-20†	200	1	18
1024 x 4	MCM21L14P-25†	250	1	18
1024 x 4	MCM21L14P-30†	300	1	18
1024 x 4	MCM21L14P-45†	450	1	18
4096 x 1	MCM6641P-20†	200	1	18
4096 x 1	MCM6641P-25†	250	1	18
4096 x 1	MCM6641P-30†	300	1	18
4096 x 1	MCM6641P-45†	450	1	18
4096 x 1	MCM66L41P-20†	200	1	18
4096 x 1	MCM66L41P-25†	250	1	18
4096 x 1	MCM66L41P-30†	300	1	18
4096 x 1	MCM66L41P-45†	450	1	18
4096 x 1	MCM2147C-55†	55	1	18
4096 x 1	MCM2147C-70†	70	1	18
4096 x 1	MCM2147C-85*†	85	1	18
4096 x 1	MCM2147C-100*	100	1	18

CMOS STATIC RAMs

Org.	Part Number	Acc. Time (ns max)	No. of Power Supp.	No. of Pins
64 x 1	MCM14505	300	1	14
256 x 1	MCM14537	1500	1	16
64 x 4	MCM14552	1600	1	24
256 x 4	MCM145101†	650	1	22
256 x 4	MCM145101-1†	450	1	22
256 x 4	MCM145101-3†	650	1	22
256 x 4	MCM145101-8†	800	1	22
1024 x 1	MCM146508†	460	1	16
1024 x 1	MCM146508-1†	300	1	16
1024 x 1	MCM146518†	460	1	18
1024 x 1	MCM146518-1†	300	1	18

ECL BIPOLAR RAMs

Org.	Part Number	Acc. Time (n max)	Output	No. of Pin
8x2	MCM10143	15	ECL output	24
256x1	MCM10144†	26	ECL output	16
16x4	MCM10145†	15	ECL output	16
1024x1	MCM10146†	29	ECL output	16
128x1	MCM10147†	15	ECL output	16
256x1	MCM10152†	15	ECL output	16

TTL BIPOLAR RAMs

Org.	Part Number	Acc. Time (n max)	Output	No. of Pin
1024x1	MCM93415†	45	Open col.	16
1024x1	MCM83425†	45	3-state	16

MOS PROM

Org.	Part Number	Acc. Time (n max)	No. of Power Supp.[1]	No. of Pin
1024x8	MCM2708P	450	3	24

ECL PROMs

Org.	Part Number	Acc. Time (n max)	Output	No. of Pin
32 x 8	MCM10139†	25	ECL output	16
256 x 4	MCM10149†	30	ECL output	16

TTL PROMs

Org.	Part Number	Acc. Time (n max)	Output	No. of Pin
64 x 8	MCM5003/ 5303†	125	Op. coll.	24
64 x 8	MCM5004/ 5304†	125	2K pull-up	24
512 x 4	MCM7620†	50	Op. coll.	16
512 x 4	MCM7621†	50	3-state	16
512 x 8	MCM7640†	70	Op. coll.	24
512 x 8	MCM7641†	70	3-state	24
1024 x 4	MCM7642†	70	Op. coll.	18
1024 x 4	MCM7643†	70	3-state	18
1024 x 8	MCM7680†	70	Op. coll.	24
1024 x 8	MCM7681†	70	3-state	24
2048 x 6	MCM7684†	80	Op. coll.	18
2048 x 4	MCM7685†	80	3-state	18
1024 x 8	MCM82707†	70	Op. coll.	24
1024 x 8	MCM82708†	70	3-state	24

MOS EPROMs

Org.	Part Number	Acc. Time (n max)	No. of Power Supp.[1]	No. of Pin
1024 x 8	MCM2708L†	450	3	24
1024 x 8	MCM27A08L†	300	3	24
1024 x 8	MCM68708L†	450	3	24
1024 x 8	MCM68A708L	300	3	24
2048 x 8	MCM2716L†	450	3	24
2048 x 8	MCM2717L	450	3	24
2048 x 8	MCM2716AL†	450	1	24

MOS STATIC ROMs Code Generators

Org.	Part Number	Acc. Time (ns max)	No. of Pwr. Supp.[1]	of Pins
1024x8 or 2048x4	MCM6560P†	350	3	24
1024x8	MCM6561P†	350	3	24
1024x8	MCM6562P†	350	3	24
2048x8	MCM6590P†	800	3	24
2048x8	MCM6591P†	800	3	24

Character Generators[2]

128x(9x7)	MCM6570P†	500	3	24
128x(9x7)	MCM6571P†	500	3	24
128x(9x7)	MCM6571P†	500	3	24
128x(9x7)	MCM6572P†	500	3	24
128x(9x7)	MCM6573P†	500	3	24
128x(9x7)	MCM6573AP	500	3	24
128x(9x7)	MCM6574P†	500	3	24
128x(9x7)	MCM6575P†	500	3	24
128x(9x7)	MCM6576P†	500	3	24
128x(9x7)	MCM6577P	500	3	24
128x(9x7)	MCM6578P	500	3	24
128x(9x7)	MCM6579P	500	3	24
128x(7x9)	MCM6580P†	400	3	24
128x(7x9)	MCM6581P†	400	3	24
128x(7x9)	MCM6583P†	400	3	24
128x(7x5)	MCM6670P	350	1	18
129x(7x5)	MCM6674P	350	1	18
128x(9x7)	MCM66700P†	350	1	24
128x(9x7)	MCM66710P†	350	1	24
128x(9x7)	MCM66714P†	350	1	24
128x(9x7)	MCM66720P†	350	1	24
128x(9x7)	MCM66730P†	350	1	24
128x(9x7)	MCM66734P†	350	1	24
128x(9x7)	MCM66740P†	350	1	24
128x(9x7)	MCM66750P†	350	1	24
128x(9x7)	MCM66760P†	350	1	24
128x(9x7)	MCM66770P†	350	1	24
128x(9x7)	MCM66780P†	350	1	24
128x(9x7)	MCM66790P†	350	1	24

BINARY ROMs

1024x8	MCM68A30P8	350	1	24
1024x8	MCM68A308P7	350	1	24
2048x8	MCM68A316P91	350	1	24
1024x8	MCM68B30AP†	250	1	24
1024x8	MCM68A30AP†	350	1	24
1024x8	MCM68B308P†	250	1	24
1024x8	MCM68A308P†	350	1	24
2048x8	MCM68A316EP†	350	1	24
2048x8	MCM68A316AP†	350	1	24
2048x8	MCM6832P†	550	3	24
2048x8	MCM6832P91	550	3	24
4096x8	MCM68A332P†	350	1	24
8192x8	MCM68A364P†	350	1	24
8192x8	MCM68M364P3*	350	1	24
8192x8	MCM68B364P3†	250	1	24

CMOS ROM

Org.	Part Number	Acc. Time (ns max)	No. of Pwr. Supp.[1]	No. of Pins
256 x 4	MCM14524	1200	1	16

†Second source.

Operating temperature ranges

MOS	0° to 70°C
CMOS	−40°C to +85°C and 55°C to 125°C
ECL	Consult individual data sheets.
TTL	−55°C to +125°C

[1]MOS power supplies:

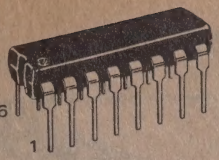
3	+12, +5 V
1	±5 V

All MOS outputs are 3-state except the 6570 and 65800 Series which are open-drain.

[2]Character generators include shifted and unshifted characters, ASCII, alphanumeric control, math, Japanese, British, German, European and French symbols.

Motorola Selector Guide

CMOS INTEGRATED CIRCUITS



McMOS B Series is the standard line of CMOS monolithic integrated circuits providing the design engineer with several medium speed series fully compatible with non-buffered CMOS for mix-and-match convenience. Low power dissipation and flexible power supply requirements simplify design. High noise immunity and fanout capability reduce printed circuit board layout.

Part Number	Function
MC14000UB	Dual 3-Input NOR Gate plus Inverter
MC14001B	Quad 2-Input NOR Gate
MC14001UB	Quad 2-Input NOR Gate
MC14002B	Dual 4-Input NOR Gate
MC14002UB	Dual 4-Input NOR Gate
MC14006B	18-Bit Static Shift Register
MC14007UB	Complementary Pair plus Inverter
MC14008B	4-Bit Full Adder
MC14011B	Quad 2-Input NAND Gate
MC14011UB	Quad 2-Input NAND Gate
MC14012B	Dual 4-Input NAND Gate
MC14012UB	Dual 4-Input NAND Gate
MC14013B	Dual D Flip-Flop
MC14014B	8-Bit Static Shift Register
MC14015B	Dual 4-Bit Static Shift Register
MC14016B	Quad Analog Switch/Quad Multiplexer
MC14017B	Decade Counter/Divider
MC14018B	Presettable Divide-by-N Counter
MC14020B	14-Bit Binary Counter
MC14021B	8-Bit Static Shift Register
MC14022B	Octal Counter/Divider
MC14023UB	Triple 3-Input NAND Gate
MC14023B	Triple 3-Input NAND Gate
MC14024B	Seven Stage Ripple Counter
MC14025B	Triple 3-Input NOR Gate
MC14025UB	Triple 3-Input NOR Gate
MC14027B	Dual J-K Flip-Flop
MC14028B	BCD-to-Decimal Decoder
MC14029B	4-Bit Presettable Up/Down Counter
MC14032B	Triple Serial Adder (Positive Logic)
MC14034B	8-Bit Universal Bus Register
MC14035B	4-Bit Shift Register
MC14038B	Triple Serial Adder (Negative Logic)
MC14040B	12-Bit Binary Counter
ML14042B	Quad Latch
MC14043B	Quad NOR R-S Latch
MC14044B	Quad NAND R-S Latch
MC14046B	Phase-Locked Loop
MC14049UB	Hex Inverter/Buffer
MC14050B	Hex Buffer
MC14051B	8-Channel Analog Multiplexer
MC14052B	Dual 4-Channel Analog Multiplexer
MC14053B	Triple 2-Channel Analog Multiplexer
MC14066B	Quad Analog Switch
MC14068B	8-Input NAND Gate
MC14069UB	Hex Inverter
MC14070B	Quad Exclusive OR Gate
MC14071	Quad 2-Input OR Gate
MC14071B	Quad 2-Input OR Gate
MC14072B	Dual 4-Input OR Gate
MC14073B	Triple 3-Input AND Gate
MC14075B	Triple 3-Input OR Gate
MC14076B	Quad D-Type Register
MC14077B	Quad Exclusive NOR Gate
MC14078B	8-Input NOR Gate
MC14081	Quad 2-Input AND Gate
MC14081B	Quad 2-Input AND Gate
MC14082B	Dual 4-Input AND Gate
MC14093B	Quad 2-Input NAND Schmitt Trigger
MC14094B	8-Bit, Bus Compat. Shift/Store/Latch

Part Number	Function
MC14099B	8-Bit Addressable Latch
MC14160B	Decade Counter (Asynchronous Clear)
MC14161B	Binary Counter (Asynchronous Clear)
MC14162B	Decade Counter (Synchronous Clear)
MC14163B	Binary Counter (Synchronous Clear)
MC14174B	Hex D Flip-Flop
MC14175B	Quad D Flip-Flop
MC14194B	4-Bit Universal Shift Register
MC14403	Tone Encoder
MC14405	Tone Encoder
MC14406	Pulse Code Modulator
MC14407	Pulse Code Modulator
MC14408	Binary-to-Phone Pulse Converter
MC14409	Binary-to-Phone Pulse Converter
MC14410	2-of-8 Tone Encoder
MC14411	Bit-Rate Frequency Generator
MC14412	Universal Low-Speed Modem
MC14415	Quad Precision Timer/Driver
MC14419	2-of-8 Keypad-to-Binary Encoder
MC14422	Remote Control Transmitter
MC14433	3½-Digit A/D Converter
MC14434	3½-Digit A/D Converter
MC14435	3½-Digit A/D Logic Subsystem
MC14440	LCD Watch/Clock Circuit
MC14443	8-channel A/D Converter
MC14450	Oscillator 2^{16} Divider/Buffer
MC14451	Oscillator/Divider/Buffer
MC14460	Automotive Speed Control Processor
MC14461	Smoke Detector Ion Type
MC14462	Smoke Detector Ion Type, FET
MC14463	Smoke Detector—Photo
MC14469	Addressable Asynchronous Receiver/Transmitter
MC14471	6-Function, 4 Digit LCD Watch
MC14472	6-Function, 4 Digit LCD Watch
MC14478	5-Function, 4 Digit LCD Watch
MC14470	6-Function, 4-Digit LED Watch
MC14479	5-Function, 4-Digit LCD Watch
MC14480	5-Function, 4-Digit LCD Watch
MC14481	6-Function, 4-Digit LCD Watch
MC14490	Hex Contact Bounce Eliminator
MC14495	BCD-to-7 Segment Decoder/Driver/Latch
MC14500B	Industrial Control Unit
MC14501UB	Triple Gate
MC14502B	Strobed Hex Inverter/Buffer
MC14503B	Hex 3-State Buffer
MC14504B	Hex TTL or CMOS to CMOS Level Shifter
MCM14505	64 x 1-Bit Static RAM
MC14506B	Dual Expandable AOI Gate
MC14507	Quad Exclusive OR Gate
MC14508B	Dual 4-Bit Latch
MC14510B	BCD Up/Down Counter
MC14511B	BCD-to-7 Segment Latch/Decoder/Driver
MC14512UB	8-channel Data Selector
MC14513B	BCD-to-7/Segment Latch/Decoder/Driver—Ripple Blanking
MC14514B	4-Bit Latch/4-to-16 Line Decoder (High)
MC14515B	4-Bit Latch/4-to-16 Line Decoder (Low)

Part Number	Function
MC14516B	Binary Up/Down Counter
MC14517B	Dual 64-Bit Static Shift Register
MC14518B	Dual BCD Up Counter
MC14519B	4-Bit AND/OR Selector
MC14520B	Dual Binary Up Counter
MC14521B	24-Stage Frequency Divider
MC14522B	Programmable BCD Divide-by-N Counter
MCM14524	256 x 4-Bit Read Only Memory
MC14526B	Programmable Binary Divide-by-N Counter
MC14527B	BCD Rate Multiplier
MC14528B	Dual Monostable Multivibrator
MC14529B	Dual 4-Channel Analog Data Selector
MC14530B	Dual 5-Input Majority Logic Gate
MC14531B	12-Bit Parity Tree
MC14532B	8-Bit Priority Encoder
MC14534B	Real Time 5-Decade Counter
MC14536B	Programmable Timer
MCM14537	256 x 1-Bit Static RAM
MC14538B	Dual Precision Monostable Multivibrator
MC14539B	Dual 4 Channel Data Selector/Multiplexer
MC14541B	Programmable Oscillator-Timer
MC14543B	BCD-to-7 Segment Latch/Decoder/Driver
MC14549B	Successive Approximate Register
MCM14552	64 x 4-Bit Static RAM
MC14553B	3-Digit BCD Counter
MC14554B	2 x 2-Bit Parallel Binary Multiplier
MC14555B	Dual Binary to 1-of-4 Decoder
MC14556B	Dual Binary to 1-of-4 Decoder (Inverting)
MC14557B	1-to-64-Bit Variable Length Shift Register
MC14558B	BCD-to-7 Segment Decoder
MC14559B	Successive Approximation Register
MC14560B	NBCD Adder
MC14561B	9's Complementer
MC14562B	128-Bit Static Shift Register
MC14566B	Industrial Time Base Generator
MC14568B	Phase Comparator/Programmable Counter
MC14569B	Dual Programmable BCD/Binary Counter
*MC14572UB	Hex Gate
MC14580B	4 x 4 Multiport Register
MC14581B	4-Bit Arithmetic Logic Unit
MC14582B	Look-Ahead Carry Block
MC14583B	Dual Schmitt Trigger
MC14584B	Hex Schmitt Trigger
MC14585B	4-Bit Magnitude Comparator
MC14597B	8-Bit, Bus Compat. Counter/Latch
MC14598B	8-Bit, Bus Compat. Addressable Latch
MC14599B	8-Bit Addressable Latch
MC145104	PLL Frequency Synthesizer
MC145106	PLL Frequency Synthesizer
MC145107	PLL Frequency Synthesizer
MC145109	PLL Frequency Synthesizer
MC145112	PLL Frequency Synthesizer

NMOS Devices Designed to work with the MC14422 CMOS device:

MC6525	Remote Control Receiver
MC5626	Remote Control Receiver
MC5627	Remote Control Receiver

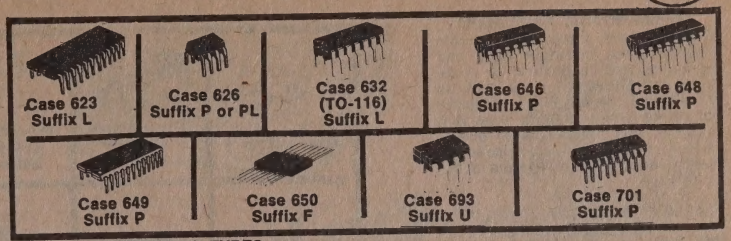
PACKAGES

*Add suffix to part number on all orders.

- AL 3—to—18 V, —55 to +125°C, ceramic package
- CL 3—to—18 V, —40 to +85°C, ceramic package
- CP 3—to—18 V, —40 to +85°C, plastic package
- L Limited voltage range, limited temperature range, ceramic package
- P Limited voltage range, limited temperature range, plastic package
- EFL 3—to—18 V, —55 to +125°C, ceramic package
- FL 3—to—18 V, —40 to +85°C, ceramic package
- FP 3—to—18 V, —40 to +85°C, plastic package
- EVL 3—to—6 V, —55 to +125°C, ceramic package
- VL 3—to—6 V, —40 to +85°C, ceramic package
- VP 3—to—6 V, —40 to +85°C, plastic package

Motorola Selector Guide

LINEAR INTEGRATED CIRCUITS



FIXED OUTPUT VOLTAGE REGULATOR
T_J = 0°C to +150°C

Type	Case	Output V	Output Tol V.	Max. Io mA
MC78L05CG	79	5.0	0.5	100
MC78M05CP	313	5.0	0.25	500
MC7705CG	79	5.0	0.25	750
MC7805CK	11	5.0	0.25	1500
LM309H	11	5.0	0.25	3000
MC78M06CP	313	6.0	0.3	500
MC7706CG	79	6.0	0.3	750
MC7806CK	11	6.0	0.3	1500
MC78L08CG	79	8.0	0.8	100
MC78M08CP	313	8.0	0.4	500
MC6708CG	79	8.0	0.4	750
MC7808CK	11	8.0	0.4	1500
MC78L12CG	79	12	1.2	100
MC78M12CP	313	12	0.6	500
MC7712CG	79	12	0.6	750
MC7812CK	11	12	0.6	1500
MC78L15CG	79	15	1.5	100
MC78M15CP	313	15	0.75	500
MC7715CG	79	15	0.75	750
MC7815CK	11	15	0.75	1500
MC78L18CG	79	18	1.8	100
MC78M18CP	313	18	0.9	500
MC7718CG	79	18	0.9	750
MC7818CK	11	18	0.9	1500
MC78M20CP	313	20	1.0	500
MC7720CG	79	20	1.0	750
MC78L24CG	79	24	2.4	100
MC78M24ACG	79	24	1.2	100
MC7724CG	79	24	1.2	750
MC7824CK	11	24	1.2	1500
NEGATIVE OUTPUT				
MC7902CK	11	2.0	0.1	1500
MC79L03CG	79	3.0	0.3	100
MC79L05CG	79	5.0	0.5	100
MC79L05ACG	79	5.0	0.25	100
MC7905CK	11	5.0	0.25	1500
MC7905.2CK	11	5.2	0.26	1500
MC7906CK	11	6.0	0.3	1500
MC7908CK	11	8.0	0.4	1500
MC79L12CG	79	12	1.2	100
MC7912CK	11	12	0.6	1500
MC79L15CG	79	15	1.5	100
MC79L15ACG	79	15	0.75	100
MC7915CK	11	15	0.75	1500
MC79L18CG	79	18	1.8	100
MC79L18ACG	79	18	0.9	100
MC7918CK	11	18	0.9	1500
MC79L24CG	79	24	2.4	100
MC79L24ACG	79	24	1.2	100
MC7924CK	11	24	1.2	1500

VARIABLE OUTPUT VOLTAGE REGULATORS
P_D at 25°C

POSITIVE OUTPUT

Type	Case	Vo VDC	Maximum Io mA	P_D W
MLM305G	601	4.5-30	20	0.4
MLM205G	601	4.5-40	20	0.68
MLM105G	601	4.5-30	20	0.68
MC1723	603C	2.0-37	150	0.65
MC1469	603	2.5-32	250	0.68
MC1569G	603	2.5-32	250	0.68
NEGATIVE OUTPUT				
LM304H	601	0.35-30	20	0.4
MC1463	603	3.8-32	250	0.68
MC1563	603	3.6-33	250	0.68

SPECIAL REGULATORS
FLOATING REGULATOR

MC1466L	632	**	##	0.75
MC1566L	632	**	#	0.75

(**) Limited only by the characteristics of the external series-pass elements.
(##) Current Regulation 0.2% (#) 0.1%

DUAL ±15 V TRACKING REGULATORS

MC1468	603C	14.8-15.2	±100	0.8
MC1468L	632	14.8-15.2	±100	1.0
MC1468R	614	14.8-15.2	±100	2.4
MC1568G	603C	14.8-15.2	±100	0.8
MC1568L	632	14.8-15.2	±100	1.0
MC1568R	614	14.8-15.2	±100	2.4

LOW TEMP. DRIFT, LOW VOLTAGE REFERENCE

MC1403U	693	2.5	10	.....
MC1403P1	626	2.5	10	.....
MC1403AU	693	2.5	10	.....
MC1403AP1	626	2.5	10	.....
MC1503U	693	2.5	10	.....
MC1503AU	693	2.5	10	.....

SWITCHING TYPES

Type	Case	Min-Max VCC	Min-Max fo kHx	Max Io mA
MC3420L	620	10-30	2-100	40
MC3420P	648	10-30	2-100	40

HIGH FREQUENCY AMPLIFIERS
Temperature −55°C to +75°C

Type	Case	Bandwidth MHz	Bandwidth dB	Vos p-p V
MC1501G	601	DC to 40*		4.5
MC1410G††	601	DC to 40*		4.5
MC1545F	607	DC to 75*		2.5
MC1545G†	602A	DC to 75*		2.5
MC1445F††	507	DC to 75*		2.5
MC1445G††	602A	DC to 75*		2.5
MC1550F	606	22 min *		6.0
MC1550G	602B	22 min.*		6.0
MC1552G	603B	40	34	4.2
MC1552G	603B	35	40	4.2
MC1553G	603B	35	46	4.2
MC1553G	603B	15	52	4.2
MC1590G	601	100	4	7.0
MC1590G	601	60	25	7.0
MC1733G	603-02	40	52	4.0
MC1733L	632	90	40	4.0
MC1733CG†	603-02	120	20	4.0
MC1733CL†	632	.....	.....	4.0

(*) Bandwidth value only (†) Case 632 (suffix L) available at same price
(††) Temp. 0C° to +75°C

DIGITAL-TO-ANALOG CONVERTERS

Type	Case	Function
MC1406L	632	6-Bit D/A Converter
MC1408L6	620	8-Bit D/A converter
MC1408L7	620	8-Bit D/A converter
MC1408L8	620	8-Bit D/A converter

COMPARATORS

MC1711CF	606	Dual outputs wired-OR,
MC1711CG	603	Strobe capability

ANALOG TO DIGITAL CONVERTERS

MC1405L	620	Bipolar Dual
MC1505L	620	Ramp

SENSE AMPLIFIERS

MC7524L MC7525L	620 620	Dual with independent strobing
MC7528L MC5528L MC5529L MC7529L	620 620 620 620	Same as MC7524, MC7525 except amplifier test points included
MC7534L MC5534L MC5535L MC7535L	620 620 620 620	Same as MC7524, MC7525 except NAND outputs
MC7538L MC5538L MC5539L MC7539L	620 620 620 620	Same as MC7428, MC7529 except NAND outputs
MC1540L MC1440L	632 632	0.5 s cycle time, 20 ns typ. response time
MC1544L MC1444L	620 620	AC coupled, decoded input chan. selection, wired OR output

LINE DRIVERS, RECEIVERS, TRANSCEIVERS

Type	Case	Function
MC8T95P MC8T96P MC8T97P MC8T98P	648 648 648 648	Non-inv. Hex unidirectional address and control bus extender- 3-state outputs Inv. Non-inv. Inv.
MC1472P1	626	Dual Peripheral Driver

LINE DRIVERS, RECEIVERS, TRANSCEIVERS (cont.)

Type	Case	Function
MC1488L	632	Quad Current Limiting
MC1489L MC1489AL	632 632	Quad Low hysteresis line receiver
MC3437L MC3437P	620 648	Hex line receiver hysteresis equipped
MC3440P MC3441P MC3443P MC3446P	648 648 648 648	Quad line transceiver
MC3449L MC3449P	620 648	Bidirectional bus switch
MC3450L MC3450P	620 648	Quad line receiver
MC3452L MC3452P	620 648	Quad line receiver
MC3453L MC3453P	620 648	Quad line driver
MC3459L MC3459P	632 646	Quad address line driver
MC3490P MC3491P MC3494P	648 648 648	High level gas discharge drivers
MC6881L MC6881P	620 648	Bidirectional bus switch
MC6885L MC6885P MC6886L MC6886P MC6887L MC6887P MC6888L MC6888P	620 648 620 648 620 648 620 648	Non-inv. Hex unidirec- Non-inv. tional address Inv. and control Inv. bus extenders Non-inv. Non-inv. Inv. Inv.
MC10177L	626	Triple line driver
MC55107L MC55108L	632 632	Dual line receivers
MC55325L	626	Core driver
MC75107 MC75107P MC75108L MC75108P	632 646 632 646	Dual line receivers
MC75110L MC75110P	632 646	Dual line driver
MC75140P1	626	Dual line receiver
MC75325L MC75325P	620 648	Core driver
MC75358L MC75358P	632 646	Dual clock line driver
MC75365L MC75365P	620 648	Quad clock driver
MC75368L MC75368P	632 646	Dual clock driver
MC75451P MC75451U MC75461P	626 693 626	AND out Dual peripheral drivers
MC75452P MC75452U MC75462P	626 693 626	NAND out
MC75453P MC75463P	626 626	OR out
MC75454P MC75464P	626 626	NOR out
MC75491P MC75492P	646 646	Quad LED seg. driver Hex LED digit driver
MMH0026G MMH0026L MMH0026CG MMH0026CL MMH0026CP1	601 632 601 632 626	Dual clock drivers

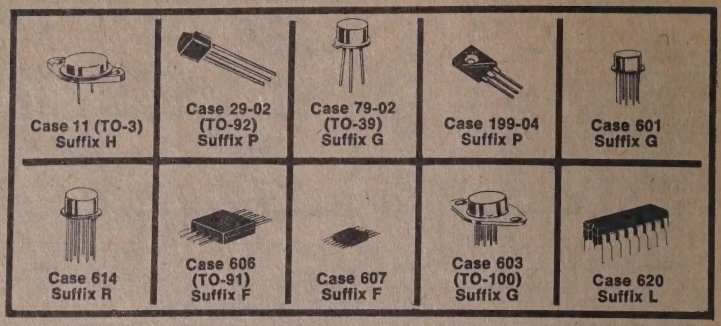
Motorola Selector Guide

LINEAR INTEGRATED CIRCUITS

3

OPERATIONAL AMPLIFIERS

These linear integrated circuits are available as single, dual, and quad monolithic devices in a variety of package styles and as standard chips. From industry standard types to high precision circuits this broad line of operational amplifiers encompasses a large range of performance capabilities.


Case 11 (TO-3) Suffix H
Case 29-02 (TO-92) Suffix P
Case 79-02 (TO-39) Suffix G
Case 199-04 Suffix P
Case 601 Suffix G
Case 614 Suffix R
Case 606 (TO-91) Suffix F
Case 607 Suffix F
Case 603 (TO-100) Suffix G
Case 620 Suffix L

SINGLE OPERATIONAL AMPLIFIERS NONCOMPENSATED

Mil. Temp. Range −55°C to +125°C

Device	Description	Pkgs.
MC1709	General Purpose	601, 606, 632, 693
MC1748	General Purpose	601, 693
MLM101A	General Purpose	601, 693
MC1539	High Slew Rate	601, 632
MC1712	Wideband DC	601, 606, 632
MC1533	General Purpose	603B, 606, 632
MC1520	Differential Output	603, 606
MC1709A	High Perf. MC1709	601, 606, 632
LM108	Precision	601, 606, 693
MC1530	General Purpose	603B, 606, 632
C1531	General Purpose Darlington Input	603B, 606 632
LM108A	Precision	601, 606, 693

INDUSTRIAL TEMP. RANGE 0°C to +70°C

Device	Description	Pkgs.
LM301A	General Purpose	601, 626, 693
MC1748C	General Purpose	601, 626, 693
MC1709C	General Purpose	601, 606, 626, 632, 646, 693
LM308	Precision	601, 606, 626, 693
MC1712C	Wideband DC Amp.	601, 606, 632
MC1420	Differential Output	603, 606
MC1439	High Slew Rate	601, 626, 632, 646
MC1433	General Purpose	603B, 606, 632, 646
LM308A	Precision	601, 606, 626, 693
MC1430	General Purpose	603B, 606, 632, 646

INTERNALLY COMPENSATED

Mil. Temp. Range −55°C to +125°C

Device	Description	Pkgs.
MC1741	General Purpose	601, 606, 632, 693
MC1741S	High Slew Rate	601, 632, 693
LM107	General Purpose	601, 693
LM110	Unity Gain	601
MC1556	High Performance	601, 632
MC1776	μ Power Prog	601, 632
MC1536	High Voltage	601
LF155	FET Input	601
LF156	FET Input	601
LF157	Wideband FET	601
LF155A	FET Input	601
LF156A	FET Input	601
LF157A	Wideband FET	601

INDUSTRIAL TEMP. RANGE 0°C to +70°C

Device	Description	Pkgs.
MC1741C	General Purpose	601, 636, 626, 646, 693
MLM307	General Purpose	601, 626, 693
MC1733C	Diff. Wideband Video Amp.	601, 632, 646
MC3476	μ Power Prog	601, 626
MC1741NC	Low Cost	601, 632, 626, 646, 693
MC1741SC	High Slew Rate	601, 632, 626, 646, 693
MLM310	Unity Gain	601,
MC1776C	μ Power Prog	601
MC1456	High Performance	601, 632
MC1436	High Voltage	601
LF355	FET Input	601
LF356	FET Input	601
LF357	Wideband FET	601
LF355A	FET Input	601
LF356A	FET Input	601
LF357A	Wideband FET	601

DUAL OPERATIONAL AMPLIFIERS INTERNALLY COMPENSATED

Mil. Temp. Range −55°C to +125°C

Device	Description	Pkgs.
MC1558	Dual MC1741	601, 632, 693
MC1747	Dual MC1741	601, 632
MC1558N	Dual Low Noise	601, 632, 693
MC4558	High Frequency	601, 632, 693
MLM158	Single Supply Dual Low Power Consumption	601, 632, 693
MC1558S	High Slew Rate	601, 632, 693
MC3558	Single Supply	601, 632, 693

INDUSTRIAL TEMP. RANGE 0°C to +70°C

Device	Description	Pkgs.
MC1458	Dual MC1741	601, 626, 632, 646, 693
MC1747C	Dual MC1741	603, 632, 646
LM358	Single Supply Dual Low Power Consumption	601, 626, 693
MC4558C	High Freq.	601, 626, 693
MC3458	Single Supply Dual Low Crossover	601, 626, 693
MC1458S	High Slew Rate	601, 626, 632, 646, 693
MC1458N	Dual Low Noise	601, 626, 632, 646, 693

COMPETITIVE MARKED DEVICES

Device	Description	Pkgs.
LM101AH	Op Amp	....
LM104H	Neg. Voltage Reg.	603
LM105H	Pos. Voltage Reg.	601
LM108AH	Precision Op Amp	601, 600
LM108H	Precision Op Amp	601, 606
LM124J	.....	....
LM148J	Quad MC1741 Op Amp	632, 646
LM158H	Single Supp. Dual Op Amp	601, 632
LM248J	Quad MC1741	632, 646
LM248N	Quad MC1741	632, 646
LM301AH	Precision Op Amp	601, 626
LM301AN	Op Amp	601, 626
LM304H	Neg. Voltage Reg.	603
LM305H	Pos. Voltage Reg.	601
LM307N	3 Term. 100mA Pos. Reg.	....
LM308AH	Precision Op Amp	601, 606
LM309H	5V Regulator	....
LM309K	5V Regulator	....
LM310H	Op Amp Volt. Follower	601
LM311H	Precision Comp.	....
LM311N	Precision Comp.	....
LM324J	.....	....
LM324N	Quad Op Amp	632, 646
LM339AN	Monolithic Quad Comp.	.....
LM339AN	Monolithic Quad Comp.	632, 646
LM348J	Quad MC1741	632, 646
LM348N	Quad MC1741	
LM358H	Single Sup. Dual Op Amp	601, 626
LM358N	Single Sup. Dual Op Amp	601, 626
LM1710CH	Diff. Comp.	....

NONCOMPENSATED INDUSTRIAL TEMP. RANGE 0°C to +70°C

Device	Description	Pkgs.
MC1437	Dual MC1709	632, 646
MC1435	Dual General Purpose	603B, 607, 632

QUAD OPERATIONAL AMPLIFIERS INTERNALLY COMPENSATED

Mil. Temp. Range −55°C to +125°C

Device	Description	Pkgs.
MC4741	Quad MC1741	632, 646
LM124	Quad	632, 646
MC3503	Quad General Purpose	632, 646
MC3571	Quad Active Filter	632, 646

INDUSTRIAL TEMP. RANGE 0°C to +70°C

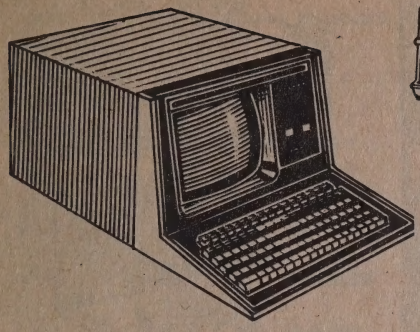
Device	Description	Pkgs.
MC3401	Low Cost Quad	632, 646
MLM324	Quad	632, 646
MC3403	Quad	632, 646
MC4741C	Quad MC1741	632, 646
MC3471	Quad Active Filter	632, 646

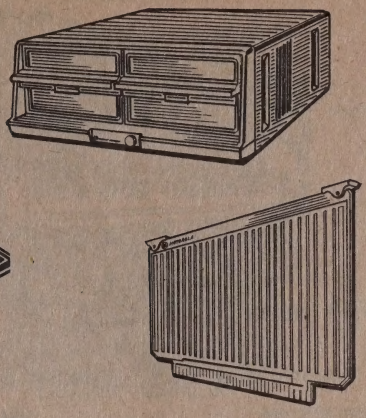
AUTOMOTIVE TEMP. RANGE −40°C to +85°C

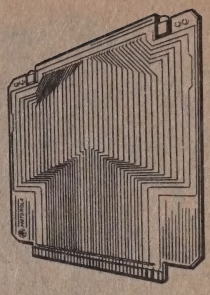
Device	Description	Pkgs.
MC3301	Quad Mirror Gain	646
LM2902	Quad Diff.	646
MC3303	Quad Diff. G.P.	646

Device	Description	Pkgs.
LM711CH	Dual Diff. Comp.	....
LM723CH	Voltage Reg.	....
LM723CJ	Voltage Reg.	....
LM723CN	Voltage Reg.	....
LM723H/		....
883	38510 Processed	....
LM741CH	Comp Op Amp	....
LM741CN	Comp Op Amp	....
LM2902N	Quad Op Amp	646
LM2904H	Single Sup. Dual Op Amp	....
LM2904J	S. Supp. Dual Op Amp	....
LM2904N	S. Supp. Dual	
N8T26AB	Quad Bus Transceiver	....
N8T26B	Quad Transceiver	....
N8T28B	Quad Bus Transceiver	....
N8T95B	Hex Buffer	....
N8T96B	Hex Buffer	....
N8T97B	Hex Buffer	....
N8T98B	Hex Buffer	....
NE555V	Timing Circuit	....
NE556A	Dual 555	....
NE565A	Phase-Locked Loop	....
NE592A	Diff. 2-Stage Video Amp.	....
NE592K	Diff. 2-Stage Video Amp.	....
NE592FH	Diff. 2-Stage Video Amp.	....
UA710HC	Diff. Comp.	....
UA711HC	Dual Diff. Comp.	....
UA723DC	Voltage Reg.	....
UA723HC	Voltage Reg.	....
UA723PC	Voltage Reg.	....
UA741DC	Comp. Op Amp	....
UA741HC	Comp. Op Amp	....
UA741TC	Comp. Op Amp	....

MOTOROLA SYSTEM DEVELOPMENT EQUIPMENT







EXORCISER PERIPHERALS

EXORdisk FLOPPY DISK SYSTEM

EXORdisk II is a dual drive floppy disk system to be used with the EXORciser/EXORterm 200 in system development. EXORterm II consists of a Floppy Disk Drive Unit, the Controller Module, Cable Assembly, and MDOS on diskette.

TYPE	DESCRIPTION
M68SFD1000	EXORdisk II Floppy Disk System 110V, 60Hz
M68SFDC	Floppy Disk Controller Module
M68SFDU1000	Floppy Disk Drive Unit 110V, 60Hz
M68SFDRK2	EXORdisk II Rack Mounting Kit
M6833	Blank Diskette

EXORterm 100 EXORciser DISPLAY CONSOLE

Display terminal and console expressly personalized for use with M6800 EXORciser. As a display console it facilitates exchange of data between user and system via a high quality video interface in combination with keyboard entry and a serial communications link using speeds up to 9600 bits per second.

M68SXD10100	EXORciser Display Console 110V

PRINTERS

A completely self-contained printing system housed in an attractive desktop cabinet. It produces lines of 80 5x7 dot matrix characters at a maximum rate of 110 characters per sec. EXORprints impact head prints on 8½" wide roll paper using conventional teletypewriter ribbon.

M68SLP1000	EXORprint Line Printer, 110V, 60Hz
M68CP1110-1	Line Printer, 110V, 60Hz
MEX68PL	Printer Interface Module (EXORciser Plug-in)
MEX68PLC	Printer Interconnect Cable

MICROSYSTEMS PRINTERS

Microsystems printer **702** is a 132 column, bidirectional logic seeking impact serial printer. Features a standard 7 x 7 dot matrix pattern and is suited for use in development systems and small business systems.

Microsystems Printer **703** is a 180cps, bidirectional, logic seeking, dot matrix printer providing high throughput rates from 70 to 280 lpm.

Microsystems Printer **779** is capable of printing from 80 to 132 columns of 5 x 7 dot matrix characters at a rate of up to 21 lines per minute.

Microsystems Printer **781** is a 60 cps, bidirectional, logic seeking printer providing throughput of up to 120 lpm. Ideal for development systems and small business appl.

TYPE	DESCRIPTION
M68SP702A10	Microsystems Printer 702 110V, 60Hz
M68SP703A10	Microsystems Printer 703 110V, 60Hz
MEX68SP779A10	Microsystems Printer 779 110V, 60Hz
M68SP781A1A	Microsystems Printer 781 110V, 60Hz

MEX6850 ACIA MODULE

This module, containing one MEX6850 Asychronous Communications Interface Adapter (ACIA), interfaces the EXORciser with a user's Asychronous TTY or RS-232 data communications device. Switches select the modules Baud Rate (110-9600Baud) and the ACIA5s base memory area.

TYPE	DESCRIPTION
MEX6850	ACIA Module

PROM PROGRAMMER

PROM Programmer Modules provide EXORciser with capability of programming various types of EROM and PROM devices. They plug directly into EXORciser bus and are compatible with EXbug, MINIBUG II/III and MICROBUG. PROM Programmers, with their software, enable a user to program the device, verify data stored in the device, and transfer data from device to EXORciser's RAM Memory. Software is available on Cassette, Paper Tape, or Diskette.

TYPE	DESCRIPTION
MEX68PP2A	PROM Programmer II with software on Cassette
MEX68PP2B	PROM Programmer II with software on Paper Tape
MEX68PP2D	PROM Programmer II with software on EDOS Diskette
MEX68PP2M	PROM Programmer II with software on DMOS Diskette
MEX68PP3A	PROM Programmer III with software on Cassette
MEX68PP3B	PROM Programmer III with software on Paper Tape
MEX68PP3D	PROM Programmer III with software on EDOS Diskette
MEX68PP3M	PROM Programmer III with software on MDOS Diskette

SERVICING MODULES

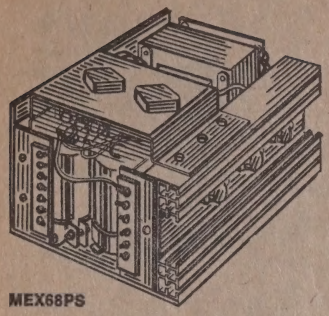
MEX68XT Extender Module enables the user to extend any EXORciser plug-in module for servicing, testing, trouble shooting and debugging.

MEX68WW Wirewrap Module permits the user to construct and incorporate his custom circuits into his EXORciser emulated system.

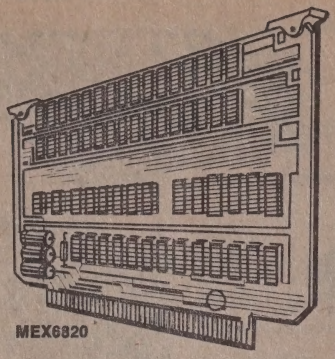
TYPE	DESCRIPTION
MEX68XT	Extender Module
MEX68WW	Wirewrap Module

Motorola Selector Guide

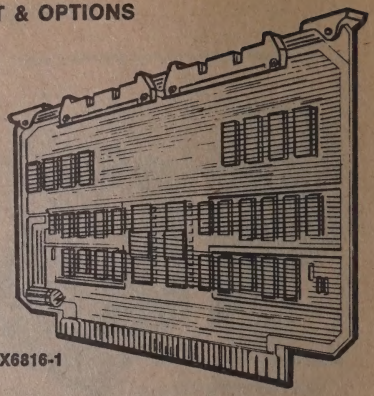
MOTOROLA SYSTEM DEVELOPMENT EQUIPMENT & OPTIONS



MEX68PS



MEX6820



MEX6816-1

M6800 SOFTWARE DEVELOPMENT SYSTEMS

EXORterm 200 DEVELOPMENT SYSTEM

A display terminal and console expressly personalized for use as a M6800 Develop Support System. EXORterm 200 facilitates exchange of data between user and system via a high-quality video interface in conjunction with a keyboard. Special keys have been encoded to invoke functions unique to development system in each of its three command levels—EXbug, MAID, and DOS. Incorporates CRT Chassis with a keyboard and isolated motherboard; MPU Module, Debug Module, two 16K RAM Modules, Resident Macro Assembler and Resident Editor.

TYPE	DESCRIPTION
M68SXS2001A	EXORterm 200 Development System 110V, software on Cassette
M68SXS2001B	EXORterm 200 Development System 110V, software on Paper Tape
M68SXS2001M	EXORterm 200 Development System 110V, software on MDOS Diskette

EXORciser 1 DEVELOPMENT SYSTEM

A modularized expandable development system that contains the common ingredients of a microcomputer and offers the system designer a low cost versatile means of developing unique systems through selective addition of separately available modules. These separate assemblies plug directly into the EXORciser's bus so that system expansion becomes quick, easy and essentially error proof. EXORciser 1 Development System consists of the Chassis with its power supply, 14-card motherboard, Baud Rate Module, MPU Module, Debug Module, 16K RAM Module, and the Resident Editor/Assembler Package.

TYPE	DESCRIPTION
M68SDTB1A	EXORciser 1 Development System—110VAC with software on Cassette
M68SDTB1B	EXORciser 1 Development System—110VAC with software on Paper Tape
M68SDTB1M	EXORciser 1 Development System—110VAC with software on MDOS Diskette

EXORciser POWER SUPPLY

EXORciser option MEX68PS provides the EXORciser with +5Vdc @ 15A, +12V @ 2.5A, and —Vdc @ 1.5A.

TYPE	DESCRIPTION
MEX68PS	EXORciser Power Supply

CPU MODULE

This module is the heart of the EXORciser System as well as the user's emulated system. It also generates the EXORciser System's clock signals.

MEX6800	MPU Module

USE EXORciser 1 DEVELOPMENT SYSTEM

Working with the optional MEX68SA Systems Analyzer Module, it provides users with a complete systems tool. That is, it extends all of the EXORciser's EXbug functions into a user's system. The USE EXORciser 1 Development System consists of the Chassis with its power supply, 14-card motherboard, Baud rate module, USE B Processor Module, USE B Cable and Buffer Assembly, USE B Intercept Module, Debug Module, 16K RAM Module, and the Resident Editor/Assembler package.

TYPE	DESCRIPTION
M68SDTUB1A	USE EXORciser 1 Development System—110VAC with software on Cassette
M68SDTUB1B	USE EXORciser 1 Development System—110VAC with software on Paper Tape
M68SDTUB1M	USE EXORciser 1 Development System—110VAC with software on MDOS Diskette

MEMORY MODULES

MEX6812-1 memory module, consisting of sixteen 2102-1, 1024 x 1 bit RAMs or equivalent n-channel MOS memories; provides 2048 x 8 bits of memory. This memory is organized into two separate 1024 byte arrays with each array having its own base memory address swithing.

MEX6815-3 memory module, consisting of sixteen 4096 x 8 RAMs n-channel MOS memories, provides 8192 x 8 bits of memory. This memory is organized into two separate 4096 byte arrays.

MEX6816-1 memory module, consisting of 32 4096 x 1 bit n-channel memories, provides 16,384 bytes of memory organized into one 16K byte memory array having its own base memory address switch.

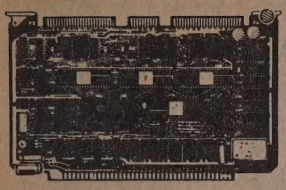
MEX68RR memory module provides 16,384 bytes of ROM/EROM Memory capability and up to 512 bytes of RAM memory. Four RAM sockets can accommodate up to four MCM6810 or equivalent 128 x 8 bit RAM devices. The RAM memory is organized into one array.

INPUT/OUTPUT MODULES **MEX6820** containing two MC6820 Peripheral Interface Adapters provides flexible means of interfacing the EXORciser with a user's defined process or peripheral device. Switches allow user to select the base memory address for each array and three-state buffers interface module with EXORciser bus.

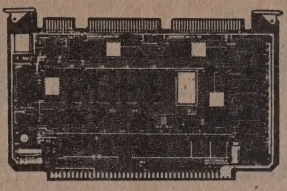
TYPE	DESCRIPTION
MEX6812-1	2K Static RAM Module
MEX6815-3	8K Dynamic RAM Module
MEX6816-1	16K Dynamic RAM Module
MEX68RR	EROM/RAM Module
MEX6820	Input/Output Module

Motorola Selector Guide

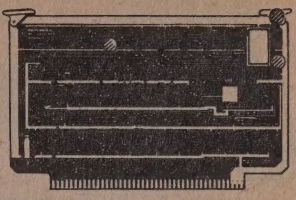
MOTOROLA SYSTEMS DEVELOPMENT EQUIPMENT
MICROMODULES



M68MM01A



M68MM01



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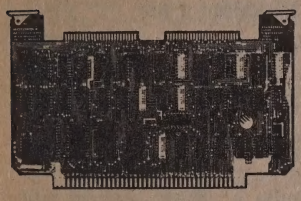
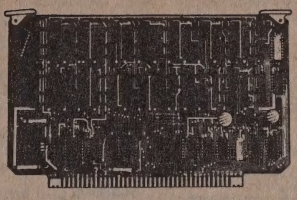
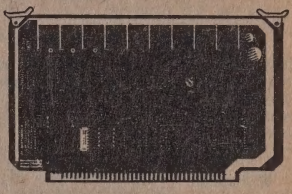


M68MM04



M68MM03



M68MM06

3

SINGLE-BOARD COMPUTER

MMI Monoboard Microcomputer—Micromodule 1—is a complete computer-on-a-board which contains all of processing and control power of MC6800 MPU plus: 1K byte of static RAM, 3 MC-6820 PIAs providing 6 parallel I/O ports, 4 sockets for AROM/ROM devices. Also incorporates bus drivers to interface with EXORciser/Micromodule bus.

Type	Description
M68MM01	MMI Monoboard Microcomputer
M68MM01-1	MMI-1 Monoboard Microcomputer with four connectors and three 4.7K termination pkgs.
M6801-2	MMI-2 Monoboard Microcomputer with four connectors and 3 330/220 termination pkgs.

MICROMODULE 1-A

MMI Monoboard Microcomputer—Micromodule 1A incorporates an MC6800 MPU 1K byte of static RAM, sockets for up to 4-1Kx8 AROM/ROM devices, one MC 6850 ACIA with RS-232 interface and two PIAs.

Type	Description
M68MM01A	MMIA Monoboard Microcomputer
M68MM01A1	MMIA1 Monoboard Microcomputer W/4 connectors

M68MM01B

MMIB Monoboard Microcomputer—Micromodule 1B—incorporates MC6802 MPU with a crystal clock, one MC6821 PIA providing 2 parallel I/O ports, one MC6840 triple 16-bit programmable timer/clock, sockets for mounting 2 2K EROM devices, and address decode logic.

Type	Description
M68MM01B	MMIB Monoboard Microcomputer

M68MM01B-1

MMIB-1 Monoboard Microcomputer—Micromodule 1B-1—is an upgrade of M68MM01B. It incorporates MC6802 with crystal clock, one MC 6821 PIA providing two parallel I/O ports, an MC6850 ACIA with RS-232 interface port, one Triple 16-bit Programmable Timer/Clock, sockets for mounting two 2K EROM devices, additional 256 bytes of RAM and bus buffers to interface with Micromodule bus.

Type	Description
M68MM01B	MMIB Monoboard Microcomputer
M68MM01B1	MM1B1 Monoboard Microcomputer

M68MM02-CPU Module

MM II CPU Module—Micromodule 2—combines all processing and control power of MC6800 MPU with necessary clock and timing circuitry, and bus drivers to interface this module with EXORciser/Micromodule bus.

Type	Description
M68MM02	MM II CPU Module

32/32/32 I/O MODULE

MM III 32/32 Input/Output Module—Micromodule 3—provides 32 TTL compatible parallel inputs and 32 TTL compatable latched and buffered parallel outputs. These Inputs and Outputs provide the means of transferring four contiguous 8-bit bytes of parallel data between microprocessor and external system.

Type	Description
M68MM03	MM III $^{32}/_{32}$ Input/Output Module
M68MM03-1	MM III-1 $^{32}/_{32}$ Input/Output Module with 4.7K Termination Packages.
M68MM03-2	MM III-2 $^{32}/_{32}$ Input/Output Module with 330/220 Termination Packages.

EROM/ROM MODULE

MM IV 8K/16K EROM/ROM Module—Micromodule 4 —incorporates provisions for installing up to 8K or 16K bytes of AROM or ROM memory used to store firmware programs for a Micromodule based system.

Type	Description
M68MM04	MM IV 8K/16K EROM/ROM Module 8K Option
M68MM041	MM IV1 8K/16K EROM/ROM Module 16K Option

M68MM05A A/D MODULE

MM VA A/D Module—Micromodule 5—is an 8-channel, differential input, analog/digital converter. Data acquisition systems, used to implement inputs, include an input multiplexer, high gain instrumentation amplifier, sample/hold, and a 12-bit A/D along with all necessary timing, decoding, and control logic. Strap selectable ADC gain ranges are: ±10V, 0 to 10V, 0 to 5V, ±5V, and ±2.5V.

Type	Description
M68MM05A	MM VA AID Module

M68MM05B

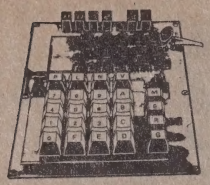
MM VB A/D Module—Micromodule 5B—is a 16-channel, single-ended input, analog/digital converter.

Type	Description
M68MM05B	MM VB A/D Module

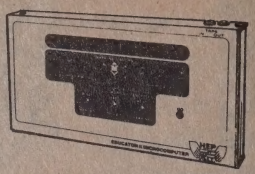
M68MM05C

MM VC D/A Module—Micromodule 5C—is a four-channel digital/analog converter. Contains four 12-bit digital/analog converter channels, a DC/DC converter to assure operation on +5V DC. Inputs to D/A converters are double buffered so that a complete 12-bit word can be strobed into D/A converters input register.

Type	Description
M68MM05C	MM VC D/A Module



M6800 EVALUATION KIT



HEP EDUCATOR II KIT

M68MM06 RAM Module

MM VI 2K Static RAM Module—Micromodule 6 provides 2048 bytes of static random access memory for use in a micromodule-based system. Memory is organized into two 1Kx8 bit groups which appear to system bus as 2048 contiguous memory locations.

Type	Description
M68MM06	MM VI 2K Static RAM Module

M6MM08

MM VIII & MM VIIIA Microbug Micromodule—Micromodule VIIIA provides system software and hardware development and debugging capability.

Type	Description
M68MM08	MM VIII MICROBUG Micromodule—consists of MICROBUG ROM and MEX6850—used with M68MM01 and M68MM02
MM68MM08A	MM VIIIA MICROBUG Micromodule—consists of MICROBUG ROM—used with M68MM01A

M68MM11

MM XI RS-232 to TTY Adapter Module—Micromodule 11—provides a translation from RS-232 serial data output port of Micromodule M68MM01A to 20mA neutral current loop signals required by an ASR33 teletypwriter.

M68MM11	MMXI RS-232 to TTY Adapter Module

M68MM13

MM XIIIA & MM XIIIB Digital Output Modules—Micromodules 13A and 13B—provide isolated relay output channels. Low "on impedance", high output current, and output isolation. Each output has a 600VDC isolation from Micromodule bus and 300VDC isolation between channels.

M68MM13A	MM XIIIA Digital Output (Contact Enclosure) Micromodule—16 Outputs
M68MM13B	MM XIIIB Digital Output (Contact Enclosure) Micromodule—32 Outputs

M68MM15A

MMXVA High-Level A/D Module—Micromodule 15A—16 channel, single-ended input or strap selected 8-channel, differential input 12-bit analog-to-digital converter. Input voltage range is strap selectable for bipolar or unipolar 5 or 10 volts with software gain of 1, 2, 4, or 8. Operating mode of this module is software programmable for software or external trigger start-of-conversation; interrupt at end-of-conversation or halt during conversion or busy flag test for indication of valid data.

MM68MM15A	MMXVA High Level A/D Module

M68MM15A1

MMXVA1 High-Level A/D Module — Micromodule 15A1 — is a 32-channel, single ended input or strap selected 16-channel, differential input 12-bit analog-to-digital converter with same features as Micromodule 15A.

M68MM15A1	MMXVA1 High-Level A/D Module

M68MM15B

MMXVB Low-Level A/D Module—Micromodule 15B—is a single-channel, isolated, floating low-level, 16-bit analog-to-digital converter with expansion capability to 16-channels. Input voltage range is strap selectable for +25mV, +55mV, +80mV, or +100mV.

M68MM15B	MMXVB Low-Level A/D Module

CARDCAGES, CHASSIS, & POWER SUPPLIES

M68MMCC05—5-Card Cardcage consisting of a 5-card motherboard, card guides, and accommodations for mounting up to 5 standard micromodules.

M68MMCC10—10-Card Cardcage consisting of a 10-card motherboard, card guides, and accommodations for mounting up to 10 standard micromodules.

M68MMLC—Large Chassis provides a 10-card cardcage and power supply mounted in a 19" chassis.

M68MMSC—Short Chassis provides a 5-card cardcage and power supply mounted in a 19" chassis.

M68MMPS1—Micromodule Power Supply provides +5V, @ 15A, +12V, @ 2.5A and —12V, @ 1.5A.

Type	Description
M68MMCC05	5-Card Cardcage
M68MMCC10	10-Card Cardcage
M68MMLC1	Large Chassis, 10 Card 110V
M68MMLC2	Large Chassis, 10 Card 220V
M68MMLK	Rack Mounting Kit, Large Chassis
M68MMSC1	Short Chassis, 5-Card 110V
M68MMSC2	Short Chassis, 5-Card 220V
M68MMSK	Rack Mounting Kit, Short Chassis
M68MMPS1-1	Micromodule Power Supply, 110V
M68MMPS1-2	Micromodule Power Supply, 220V

M6800 EVALUATION KIT

Kit contains all parts necessary to complete system except for power supply (SOLA No. 83-05-230(5V @ 3A) NEWARK No. 62F1201 is suggested). Features a 24 Key keyboard, 7 segment display, Cassette interface, Wire Wrap capability and documentation. It is EROM and RAM Expandable and has Parallel and Serial capability. Hardware included with kit includes 1 MC6800 Microprocessing Unit, 2 MCM6810 128 x 8 Static RAMs, 2 MC6820L Peripheral Interface Adapters (PIA), 1 MCM6830L2 Program ROM, 1 MC6850L Asychronous Communication Interface Adapter (ACIA), 2 printed circuit boards, 1 MC6871 Clock, 1 6-digit seven segment display, 1 24 key keyboard, and a complete kit of resistors, capacitors, sockets, circuits, etc. MPU Module Card is prewired for ease of expandability and is capable of accepting 2-MCM6810 128 x 8 RAMs, 3-MC8T96 Address Buffers, 2-MC8T26 Bidirectional Buffers and any two of the following; MCM68S16E-2K x 8 ROM, MCM68708-1K x 8 EPROM, MCM68308-1K x 8 ROM, HA7640-512 x 8 PROM. Thru addition of optional buffers kit can be upgraded to EXORciser compatible status. A wire wrap area is provided for any buffering that may be required.

Type	Description
MEK6800D2	M6800 Evaluation Kit II

HEP EDUCATOR II KIT

Kit provides On-board clock, 128 x 8 RAM, on-board provision for second 128 x 8 RAM, built-in cassette interface for program load and record, search feature for program load from cassette provided, edge connectors provide full interface to peripheral interface adapter and all address, data and control bus signals for system expansion, support documentation aimed at teaching MPU theory and programming, completely self-contained includes all parts as well as complete construction manual. Separate power supply required (5V @ 1.0 amps).

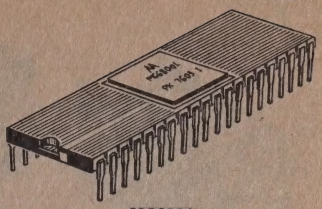
Type	Description
HEP	Educator II Kit

Software and firmware for the EXORciser/EXORterm 200 is available from Newark.

Motorola Selector Guide

MICROPROCESSORS

Inherent in the formula for successful MPU-based designs is the selection of the most cost-effective processor family from among the many systems available today. The M6800 family ranks high in meeting the requirements. Its powerful instruction set minimizes memory requirements and enhances system throughout. M6800 line features are; Single 5-Volt power supply operation and bus organization, and Automatic data stacking during interrupts to reduce programming complexity. Bus transfer rates to 2MHz provide high speed operation.



M6800 SERIES MPU

MC6800

A highly cost effective processor for a great many process-control and data-communications applications. 72 instructions, 6 different addressing modes, and a full range of compatible peripheral chips. Bus organized architecture to reduce component count and simplify interconnection.

Temp. Range (°C)	Frequency Limit	
	1 MHz	2 MHz
0 to 70	MC6800P/L	MC6880P/L
−40 to 85	MC6800CL	.....
−55 to 125	MC6800CQCS	.....

MC6802

Fully compatible with all peripherals it features same MPU architecture and works with same instruction set as basic unit. Reduces component count of a minimum microcomputer system to only 2, compared with a min. of 4 with earlier MPU. Built-in clock operates at a maximum frequency of 1 MHz but an on-chip divide-by-four circuit has been added to permit use of an external 4-MHz crystal. operated in a low-power mode, from an First 32 bytes of built-in RAM may be external power source to prevent loss of information during a power-down situation.

MC6801

Characterized with all circuitry basic to M6800 MPU it also contains an on-chip clock oscillator and 128 x 8-bit RAM of MC6802, a 2K x 8-bit ROM, and a 15-bit timer. 31 programmable parallel I/O lines for managing external peripherals, and a serial I/O port for controlling communications equipment. A powerful interrupt capability, with 8 interrupt levels boosts performance. Retains complete compatibility with rest of M6800 line, meaning memory expandability up to 65K bytes and many functional options.

M6800 MEMORIES

RAMS MCM 6810

1024-bit byte organized memory circuit designed for use with the M6800. Three-state, bidirectional input-output buffers interface directly with bidirectional 8-bit data bus of overall system. Six individual chip-select inputs, when interconnected with systems address bus, permit extensive memory expandibility and selectivity without need of separate decoder circuits. Static operation eliminates refresh requirement.

ROMS

1024 x 8-bit—MCM6830AL, 4 chip select inputs, **MCM68308L**—2 chip select inputs. This series of 8K-bit Read-Only memories houses user program of a dedicated micro-processors. Byte organized and operates from a single 5-volt supply. Memory expansion is provided through multiple chip select inputs, with the user specifying active levels of these inputs. **2048 x 8-bit—MCM68316** Similar to above but provides 16K-bit storage and 3 programmable chip select units. **4096 x 8-Bit—MC68332** Similar to above, but provides 32K-bit storage and 2 programmable chip select inputs.

PROMs

1024 x 8-bit—MC68708 This 8K-bit PROM is erasable by exposure to high intensity ultra-violet light introduced through the transparent lid of the package, erase time is 30 minutes. Device is M6800 compatible, bit requires additional power supply voltage (+12 V, +5 V, and −5 V. **2048 x 8-BIT—MCM2716L** Similar to above but provides 16K-bit storage.
2048 x 8-Bit—MCM2716AL Similar to above but operates from single 5-V supply.

M6800 INTERFACE CIRCUITS

MC6846—ROM-I/O-Timer Contains 2048 bytes of ROM, a 16-bit programmable timer-counter and an 8-bit bidirectional data port for peripheral interface.

MC6821—Peripheral Interface Adapter (PIA) Contains two I/O circuit blocks, each capable of controlling an independent 8-bit peripheral data bus.

MC6828/8507—Priority Interrupt Controller (PIC) After MPU detects and responds to an interrupt, PIC directs MPU to proper memory location.

MC6840—Programmable Timer Has three 16-bit binary counters, three corresponding control registers and a status register.

MC68488—General-Purpose Interface Adapter Interfaces between IEEE488 standard instrument bus and M6800 System. With it, many instruments may be interconnected and remotely controlled or programmed. Data may be taken from, sent to, or transferred between instruments.

MC6860—0-600 bps Digital Modem Provides necessary modulation, demodulation and supervisory control functions to implement a serial data communications link, over voice grade channel.

MC6850—Asynchronous Communications Interface Adapter (ACIA) This circuit provides data formating and control to interface serial asynchronous data communications information to bus-organized systems.

MC6854—Advanced Data Link Controller (ADLC) Performs complex MPU/data communication link function for "Advanced Data Communication Control Procedure" (ADCCP), High-Level Data Link Control (HLDC) and Synchronous Data Link Control (SDLC) standards.

MC6852—Synchronous Serial Data Adapter (SSDA) Provides interface between M6800 MPU system and synchronous data terminals such as floppy disk equipment, etc.

MC6862—Digital Modulator Offers necessary modulation and control functions to implement a serial data communications link over voice grade channels.

M6800 LSI PERIPHERAL CONTROLLERS

MC6843—Floppy Disk Controller 40-pin LSI circiut performs the complex MPU/Floppy Disk Interface function. Contains 12 accessible and 3 non-accessible internal registers.

MC6844—Direct Memory Access Controler DMAC works to facillitate direct access to computer memory by the peripheral, by-passing MPU interactive time delay.

MC6845—CRT Controller Provides complex interface between a cathode-ray terminal and a microproccessor of the M6800 family.

M6800 System Expanders

HEX 3-State Buffer/Inverts MC6885 to MC6888 (MC8T95 to MC8T98) Designed as bus extenders for unidirectional bus systems such as the M6800 Address and Control bus functions.

Quad Bus Transceiver MC6880A (MC8T-26A)—Inverting, MC6889 (MC8T28)—Non-inverting Designed for use with a bidirectional bus system such as the M6800 data bus.

Three-Channel Bidirectional Bus Switch MC6881 Permits bidirectional exchange of TTL—Level signals between multiple micro-proccessors and the data bus, or the multiplexing of signals to a single processor.

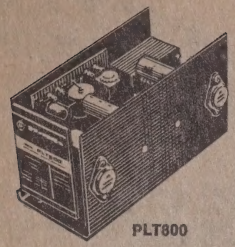
M6800 CLOCKS

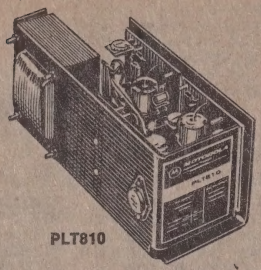
All M6800-based systems operate with two nonoverlapping clock phases 11 and 12. A variety of clock modules are available for use with the M6800 MPU. Variations include one monolithic and three hybrid versions offering a number of system design options.

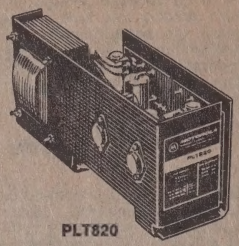
MC6870A Hyb. Limited function .25 to 2.5 MHz
MC6871A Hyb. Full Function .85 to 2.5 MHz
MC6871B Hyb. Alt. Function .25 to 2.5 MHz
MC6875 Monolithic

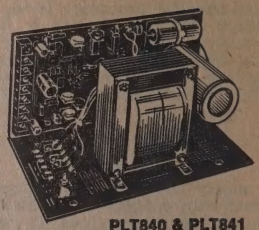
Motorola Subsystem Products

DC POWER SUPPLIES


PLT800


PLT810


PLT820


PLT840 & PLT841

TRIPLE OUTPUT POWER SUPPLY FEATURES

Remote sensing on +5 V. Foldback current limiting on all outputs with automatic recovery. Overvoltage protection on all outputs. 50°C full load rating (70% of rated current at 70°C). One-year warranty. 100% burn-in. Open frame construction. All metal hermetically-sealed output transistors. Aluminum heat sink and chassis. 50 μsec transient response. No voltage overshoot on turn-on, turn-off or power failure. Integrated circuit regulation. Fully isolated independent outputs.

Model PLT840 and Model PLT841 DC Output (Rated Load with 50 CFM forced air cooling) +5 VDC at 15 A; +12 VDC at 2.5 A; —12 VDC at 1.5 A. **Short-Circuit Current** +5 Volt output—5.0 A max; +12 Volt output—0.8 A max; —12 Volt output—0.5 A max. **Hold Up Time (PLT841 only):** 8.0 ms at 95 VAC input line and max rated load—all outputs loaded simultaneously.
01F728 Type PLT840 NET **145.00**
01F729 Type PLT841 NET **145.00**

Model PLT800. DC Output (Rated Load) +5 VDC ±0.5 VDC at 2 A; Two outputs of ±9 to ±12 VDC at 0.3 A. **Short-Circuit Current** +5 Volt output—0.6 A max; ±9 to ±12 Volt outputs 0.15 A max. **Dimensions** Size: 4.00″ x 4.10″ x 6.10″ (101.60 x 104.14 x 154.94 mm). Wt: 3.2 lbs. (1.5 kg.).
01F725 NET **68.00**

Model PLT810. DC Output (Rated Load) +5 VDC ±0.5 at 4 A; Two outputs of ±9 to ±12 VDC at 0.7 A. **Short-Circuit Current** +5 Volt output—1.25 A max; ±9 to ±12 Volt outputs—0.3 A max. **Dimensions** Size: 4.50″ x 4.10″ x 8.20″ (114.30 x 104.14 x 208.28 mm). Wt: 6.1 lbs. (2.8 kg.).
01F726 NET **83.00**

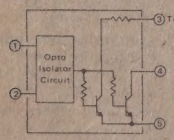
Model PLT820 DC Output (Rated Load) +5 VDC ±0.5 VDC at 6 A; Two outputs of ±9 to ±12 VDC at 1.0 A. **Short-Circuit Current** +5 Volt output—1.8 A max; ±9 to ±12 Volt outputs—0.4 A max. **Dimensions** Size: 4.10″ x 5.00″ x 10.10″ (104.14 x 127.00 x 256.54 mm).
01F727 NET **95.00**

SOLID STATE RELAYS

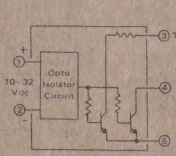
P Series offers low profile construction for printed circuit board mounting with greater packaging density. Features photo-isolation and a built-in snubber network.
MP Series Offer same electrical characteristics as P series in a vertical mount package with 0.68 sq. in. footprint.
M Series devices are designed for reliable switching of high AC loads. These chassis mounted relays are optically isolated and utilize zero voltage turn-on and zero current turn-off to minimize line voltage transients. Ideally suited for applications requiring interface from digital logic families to AC loads such as solenoids, motors, transformers, etc.

Stock No.	Type	Max Out. RMS	Max Volts RMS	Over-Voltage (Vpeak)	Peak Surge @ 60Hz	Each
27F354	P120D2	2A	140 VAC	250	20A	8.50
27F356	P120D3	3A	140 VAC	250	55A	9.00
27F355	P240D2	2A	280 VAC	500	20A	9.50
27F357	P240D3	3A	280 VAC	500	55A	10.00
27F350	MP120D2	2A	140 VAC	250	20A	8.50
27F352	MP120D3	3A	140 VAC	250	55A	9.00
27F351	MP240D2	2A	280 VAC	500	20A	9.50
27F353	MP240D3	3A	280 VAC	500	55A	10.00
27F358	M120D05A	5A	140 VAC	300	5A	18.50
27F360	M120D10A	10A	140 VAC	300	10A	20.00
27F359	M240D05A	5A	280 VAC	600	5A	16.65
27F361	M240D10A	10A	280 VAC	600	10A	18.00

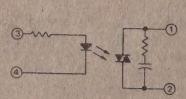
INPUT/OUTPUT MODULES

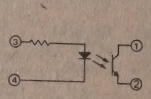


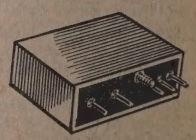
IAC5



IDC5


ODC5


OAC5



IAC5 AC Input Module, IDC5 DC Input Module, ODC5 DC Output Module and OAC5 AC Output Module serve all input/output requirements of a microprocessor or computer-based control system. All meet UL isolation requirements and are CMOS, TTL, LS, NMOS and PMOS compatible.
Type MS16 socket printed circuit board I/O mounting system.
27F366 NET **60.00**

Model ODC5 DC Load—Logic Input Isolation Module interfaces industrial DC load voltages with microprocessor input circuits, while providing high impedance isolation between both systems. **Specifications** Load Voltage Rating: 60 VDC maximum. Output Current Rating: 3 Amps DC (Derate 0.033 Amp/°C from 20°C). Isolation Input to Output: 1500 VAC (rms). Signal Input Impedance: 220 ohms. 1 Second Surge: 5 Amps peak. Turn-on Time: 500μs. Turn-off Time: 2.5 ms. Operating Temperature Range: —40° to +80°C.
27F365 NET **11.00**

Model OAC5 AC Load—Logic Input Isolation Module interfaces industrial 120 VAC loads with microprocessor output circuits. **Specifications** Line Voltage: 12 to 140 VAC. Current Rating: 3 Amps (Derate .033 Amps/°C from 20°C). 1-Cycle Surge: 55 Amps peak. Signal Input Resistance: 220 ohms. Peak Repetitive Voltage: 400 V. Off State Leakage: 5 mA. Minimum Load Current: 20 mA. Isolation Input to Output: 1500 V(rms). Capacitance Input to Output: 8 pF maximum. Operaing Temperature Range: —40° to +80° C.
27F364 NET **11.00**

Model IDC5 DC Input — Logic Output Module interfaces DC signaling voltages with microprocessor input circuits. **Specifications** Input Line Voltage: 10-32 VDC. Input Current: 34 mA maximum. Isolation Input to Output: 1500 VAC(rms). Capacitance Input to Output: 8 pF maximum. Turn-on Time: 2 ms (typical); 5 ms(maximum). Turn-off Time: 4 ms(typical); 6 ms (maximum). Output Transistors Breakdown Voltage: 30 VDC. Output Current: 25 mA. Output Leakage at 30 VDC, no input: 100μa. Output Voltage Drop—25 mA Load: 0.4 VDC. Logic Supply Voltage: 4.5 to 6 VDC. Logic Supply Current: 12 mA maximum. LED Current: 10 mA. Operating Temperature Range: —40 to +80 degrees C.
27F363 NET **11.00**

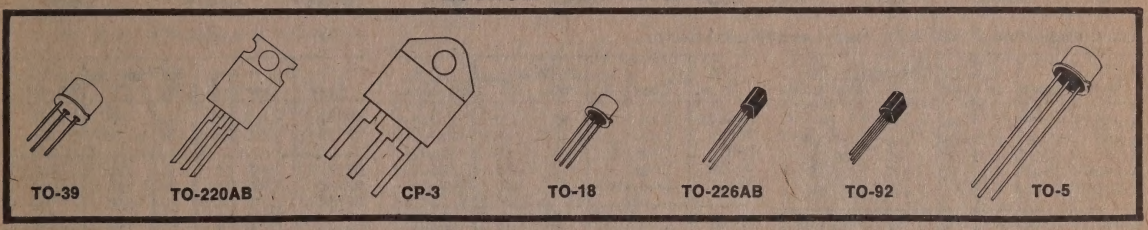
Model IAC5 AC Input—Logic Output Module interfaces industrial AC signalling voltages with microprocessor input circuits, while providing high impedance isolation between both systems. **Specifications:** Input Line Voltage: 95-130 VAC. Input Current at 120 VAC line voltage: 10 mA max. Isolation Input to Output: 1500 VAC(rms). Turn-on Time: 10 ms(typical); 20 ms(maximum). Turn-off Time: 10 ms(typical); 20 ms(maximum). Output transistor breakdown voltage: 30 VDC. Output Current: 25 mA maximum. Output leakage at 30 VDC, no input: 100 μA. LED Current: 10 mA. Output Voltage Drop: 0.4 VDC. Logic Supply Voltage: 4.5 to 6.0 VDC. Operating Temperature Range: —40 to +80 degrees C.
27F362 NET **11.00**

Texas Instruments Selection Guide

INDEX

		Page
I.	Economy Thyristors	53
II.	NPN-PNP Silicon Power Transistors	54, 55
III.	Silicon Transistors	56, 57
IV.	Transistors & Diodes	59
V.	Linear Circuits	60, 61
VI.	Matched, Unmatched Duals	58
VII.	Fiberoptic Data Link	58
VIII.	Optoelectronics	62, 63
IX.	TM 990 Micromodules & AMPL Prototyping System	64
X.	Microprocessor & Memory Chips	65
XI.	Series 74LS Low Power Schottky-Clamped Digital TTL Logic and Memory	66

ECONOMY THYRISTORS



ECONOMY SCR'S

TYPE NO.	V_{DRM}	I_{TSM}	I_{GT} MAX	V_{GT} MAX	I_H MAX	V_T MAX@	I_T	PACKAGE
	V	A	mA	V	mA	V	A	
2N3001	30	6	0.02	0.7	3	1.2	0.35	TO-18
2N3002	60	6	0.02	0.7	3	1.2	0.35	TO-18
2N3003	100	6	0.02	0.7	3	1.2	0.35	TO-18
2N3004	200	6	0.02	0.7	3	1.2	0.35	TO-18
2N3005	30	6	0.2	0.8	5	1.2	0.35	TO-18
2N3006	60	6	0.2	0.8	5	1.2	0.35	TO-18
2N3007	100	6	0.2	0.8	5	1.2	0.35	TO-18
2N3008	200	6	0.2	0.8	5	1.2	0.35	TO-18
TIC44	30	6	0.2	0.8	5	1.4	0.3	TO-226AB
TIC45	60	6	0.2	0.8	5	1.4	0.3	TO-226AB
TIC46	100	6	0.2	0.8	5	1.4	0.3	TO-226AB
TIC47	200	6	0.2	0.8	5	1.4	0.3	TO-226AB
TIC60	30	6	0.2	0.8	5	1.7	1.2	TO-226AB
TIC61	60	6	0.2	0.8	5	1.7	1.2	TO-226AB
TIC62	100	6	0.2	0.8	5	1.7	1.2	TO-226AB
TIC63	150	6	0.2	0.8	5	1.7	1.2	TO-226AB
TIC64	200	6	0.2	0.8	5	1.7	1.2	TO-226AB
2N5060	30	6	0.2	0.8	5	1.7	1.2	TO-92
2N5061	60	6	0.2	0.8	5	1.7	1.2	TO-92
2N5062	100	6	0.2	0.8	5	1.7	1.2	TO-92
2N5063	150	6	0.2	0.8	5	1.7	1.2	TO-92
2N5064	200	6	0.2	0.8	5	1.7	1.2	TO-92
2N1595	50	15	10	3	25	2	1	TO-39
2N1596	100	15	10	3	25	2	1	TO-39
2N1597	200	15	10	3	25	2	1	TO-39
2N1598	300	15	10	3	25	2	1	TO-39
2N1599	400	15	10	3	25	2	1	TO-39
TI145A0	50	30	25	3.5	25	2	1	TO-39
TI145A1	100	30	25	3.5	25	2	1	TO-39
TI145A2	200	30	25	3.5	25	2	1	TO-39
TI145A3	300	30	25	3.5	25	2	1	TO-39
TI145A4	400	30	25	3.5	25	2	1	TO-39
TIC39Y	30	20	0.2	1	5	2.5	3.9	TO-39
TIC39F	50	20	0.2	1	5	2.5	3.9	TO-39
TIC39A	100	20	0.2	1	5	2.5	3.9	TO-39
TIC39B	200	20	0.2	1	5	2.5	3.9	TO-39
TIC39C	300	20	0.2	1	5	2.5	3.9	TO-39

TYPE NO.	V_{DRM}	I_{TSM}	I_{GT} MAX	V_{GT} MAX	I_H MAX	V_T MAX@	I_T	PACKAGE
	V	A	mA	V	mA	V	A	
TIC39D	400	20	0.2	1	5	2.5	3.9	TO-39
2N6332	30	20	0.2	0.7	5	2.5	3.9	TO-39
2N6333	50	20	0.2	0.7	5	2.5	2.9	TO-39
2N6334	100	20	0.2	0.7	5	2.5	3.9	TO-39
2N6335	200	20	0.2	0.7	5	2.5	3.9	TO-39
2N6336	300	20	0.2	0.7	5	2.5	3.9	TO-39
2N6337	400	20	0.2	0.7	5	2.5	3.9	TO-39
TIC101A	100	30	0.4	1	5	1.7	5	TO-220AB*
TIC101B	200	30	0.4	1	5	1.7	5	TO-220AB*
TIC101D	400	30	0.4	1	5	1.7	5	TO-220AB*
TIC101M	600	30	0.4	1	5	1.7	5	TO-220AB*
TIC102A	100	30	5	1	5	1.7	5	TO-220AB*
TIC102B	200	30	5	1	5	1.7	5	TO-220AB*
TIC102D	400	30	5	1	5	1.7	5	TO-220AB*
TIC102M	600	30	5	1	5	1.7	5	TO-220AB*
TIC106Y	30	30	0.2	1	5	1.7	5	TO-220AB
TIC106F	50	30	0.2	1	5	1.7	5	TO-220AB
TIC106A	100	30	0.2	1	5	1.7	5	TO-220AB
TIC106B	200	30	0.2	1	5	1.7	5	TO-220AB
TIC106C	300	30	0.2	1	5	1.7	5	TO-220AB
TIC106D	400	30	0.2	1	5	1.7	5	TO-220AB
TIC116F	50	80	20	1.5	40	1.7	8	TO-220AB
TIC116A	100	80	20	1.5	40	1.7	8	TO-220AB
TIC116B	200	80	20	1.5	40	1.7	8	TO-220AB
TIC116C	300	80	20	1.5	40	1.7	8	TO-220AB
TIC116D	400	80	20	1.5	40	1.7	8	TO-220AB
TIC116E	500	80	20	1.5	40	1.7	8	TO-220AB
TIC116M	600	80	20	1.5	40	1.7	8	TO-220AB
TIC126F	50	100	20	1.5	40	1.4	12	TO-220AB
TIC126A	100	100	20	1.5	40	1.4	12	TO-220AB
TIC126B	200	100	20	1.5	40	1.4	12	TO-220AB
TIC126C	300	100	20	1.5	40	1.4	12	TO-220AB
TIC126D	400	100	20	1.5	40	1.4	12	TO-220AB
TIC126E	500	100	20	1.5	40	1.4	12	TO-220AB
TIC126M	600	100	20	1.5	40	1.4	12	TO-220AB

*Grounded Cathode

PLASTIC TRIACS

TYPE NO.	I_T (RMS)	V_{DRM}	I_{TSM}	I_{GT} MAX I, II, III†	V_{TM} MAX	@ I_{TM}	I_H MAX	PACKAGE
	A	V	A	mA	V	A	mA	
TIC206A	3	100	20	5	2.2	4.2	30	TO-220AB
TIC206B	3	200	20	5	2.2	4.2	30	TO-220AB
TIC206D	3	400	20	5	2.2	4.2	30	TO-220AB
TIC216A	6	100	60	5	1.7	8.4	30	TO-220AB
TIC216B	6	200	60	5	1.7	8.4	30	TO-220AB
TIC216D	6	400	60	5	1.7	8.4	30	TO-220AB
TIC226B	8	200	70	50	2.1	12	60	TO-220AB
TIC226D	8	400	70	50	2.1	12	60	TO-220AB
TIC226C	8	500	70	50	2.1	12	60	TO-220AB
TIC220M	8	600	70	50	2.1	12	60	TO-220AB
TIC236B	12	200	100	50	2.1	17	50	TO-220AB
TIC236D	12	400	100	50	2.1	17	50	TO-220AB
TIC236E	12	500	100	50	2.1	17	50	TO-220AB

TYPE NO.	IT (RMS)	V_{DRM}	I_{TSM}	I_{GT} MAX I, II, III†	V_{TM} MAX	@ITM	I_H MAX	PACKAGE
	A	V	A	mA	V	A	mA	
TIC236M	12	600	100	50	2.1	17	50	TO-220AB
TIC246B	16	200	125	50	1.7	22.5	50	TO-220AB
TIC246D	16	400	125	50	1.7	22.5	50	TO-220AB
TIC246E	16	500	125	50	1.7	22.5	50	TO-220AB
TIC246M	16	600	125	50	1.7	22.5	50	TO-220AB
TIC253B	20	200	150	50	1.7	28.2	50	CP-3
TIC253D	20	400	150	50	1.7	28.2	50	CP-3
TIC253E	20	500	150	50	1.7	28.2	50	CP-3
TIC253M	20	600	150	50	1.7	28.2	50	CP-3
TIC263B	25	200	175	50	1.7	35.2	50	CP-3
TIC263D	25	400	175	50	1.7	35.2	50	CP-3
TIC263E	25	500	175	50	1.7	35.2	50	CP-3
TIC263M	25	600	175	50	1.7	35.2	50	CP-3

†Roman numerals designate the VG, VS quadrants.

Texas Instruments Selection Guide

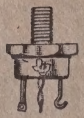
NPN-PNP SILICON POWER TRANSISTORS

E

TO-5

QQ

DDD


TO-61

M6

TO-111

TO-111

TO-3

3

Power dissipation at 100° C T_C except as otherwise noted.

TI Type	Case	I_C A	P_D W	$V_{(BR)CEO}$ V	h_{FE} Min.-Max.
MJ450#	TO-3	30	86	40	20
MJ480	TO-3	4	50	40	30-200
MJ481	TO-3	4	50	60	30-200
MJ490#	TO-3	4	50	40	30-200
MJ491#	TO-3	4	50	60	30-200
MJ802	TO-3	30	114	90	25-100
MJ1800	TO-3	5	40	250	40-120
MJ2267#	TO-3	5	86	40	20-100
MJ2268#	TO-3	5	86	55	20-100
MJ2500#	TO-3	10	86	60	1000
MJ2501#	TO-3	10	86	80	1000
MJ2801	TO-3	15	65	40	15-60
MJ2840	TO-3	10	86	60	20-100
MJ2841	TO-3	10	86	80	20-100
MJ2901#	TO-3	15	65	40	15-60
MJ2940#	TO-3	10	86	60	20-100
MJ2941#	TO-3	10	86	80	20-100
MJ2955#	TO-3	15	86	60	20-70
MJ3000	TO-3	10	86	60	1000
MJ3001	TO-3	10	86	80	1000
MJ3040	TO-3	7	40	300	100
MJ3041	TO-3	7	40	300	250
MJ3042	TO-3	7	40	350	250
MJ3430	TO-3	5	50	300	15-45
MJ4000	TO-3	4	43	80	1000
MJ4001	TO-3	4	43	80	1000
MJ4010#	TO-3	4	43	60	1000
MJ4011#	TO-3	4	43	80	1000
MJ4030#	TO-3	16	86	60	1000
MJ4031#	TO-3	16	86	80	1000
MJ4032#	TO-3	16	86	90	1000
MJ4033	TO-3	16	86	60	1000
MJ4034	TO-3	16	86	80	1000
MJ4035	TO-3	16	86	90	1000
MJ4502#	TO-3	30	114	100	25-100
TI486	TO-5	1	15	60	20-80
TI487	TO-5	1	15	60	20-80
TIP29	††	1	12	40	15-75
TIP29A	††	1	12	60	15-75
TIP29B	††	1	12	80	15-75
TIP29C	††	1	12	100	15-75
TIP30#	††	1	12	40	15-75
TIP30A#	††	1	12	60	15-75
TIP30B#	††	1	12	80	15-75
TIP30C#	††	1	12	100	15-75
TIP31	††	3	16	40	10-50
TIP31A	††	3	16	60	10-50
TIP31B	††	3	16	80	10-50
TIP31C	††	3	16	100	10-50
TIP32#	††	3	16	40	10-50
TIP32A#	††	3	16	60	10-50
TIP32B#	††	3	16	80	10-50
TIP32C#	††	3	16	100	10-50
TIP33	CP-3	10	32	40	20-100
TIP33A	CP-3	10	32	60	20-100
TIP33B	CP-3	10	32	80	20-100
TIP33C	CP-3	10	32	100	20-100
TIP34#	CP-3	30	32	40	20-100
TIP34A#	CP-3	10	32	60	20-100
TIP34B#	CP-3	10	32	80	20-100
TIP34C#	CP-3	10	32	100	20-100
TIP35	CP-3	25	50	40	10-50
TIP35A	CP-3	25	50	60	10-50
TIP35B	CP-3	25	50	80	10-50
TIP35C	CP-3	25	50	100	10-50
TIP36#	CP-3	25	50	40	10-50
TIP36A#	CP-3	25	50	60	10-50
TIP36B#	CP-3	25	50	80	10-50
TIP36C#	CP-3	25	50	100	10-50
TIP41	TO-220	6	26	40	15-75
TIP41A	TO-220	6	26	60	15-75
TIP41B	TO-220	6	26	80	15-75
TIP41C	TO-220	6	26	100	15-75
TIP42#	TO-220	6	26	40	15-75
TIP42A#	TO-220	6	26	60	15-75
TIP42B#	TO-220	6	26	80	15-75
TIP42C#	TO-220	6	26	100	15-75
TIP47	TO-220	1	17	250	30-150
TIP48	TO-220	1	17	300	30-150
TIP49	TO-220	1	17	350	30-150
TIP50	TO-220	1	17	400	30-150
TIP51	CP-3	3	40	250	30-150
TIP52	CP-3	3	40	300	30-150
TIP53	CP-3	3	40	350	30-150
TIP54	CP-3	3	40	400	30-150
TIP55A	CP-3	7.5	50	250	10-100
TIP56A	CP-3	7.5	50	300	10-100
TIP57A	CP-3	6.5	50	350	10-100
TIP58A	CP-3	7.5	32	400	10-100
TIP73	†††	15	32	40	20-150
TIP73A	†††	15	32	60	20-150
TIP73B	†††	15	32	80	20-150
TIP73C	†††	15	32	100	20-150
TIP74#	†††	15	32	40	20-150
TIP74A#	†††	15	32	60	20-150
TIP74B#	†††	15	32	80	20-150
TIP74C#	†††	15	32	100	20-150
TIP100	†††	8	32	60	1K-20K
TIP101	†††	8	32	80	1K-20K
TIP102	†††	8	32	100	1K-20K
TIP105#	†††	8	32	60	1K-20K
TIP106#	†††	8	32	80	1K-20K
TIP107#	†††	8	32	100	1K-20K
TIP110	††	2	20	60	1000
TIP111	††	2	20	80	1000
TIP112	††	2	20	100	1000
TIP115#	††	2	20	60	1000
TIP116#	††	2	20	80	1000
TIP117#	††	2	20	100	1000
TIP120	††	5	26	60	1000
TIP121	††	5	26	80	1000
TIP122	††	5	26	100	1000
TIP125#	††	5	20	60	1000
TIP126#	††	5	26	80	1000
TIP127#	††	5	26	100	1000
TIP140	CP-3	10	50	60	1000
TIP141	CP-3	10	50	80	1000
TIP142	CP-3	10	50	100	1000
TIP145#	CP-3	10	50	60	1000
TIP146#	CP-3	10	50	80	1000
TIP147#	CP-3	10	50	100	1000
TIP160	CP-3	10	50	320	200
TIP161	CP-3	10	50	350	200
TIP162	CP-3	10	50	380	200
TIP501	TO-39	3	3.4	40	25-180
TIP502	TO-39	3	3.4	60	25-180
TIP503	TO-66	2	20	120	40-200
TIP504	TO-66	2	20	150	40-200
TIP505	TO-59‡	2	20	120	40-200
TIP506	TO-59‡	2	20	150	40-200
TIP510	TO-3	4	30	150	40-200
TIP511	TO-61‡	4	30	120	40-200
TIP512	TO-61	. . .	30	150	40-200
TIP515	TO-3	12	80	120	40-200
TIP516	TO-3	12	80	150	40-200
TIP517	TO-61	12	80	120	40-200
TIP518	TO-61	12	80	150	40-200
TIP527#	TO-3	8	60	200	20-100
TIP528#	TO-61	8	60	200	20-100
TIP529	TO-61	3	67	300	25-125
TIP530	TO-66	3	20	300	25-125
TIP531	TO-3	15	150	300	20-120
TIP532	TO-3	15	150	400	20-120
TIP533	TO-63	15	150	300	20-120
TIP534	TO-63	15	150	400	20-120
TIP535	TO-3	7.5	100	200	20-100
TIP536	TO-3	7.5	100	300	20-100
TIP537	TO-3	7.5	100	400	20-100
TIP541	TO-39	2	4	45	40-200
TIP542	TO-59	10	40	45	40-200
TIP543	TO-59	10	40	65	40-200
TIP544	TO-3	6	40	100	25-100
TIP546	TO-3	6	40	140	15-60
TIP640	TO-3	10	100	60	1000
TIP641	TO-3	10	100	80	1000
TIP642	TO-3	10	100	100	1000
TIP645▲	TO-3	10	100	60	1000
TIP646▲	TO-3	10	100	80	1000
TIP647▲	TO-3	10	100	100	1000
TIP2955#	CP-3	15	36	60	20-70
TIP3055#	CP-3	15	36	60	20-70
2N389*	TO-53	3	45	60†	12-60
2N389A	TO-53	3	45	60†	12-60
2N424*	TO-53	3	45	80†	12-60
2N424A	TO-53	3	45	80†	12-60
2N497*	TO-5	0.5	2.3	60	12 36
2N497A	TO-5	0.5	2.8	60	12-36
2N498	TO-5	0.5	2.3	100	12-36
2N498A	TO-5	0.5	2.8	100	12-36
2N656*	TO-5	0.5	2.3	60	30-90
2N656A	TO-5	0.5	2.8	60	30-90

PNP
†† Case TO-220AD
††† Case TO-220M
* JAN Types Available
▲ Power Darlington
† $V_{(BR)CER}$

• At 55°C

MAKE NEWARK YOUR DEPENDABLE SOURCE FOR ALL ELECTRONIC PARTS AND EQUIPMENT

Texas Instruments Selection Guide

NPN-PNP SILICON POWER TRANSISTORS

TO-53

TO-39

TO-66

GG
TO-220AB

H
CP-3

S

2222

TO-111

TO-59

TO-57

3

P$_D$ at 100° C T$_C$. NPN except as otherwise noted.

TI Type	Case	I$_C$ A	P$_D$ W	V (br) ceo V	HFE Min.-Max.
2N657*	TO-5	0.5	2.3	100	30-90
2N657A	TO-5	0.5	2.8	100	30-90
2N1047*	TO-57	2	23	80	12-36
2N1047A*	TO-57	2	23	80	12-36
2N1047B	TO-57	2	23	80	12-36
2N1048*	TO-57	2	23	120	12-36
2N1048A*	TO-57	2	23	120	12-36
2N1048B	TO-57	2	23	120	12-36
2N1049*	TO-57	2	23	80	30-90
2N1049A*	TO-57	2	23	80	30-90
2N1049B	TO-57	2	23	80	30-90
2N1050*	TO-57	2	23	120	30-90
2N1050A*	TO-57	2	23	120	30-90
2N1050B	TO-57	2	23	120	30-90
2N1714*	TO-5	1	15	60	20-60
2N1715*	TO-5	1	15	100	20-60
2N1716*	TO-5	1	15	60	40-120
2N1717*	TO-5	1	15	100	40-120
2N1718	S	1	15	60	20-60
2N1719	S	1	15	100	20-60
2N1720	S	1	15	60	40-120
2N1721	S	1	15	100	40-120
2N1722*	TO-53	5	50	80	20-90
2N1722A	TO-53	5	50	120	30-90
2N1723	TO-53	5	50	80	50-150
2N1724	TO-61	5	50	80	20-90
2N1724A	TO-61	5	50	120	30-90
2N1725	TO-61	5	50	80	50-150
2N1936§	TO-63	20	150	60	10-50
2N1937	TO-63	20	150	80	10-50
2N2150*	TO-111	2	30	80	20-60
2N2151*	TO-111	2	30	80	40-120
2N2880*	TO-111	5	30	80	40-120
2N2987	TO-5	1	15	80	25-75
2N2988	TO-5	1	15	100	25-75
2N2989	TO-5	1	15	80	60-120
2N2990	TO-5	1	15	100	60-120
2N2991	S	1	15	80	25-75
2N2992	S	1	15	100	25-75
2N2993	S	1	15	80	60-120
2N2994	S	1	15	100	60-120
2N3055	TO-3	15	65	70	20-70
2N3263	QQ	25	67	90	20-55
2N3264	QQ	25	67	60	20-80
2N3265	TO-63	25	100	90	20-55
2N3266	TO-63	25	100	60	20-80
2N3418*	TO-5	3	15	60	20-60
2N3419*	TO-5	3	15	80	20-60
2N3420*	TO-5	3	15	60	40-120
2N3421*	TO-5	3	15	80	40-120
2N3442	TO-3	10	86	140	20-70
2N3551	DDD	12	40	60	20-90
2N3552	DDD	12	40	80	20-90
2N3583	TO-66	1	20	175	40-200
2N3584	TO-66	2	20	250	8-80
2N3585	TO-66	2	20	300	8-80
2N3713	TO-3	10	85	60	25-75
2N3714	TO-3	10	85	80	25-75
2N3715*	TO-3	10	85	60	50-150
2N3716*	TO-3	10	85	80	50-150
2N3719#	TO-5	3	3.4	40	25-180
2N3720#	TO-5	3	3.4	60	25-180
2N3771	TO-3	30	86	40	15-60
2N3772	TO-3	20	86	60	15-60

(# PNP § Replacement only

TI Type	Case	I$_C$ A	P$_D$ W	V (br) ceo V	HFE Min.-Max.
2N3789#	TO-3	10	85	60	25-90
2N3790#	TO-3	10	85	80	25-90
2N3791#*	TO-3	10	85	60	50-180
2N3792#*	TO-3	10	85	80	50-180
2N3846	TO-63	20	150	200	10-60
2N3847	TO-63	20	150	300	10-60
2N3902	TO-3	2.5	67	400	30-90
2N3996*	TO-111	5	30	80	40-120
2N3997*	TO-111	5	30	80	80-240
2N3998*	TO-111	5	30	80	40-120
2N3999*	TO-111	5	30	80	80-240
2N4000	TO-5	1	15	80	30-120
2N4001	TO-5	1	15	100	30-120
2N4002	TO-63	30	100	80	20-80
2N4003	TO-63	30	100	100	20-80
2N4004	QQ	20	40	80	30-150
2N4005	QQ	20	40	100	30-150
2N4240	TO-66	2	20	300	10-100
2N4300	TO-5	2	15	80	30-120
2N4301	TO-61	10	50	80	30-120
2N4347	TO-3	5	57	120	15-60
2N4398#	TO-3	30	114	40	15-60
2N4399#	TO-3	30	114	60	15-60
2N4901#	TO-3	5	50	40	20-80
2N4902#	TO-3	5	50	60	20-80
2N4903#	TO-3	5	50	80	20-80
2N4904#	TO-3	5	50	40	25-100
2N4905#	TO-3	5	50	60	25-100
2N4906#	TO-3	5	50	80	25-100
2N4913	TO-3	5	50	40	25-100
2N4914	TO-3	5	50	60	25-100
2N4915	TO-3	5	50	80	25-100
2N4998	TO-59	2	20	80	30-90
2N4999#	TO-59	2	20	80	30-90
2N5000	TO-59	2	20	80	70-200
2N5001#	TO-59	2	20	80	70-200
2N5002	TO-59	5	33	80	30-90
2N5003#	TO-59	5	33	80	30-90
2N5004	TO-59	5	33	80	70-200
2N5005#	TO-59	5	33	80	70-200
2N5038	TO-3	20	80	90	20-100
2N5039	TO-3	20	80	75	20-100
2N5067	TO-3	5	50	40	20-80
2N5068	TO-3	5	50	60	20-80
2N5069	TO-3	5	50	80	20-80
2N5147#	TO-39	2	4	80	30-90
2N5148	TO-39	2	4	80	30-90
2N5150	TO-39	2	4	80	70-200
2N5151#	TO-39	5	6.7	80	30-90
2N5152	TO-39	2	6.7	80	30-90
2N5153#	TO-39	5	6.7	80	70-200
2N5154	TO-39	2	6.7	80	70-200
2N5241	TO-3	5	72	400	15-35
2N5301	TO-3	30	114	40	15-60
2N5302	TO-3	30	114	60	15-60
2N5303	TO-3	20	114	80	15-60
2N5333#	TO-5	2	15	80	30-120
2N5384#	TO-111	5	30	80	20-80
2N5385#	TO-111	5	30	80	20-80
2N5386#	TO-61	12	50	80	20-80
2N5387	TO-61	7.5	100	200	25-100
2N5388	TO-61	7.5	100	250	25-100
2N5389	TO-61	7.5	100	300	25-100
2N5390	E	2	15	80	2000-20000
2N5629	TO-3	16	114	100	25-100

PNP
* JAN types available

TI Type	Case	I$_C$ A	P$_D$ W	V (br) ceo V	HFE Min.-Max.
2N5630	TO-3	16	114	120	20-80
2N5631	TO-3	16	114	140	15-60
2N5671	TO-3	30	80	90	20-100
2N5672	TO-3	30	80	120	20-100
2N5683#	TO-3	50	171	60	15-60
2N5684#	TO-3	50	171	80	15-60
2N5685	TO-3	50	171	60	15-60
2N5686	TO-3	50	171	80	15-60
2N5758	TO-3	6	86	100	25-100
2N5759	TO-3	6	86	120	20-80
2N5760	TO-3	6	86	140	15-60
2N5838	TO-3	3	57	275	8-40
2N5839	TO-3	3	57	200	10-50
2N5840	TO-3	3	57	275	10-50
2N5867#	TO-3	5	50	60	20-100
2N5868#	TO-3	5	50	80	20-100
2N5869	TO-3	5	50	60	20-100
2N4870	TO-3	5	50	80	20-100
2N5871#	TO-3	7	65	60	20-100
2N5872#	TO-3	7	65	80	20-100
2N5873	TO-3	7	65	60	30-100
2N5874	TO-3	7	65	80	20-100
2N5875#	TO-3	10	86	60	20-100
2N5876#	TO-3	10	86	80	20-100
2N5877	TO-3	10	86	60	20-100
2N5878	TO-3	10	86	80	20-100
2N5879#	TO-3	15	91	60	20-100
2N5880#	TO-3	15	91	80	20-100
2N5881	TO-3	15	91	60	20-100
2N5882	TO-3	15	91	80	20-100
2N5883#	TO-3	25	114	60	20-100
2N5884#	TO-3	25	114	80	20-100
2N5885	TO-3	25	114	60	20-100
2N5886	TO-3	25	114	80	20-100
2N5938	2222	3	20	50	30-150
2N5939	TO-111	10	40	80	40-200
2N5940	TO-111	10	40	70	40-200
2N6050#	TO-3	12	86	60	750-18K
2N6051#	TO-3	12	86	80	750-18K
2N6052#	TO-3	12	86	100	750-18K
2N6057	TO-3	12	86	60	750-18K
2N6058	TO-3	12	86	80	750-18K
2N6059	TO-3	12	86	100	750-18K
2N6127#	TO-61	10	67	80	30-120
2N6128	TO-61	10	67	80	30-120
2N6246#	TO-3	15	71	70	20-100
2N6247#	TO-3	15	71	90	20-100
2N6248#	TO-3	15	71	110	20-100
2N6249	TO-3	10	100	225	10-50
2N6250	TO-3	10	100	300	8-50
2N6251	TO-3	10	100	375	6-50
2N6253	TO-3	15	66	45	20-150
2N6257	TO-3	20	86	40	15-75
2N6262	TO-3	10	86	150	20-70
2N6270	TO-3	30	150	80	20-100
2N6271	TO-3	30	150	100	20-100
2N6272	TO-63	30	150	80	20-100
2N6302	TO-3	16	86	120	15-60
2N6322	TO-3	30	200	200	40-150
2N6323	TO-3	30	200	300	30-150
2N6324	TO-63	30	200	300	40-150
2N6325	TO-63	30	200	300	30-150
2N6326	TO-3	30	114	60	6-30
2N6327	TO-3	30	114	80	6-30
2N6328	TO-3	30	114	100	6-30
2N6329#	TO-3	30	114	60	6-30

PNP

Texas Instruments Selection Guide

SILICON TRANSISTORS

TO-39

TO-226AA

TO-18

TO-226AB

TO-12

TO-46

3

NPN GENERAL PURPOSE

TI Type	Case	Rated V_{CBO} V	Min. h_{FE}
2N696	TO-39	60	20
2N697	TO-39	60	40
2N698	TO-39	120	20
2N699	TO-39	120	40
2N718	TO-18	60	40
2N718A	TO-18	75	40
2N719	TO-18	120	20
2N719A	TO-18	120	20
2N720	TO-18	120	40
2N720A	TO-18	120	40
2N731	TO-18	60	40
2N870	TO-18	100	40
2N871	TO-18	100	100
2N910	TO-18	100	75
2N911	TO-18	100	35
2N912	TO-18	100	15
2N956	TO-18	75	100
2N1420	TO-39	60	100
2N1507	TO-39	60	100
2N1613	TO-39	75	40
2N1711	TO-39	75	100
2N1893	TO-39	120	40
2N1973	TO-39	100	75
2N1974	TO-39	100	35
2N1975	TO-39	100	15
2N2102	TO-39	120	10
2N2192	TO-39	60	100
2N2192A	TO-39	60	100
2N2193	TO-39	30	40
2N2193A	TO-39	30	40
2N2194	TO-39	60	20
2N2194A	TO-39	60	20
2N2218	TO-39	60	40
2N2218A	TO-39	75	40
2N2219	TO-39	60	100
2N2219A	TO-39	75	100
2N2222	TO-18	60	100
2N2222A	TO-18	60	100
2N2243	TO-39	60	40
2N2243A	TO-39	60	40
2N2270	TO-39	60	50
2N3036	TO-39	120	50
2N3053	TO-39	60	50
2N3114	TO-226AA	150	30
2N3903	TO-226AA	60	50
2N3904	TO-226AA	60	100
2N4123	TO-226AA	40	50
2N4124	TO-226AA	30	120
2N5058	TO-39	300	35
2N5059	TO-39	250	35
A5T918	TO-226AB	30	20
A5T929	TO-226AB	45	40
A5T930	TO-226AB	45	100
A5T2192	TO-226AB	60	100
A5T2193	TO-226AB	80	40
A5T2222	TO-226AB	60	100
A5T2222A	TO-226AB	60	100
A5T2243	TO-226AB	120	40
A5T2484	TO-226AB	60	150
A5T3391	TO-226AB	25	250
A5T3391A	TO-226AB	25	250
A5T3392	TO-226AB	25	150
A5T3565	TO-226AB	30	70

NPN GENERAL PURPOSE

TI Type	Case	Rated V_{CBO} V	Min. h_{FE}
A5T3571	TO-226AB	25	20
A5T3572	TO-226AB	25	20
A5T3707	TO-226AB	30	100
A5T3708	TO-226AB	30	45
A5T3709	TO-226AB	30	45
A5T3710	TO-226AB	30	90
A5T3711	TO-226AB	30	180
A5T3903	TO-226AB	60	50
A5T3904	TO-226AB	60	100
A5T4123	TO-226AB	40	50
A5T4124	TO-226AB	30	120
A5T4402	TO-226AB	40	50
A5T4403	TO-226AB	40	100
A5T4409	TO-226AB	80	60
A5T4410	TO-226AB	120	60
A5T5058	TO-226AB	300	35
A5T5059	TO-226AB	250	30
A5T5086	TO-226AB	50	150
A5T5087	TO-226AB	50	250
A5T5172	TO-226AB	25	100
A5T5209	TO-226AB	50	100
A5T5210	TO-226AB	50	200
A5T5219	TO-226AB	20	35
A5T5220	TO-226AB	15	30
A5T5225	TO-226AB	25	30
A5T5550	TO-226AB	160	60
A5T5551	TO-226AB	180	80
A5T6461	TO-226AB	300	30
A5T6462	TO-226AB	300	100
A5T6463	TO-226AB	250	30
A5T6464	TO-226AB	250	100
A8T3391	TO-226AB	25	250
A8T3391A	TO-226AB	25	250
A8T3704	TO-226AB	50	100
A8T3705	TO-226AB	50	50
A8T3706	TO-226AB	40	30
A8T3707	TO-226AB	30	100
A8T3708	TO-226AB	30	45
A8T3709	TO-226AB	30	45
A8T3710	TO-226AB	30	90
A8T3711	TO-226AB	30	180
A8T5172	TO-226AB	25	100
MPS-A05	TO-226AB	60	50
MPS-A09	TO-226AB	50	100
MPS-A12	TO-226AB	15	20000
MPS-A13	TO-226AB	30	10000
MPS-A14	TO-226AB	10	20000
MPS-A20	TO-226AB	30	40
MPS-A42	TO-226AB	300	40
MPS-A43	TO-226AB	200	50
MPS-L01	TO-226AB	140	50
MPS918	TO-226AB	30	20
MPS2712	TO-226AB	18	75
MPS2714	TO-226AB	18	80
MPS2923	TO-226AB	25	90
MPS2924	TO-226AB	25	150
MPS2925	TO-226AB	25	235
MPS2926	TO-226AB	18	35
MPS3391	TO-226AB	25	250
MPS3391A	TO-226AB	25	250
MPS3392	TO-226AB	25	150
MPS3393	TO-226AB	25	90
MPS3394	TO-226AB	25	55
MPS3395	TO-226AB	25	150
MPS3638	TO-226AB	25	80

NPN GENERAL PURPOSE

TI Type	Case	Rated V_{CBO} V	Min. h_{FE}
MPS3638A	TO-226AB	25	80
MPS3704	TO-226AB	50	100
MPS3705	TO-226AB	50	50
MPS3706	TO-226AB	40	30
MPS3707	TO-226AB	30	100
MPS3708	TO-226AB	30	45
MPS3709	TO-226AB	30	45
MPS3710	TO-226AB	30	90
MPS3711	TO-226AB	30	180
MPS5172	TO-226AB	25	100
MPS6512	TO-226AB	40	50
MPS6513	TO-226AB	40	90
MPS6514	TO-226AB	40	150
MPS6515	TO-226AB	40	250
MPS6520	TO-226AB	40	100
MPS6521	TO-226AA	40	150
MPS6530	TO-226AA	60	30
MPS6531	TO-226AA	60	60
MPS6532	TO-226AA	50	30
MPS6561	TO-226AA	20	50

PNP GENERAL PURPOSE

TI Type	Case	Rated V_{CEO} V	hfe
MPS6565	TO-226AA	60	40
MPS6566	TO-226AA	60	100
MPS6571	TO-226AA	20	250
T1484	TO-39	40	40
2N721	TO-18	50	20
2N722	TO-18	50	30
2N1132*	TO-39	50	30
2N2303	TO-39	50	75
2N2904**	TO-39	60	40
2N2904A**	TO-39	60	40
2N2905**	TO-39	60	100
2N2905A**	TO-39	60	100
2N2906**	TO-18	60	40
2N2906A**	TO-18	60	40
2N2907**	TO-18	60	100
2N2907A**	TO-18	60	100
2N3485	TO-46	60	40
2N3485A	TO-46	60	40
2N3486	TO-46	60	100
2N3486A	TO-46	60	100
2N3494	TO-39	80	40
2N3495	TO-39	120	40
2N3496	TO-18	80	40
2N3497	TO-18	120	40
2N3502	TO-39	45	100
2N3503	TO-39	60	100
2N3504	TO-18	45	100
2N3505	TO-18	60	100
2N3905	TO-226AA	40	50
2N3906	TO-226AA	40	100
2N4125	TO-226AA	30	50
2N4126	TO-226AA	25	120
2N5400	TO-226AA	130	40
2N5401	TO-226AA	160	60
A5T2604	TO-226AA	60	40
A5T2605	TO-226AA	60	100
A5T2907	TO-226AA	60	100
A5T2907A	TO-226AA	60	100
A5T3496	TO-226AA	80	40
A5T3497	TO-226AA	120	40
A5T3504	TO-226AA	45	100
A5T3505	TO-226AA	60	100
A5T3638A	TO-226AA	25	100
A5T3644	TO-226AA	45	100
A5T3645	TO-226AA	60	100
A5T3798	TO-226AA	60	150
A5T3905	TO-226AA	40	50
A5T3906	TO-226AA	40	100
A5T4026	TO-226AA	60	40
A5T4027	TO-226AA	80	40
A5T4028	TO-226AA	60	100
A5T4029	TO-226AA	80	100
A5T4059	TO-226AA	30	45
A5T4060	TO-226AA	30	45
A5T4061	TO-226AA	30	90
A5T4062	TO-226AA	30	180
A5T4125	TO-226AA	30	50
A5T4126	TO-226AA	25	120
A5T4248	TO-226AA	40	50
A5T4249	TO-226AB	60	100

Texas Instruments Selection Guide

SILICON TRANSISTORS

PNP GENERAL PURPOSE (con't)

TI Type	Case	Rated V_{CEO} V	hfe
A5T4250	TO-226AB	40	250
A5T4260	TO-226AB	15	30
A5T4261	TO-226AB	15	30
A5T5221	TO-226AB	15	30
A5T5223	TO-226AB	25	50
A5T5226	TO-226AB	25	30
A5T5227	TO-226AB	30	50
A5T5400	TO-226AB	130	40
A5T5401	TO-226AB	160	60
A8T3702	TO-226AB	40	60
A8T3703	TO-226AB	40	30
A8T4026	TO-226AA	60	40
A8T4027	TO-226AA	80	40
A8T4028	TO-226AA	60	100
A8T4029	TO-226AA	80	100
A8T4058	TO-226AA	30	100
A8T4059	TO-226AA	30	45
A8T4061	TO-226AA	30	90
A8T4062	TO-226AA	30	180
MPS404	TO-226AA	24	30
MPS404A	TO-226AA	40	30
MPS3702	TO-226AA	40	60
MPS3703	TO-226AA	50	30
MPS6516	TO-226AA	40	50
MPS6517	TO-226AA	40	90
MPS6518	TO-226AA	40	300
MPS6519	TO-226AA	25	250
MPS6522	TO-226AA	25	100
MPS6523	TO-226AA	25	150
MPS6533	TO-226AA	40	40
MPS6534	TO-226AA	40	90
MPS6535	TO-226AA	30	30
MPS6562	TO-226AA	25	50
MPS6563	TO-226AA	20	50
MPS-A56	TO-226AA	80	50
MPS-A70	TO-226AA	30	40
MPS-L51	TO-226AA	100	40

NPN MEMORY DRIVER

Collector in electrical contact with case. P_D = 1000 mW at 25°C free air except as otherwise noted. Storage time given is maximum. Case TO-5.

TI Type	Min. f_T MHz	Storage Time at Ic nsec	mA
2N2537†	250	20	20
2N2538†	250	20	20
2N2539‡	250	20	20
2N2540‡	250	20	20
2N3015†	250	60§	500
2N3244#	175	140	500
2N3245*	150	120	500
2N3252†	200	40	1000
2N3253†*	175	40	1000
2N3444†	150	40	1000
2N3467#*	175	60	500
2N3468#	150	60	500
2N3554†	150	65	1000
2N3724†	300	60	500
2N3724A	300	60	500
2N3725†	300	60	500
2N3725A	300	60	500

Case TO-18 §Turn-off time.
*JAN type available.
#PNP = P_D †800mW ‡P_D—500 mW.

You Can Depend on NEWARK for Everything In Industrial Electronics

TO-92

TO-18

TO-72

AAA

TO-18

N-CHANNEL AND P-CHANNEL FIELD EFFECT

TI Type	Case	Polarity
2N2386	TO-5	P-channel
2N2386A	TO-5	P-channel
2N2497	TO-72	P-channel
2N2498	TO-72	P-channel
2N2499	TO-72	P-channel
2N2500	TO-18	P-channel
2N2608	TO-18	P-channel
2N2609	TO-72	P-channel
2N3329**	TO-72	P-channel
2N3330**	TO-72	P-channel
2N3331**	TO-72	P-channel
2N3332	TO-18	P-channel
2N3458	TO-18	N-channel
2N3459	TO-18	N-channel
2N3460	TO-92	N-channel
2N3819	TO-92	N-channel
2N3820	TO-72	P-channel
2N3821**	TO-72	N-channel
2N3822**	TO-72	N-channel
2N3823**	TO-72	N-channel
2N3824†	TO-72	N-channel
2N3909	TO-72	P-channel
2N3909A	TO-72	P-channel
2N3966	TO-18	N-channel
2N3970†	TO-18	N-channel
2N3971†	TO-18	N-channel
2N3972†	TO-72	N-channel
2N3993†	TO-72	P-channel
2N3993A†	TO-72	P-channel
2N3994†	TO-72	P-channel
2N3994A†	TO-18	P-channel
2N4091†	TO-18	N-channel
2N4092†	TO-18	N-channel
2N4093†	TO-72	N-channel
2N4220	TO-72	N-channel
2N4220A	TO-72	N-channel
2N4221	TO-72	N-channel
2N4221A	TO-72	N-channel
2N4222	TO-72	N-channel
2N4222A	TO-72	N-channel
2N4223	TO-72	N-channel
2N4224	TO-18	N-channel
2N4391†	TO-18	N-channel
2N4392†	TO-18	N-channel
2N4393†	TO-72	N-channel
2N4416	TO-72	N-channel
2N4416A**	TO-18	N-channel
2N4856*†	TO-18	N-channel
2N4856A†	TO-18	N-channel
2N4857*†	TO-18	N-channel
2N4857A†	TO-18	N-channel
2N4858*†	TO-18	N-channel
2N4858A†	TO-18	N-channel
2N4859*†	TO-18	N-channe
2N4859A†	TO-18	N-channel
2N4860*†	TO-18	N-channel
2N4860A†	TO-18	N-channel
2N4861*†	TO-18	N-channel
2N4861A†	TO-18	N-channel

TI Type	Case	Polarity
2N5245	AAA	N-channel
2N5246	AAA	N-channel
2N5247	AAA	N-channel
2N5248	TO-92	N-channel
2N5358	TO-72	N-channel
2N5359	TO-72	N-channel
2N5360	TO-72	N-channel
2N5361	TO-72	N-channel
2N5362	TO-72	N-channel
2N5363	TO-72	N-channel
2N5364	TO-72	N-channel
2N5397	TO-72	N-channel
2N5398	TO-72	N-channel
2N5549†	TO-18	N-channel
2N5949	AAA	N-channel
2N5950	AAA	N-hcannel
2N5951	AAA	N-channel
2N5952	AAA	N-channel
2N5953	AAA	N-channel
3N128	TO-72	N-MOS
3N153	TO-72	N-MOS
3N160	TO-72	P-MOS
3N161	TO-72	P-MOS
3N169	TO-72	N-MOS
3N170	TO-72	N-MOS
3N171	TO-72	N-MOS
3N174	TO-72	P-MOS
3N201	TO-72	N-channel
3N202	TO-72	N-channel
3N203	TO-72	N-channel
3N204	TO-72	N-MOS
3N205	TO-72	N-MOS
3N206	TO-72	N-MOS
3N211	TO-72	N-MOS
3N212	TO-72	N-MOS
3N213	TO-72	N-MOS
3N214	TO-72	N-MOS
3N215	TO-72	N-MOS
3N216	TO-72	N-MOS
3N217	TO-72	N-MOS
3N225	TO-72	N-MOS
3N225A	TO-72	N-MOS
A5T3821	AAA	N-channel
A5T3822	AAA	N-channel
A5T3823	AAA	N-channel
A5T3824	AAA	N-channel
A5T4416	AAA	N-channel
A5T4416A	AAA	N-channel
A5T5460	AAA	P-channel
A5T5461	AAA	P-channel
A5T5462	AAA	P-channel
A5T6449	AAA	N-channel
A5T6450	AAA	N-channel
TIS58	TO-92	N-channel
TIS59	TO-92	N-channel
TIS73†	AAA	N-channel
TIS74†	AAA	N-channel
TIS75†	AAA	N-channel

*JAN type available.
**JAN and JANTX types available.

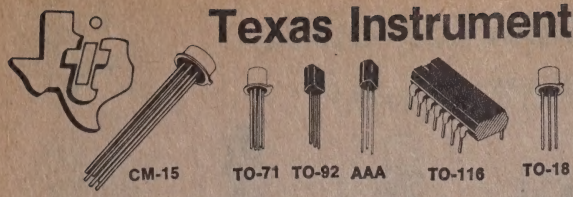
†Field effect chopper
‡Gate in electrical contact with case.

SILICON TEMPERATURE SENSORS
CASE AAA (two leads)

TI Type	Resis. Ohms	Tolerance
TSP102F	1000	1%
TSP102G	1000	2%
TSP102J	1000	3%
TSP102K	1000	10%

Encapsulated in a plastic compound, case will withstand soldering temperatures without deformation. Exhibits stable characteristics under high-humidity conditions and is capable of meeting MIL-STD-202C, Method 106B.

Texas Instruments Selection Guide



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N-P-N MATCHED DUALS

hFE @ Ic	hFE MIN-MAX	hFE1/hFE2 MIN	△VBE MAX	△VBE/△T MAX	DEVICE TYPE	POLARITY	CASE
10 μA	50-300	0.9	5 mV	10 μV/°C	2N2639	NPN	CM-15
10 μA	50-300	0.8	10 mV	20 μV/°C	2N2640	NPN	CM-15
10 μA	60-240	0.9	1.5 mV	5 μV/°C	2N2915A	NPN	CM-15
10 μA	60-240	0.9	1.5 mV	5 μV/°C	2N2919A	NPN	CM-15
10 μA	60-240	0.9	3 mV	10 μV/°C	2N2919	NPN	CM-15
10 μA	60-240	0.9	3 mV	10 μV/°C	2N2974	NPN	TO-71
10 μA	60-240	0.9	3 mV	10 μV/°C	2N2915	NPN	CM-15
10 μA	60-240	0.9	3 mV	10 μV/°C	2N2978	NPN	TO-71
10 μA	60-240	0.8	5 mV	20 μV/°C	2N2917	NPN	CM-15
10 μA	60-240	0.8	5 mV	20 μV/°C	2N2976	NPN	TO-71
10 μA	100-300	0.9	5 mV	10 μV/°C	2N2642	NPN	CM-15
10 μA	100-300	0.8	10 mV	20 μV/°C	2N2643	NPN	CM-15
10 μA	150-600	0.9	1.5 mV	5 μV/°C	2N2920A	NPN	CM-15
10 μA	150-600	0.9	1.5 mV	5 μV/°C	2N2916A	NPN	CM-15
10 μA	150-600	0.9	3 mV	10 μV/°C	2N2916	NPN	CM-15
10 μA	150-600	0.9	3 mV	5 μV/°C	2N3680	NPN	CM-15
10 μA	150-600	0.9	3 mV	10 μV/°C	2N2920	NPN	CM-15
10 μA	150-600	0.9	3 mV	10 μV/°C	2N2975	NPN	TO-71
10 μA	150-600	0.9	3 mV	10 μV/°C	2N2979	NPN	TO-71
10 μA	150-600	0.8	5 mV	20 μV/°C	2N2918	NPN	CM-15
10 μA	150-600	0.8	5 mV	20 μV/°C	2N2977	NPN	TO-71
100 μA	25-150	0.9	5 mV	25 μV/°C	2N2223A	NPN	CM-15
100 μA	25-150	0.8	15 mV	25 μV/°C	2N2223	NPN	CM-15
100 μA	30-90	0.9	5 mV	10 μV/°C	2N2060	NPN	CM-15
1 mA	150-600	0.9	3 mV	10 μV/°C	2N2453	NPN	CM-15

P-N-P MATCHED DUALS

hFE @ Ic	hFE MIN-MAX	hFE1/hFE2 MIN	△VBE MAX	△VBE/△T MAX	DEVICE TYPE	POLARITY	CASE
10 μA	40-300	0.9	5 mV	10 μV/°C	2N3347	PNP	CM-15
10 μA	40-300	0.8	10 mV	20 μV/°C	2N3348	PNP	CM-15
10 μA	40-300	0.6	20 mV	40 μV/°C	2N3349	PNP	CM-15
10 μA	100-300	0.9	5 mV	10 μV/°C	2N3350	PNP	CM-15
10 μA	100-300	0.8	10 mV	20 μV/°C	2N3351	PNP	CM-15
10 μA	100-300	0.6	20 mV	40 μV/°C	2N3352	PNP	CM-15
100 μA	40-120	0.9	5 mV	10 μV/°C	2N2805	PNP	CM-15
100 μA	40-120	0.8	10 mV	20 μV/°C	2N2806	PNP	CM-15
100 μA	150-450	0.9	3 mV	10 μV/°C	2N3810	PNP	CM-15
100 μA	150-450	0.8	5 mV	20 μV/°C	2N3808	PNP	CM-15
100 μA	300-900	0.9	3 mV	10 μV/°C	2N3811	PNP	CM-15
100 μA	300-900	0.8	5 mV	20 μV/°C	2N3809	PNP	CM-15

N-P-N UNMATCHED DUALS

hFE @ Ic	hFE MIN-MAX	V(BR)CEO MIN	NOISE FIGURE F@f *F (Noise BW) MAX	DEVICE TYPE	POLARITY	CASE
10 μA	50-300	45 V	4 dB (15.7 kHz)*	2N2641	NPN	CM-15
10 μA	60-240	45 V	4 dB @ 1 kHz	2N2913	NPN	CM-15
10 μA	60-240	45 V	4 dB @ 1 kHz	2N2972	NPN	TO-71
10 μA	100-300	45 V	4 dB (15.7 kHz)*	2N2644	NPN	CM-15
10 μA	150-600	45 V	3 dB @ 1 kHz	2N2914	NPN	CM-15
10 μA	150-600	45 V	3 dB @ 1 kHz	2N2973	NPN	TO-71
3 mA	20-	15 V	6 dB @ 60 MHz	D2T918	NPN	CM-15
50 mA	100-300	40 V		TIS90M	NPN	TO-92
50 mA	100-300	40 V		TIS92M	NPN	AAA
150 mA	40-120	30 V		D2T2218	NPN	CM-15
150 mA	40-120	40 V		D2T2218A	NPN	CM-15
150 mA	40-120	40 V	8 dB @ 1 kHz	2N4855	N/P	CM-15
150 mA	100-300	30 V		D2T2219	NPN	CM-15
150 mA	100-300	40 V		D2T2219A	NPN	CM-15
150 mA	100-300	40 V	8 dB @ 1 kHz	2N4854	N/P	CM-15

P-N-P UNMATCHED DUALS

hFE @ Ic	hFE MIN-MAX	V(BR)CEO MIN	NOISE FIGURE F@f *F (Noise BW) MAX	DEVICE TYPE	POLARITY	CASE
100 μA	20-120	20 V	4 dB (15.7 kHz)*	2N2804	PNP	CM-15
100 μA	40-120	20 V	4 dB (15.7 kHz)*	2N2807	PNP	CM-15
1 mA	150-450	60 V	3 dB @ 1 kHz	2N3806	PNP	CM-15
1 mA	300-900	60 V	1.5 dB @ 1 kHz	2N3707	PNP	CM-15
50 mA	100-300	40 V		TIS91M	PNP	TO-92
50 mA	100-300	40 V		TIS93M	PNP	AAA
150 mA	40-120	40 V		D2T2904	PNP	CM-15
150 mA	40-120	40 V	8 dB @ 1 kHz	2N4855	N/P	CM-15

P-N-P UNMATCHED DUALS (cont.)

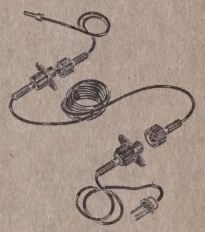
hFE @ Ic	hFE MIN-MAX	hFE1/hFE2 MIN	VBE MAX	△VBE/△T MAX	△VBE DEVICE TYPE	POLARITY	CASE
150 mA	40-120	60 V			D2T2904A	PNP	CM-15
150 mA	100-300	40 V			D2T2905	PNP	CM-15
150 mA	100-300	40 V	8 dB @ 1 kHz		2N4854	N/P	CM-15
150 mA	100-300	60 V			D2T2905A	PNP	CM-15

N-P-N AND P-N-P QUADS

POLARITY	V(BR)CEO MIN	hFE @ Ic	hFE MIN-MAX	DEVICE TYPE	CASE
N-P-N	30 V	150 mA	100-300	Q2T2222	TO-116
N-P-N	40 V	100 mA	60-200	Q2T3725	TO-116
P-N-P	40 V	150 mA	100-300	Q2T2905	TO-116
P-N-P	40 V	500 mA	50-150	Q2T3244	TO-116

PLASTIC FIBER-OPTIC DATA LINK

TXES475, TXES476 SERIES SOURCE ASSSEMBLIES



- **Epoxy filled Case Similar to JEDEC TO-18**
- **20 ns typical risetime surface Emiter**

A GaAlAs, 790 nm, 20 ns typical rise-time surface emitter; a plastic fiber-optic cable, and a fiber-optic connector. TXES475 and TXES476 series are identical except TXES476 has a higher radiant power output. Infrared emitting diode is in an epoxy-filled case similar to JEDEC TO-18. A coined header is used to increase thermal dissipation capability. Fiber-optic cable has an outer jacket diameter of 1.9 mm (0.075 inch) and optical cladding and core diameters of 0.40 mm (0.016) inch and 0.37 mm (0.015 inch), respectively. Core diameter of single plastic optical fiber is also compatible with coupling to various commercially available 7 and 19 strand glass-fiber bundles.

Type	Po (μW)	Type	Po (μW)
TXES475C025	120	TXES476C025	200
TXES475C050	100	TXES476C050	190
TXES475C100	100	TXES476C100	170

TXEF402 SERIES CABLE ASSEMBLY

Fiber-optic cable assembly consisting of a length of infrared transmitting plastic fiber-optic cable which has an attenuation of 350 decibel per kilometer, at 790 nm, and a numerical aperture of 0.53. Each end of the cable is terminated with a fiber-optic connector. Cable lengths of 1 meter (3.3 ft.) to 50 meters (165 ft.) are available.

Type	Transmittance	Type	Transmittance
TXEF402M001	0.50	TXEF402M020	0.07
TXEF402M003	0.40	TXEF402M030	0.03
TXEF402M006	0.30	TXEF402M040	0.012
TXEF402M010	0.20	TXEF402M050	0.005

TXED453 SERIES DETECTOR ASSEMBLY

Fiber-optic detector assembly consists of a high-resistivity silicon photodiode, a plastic cable, and a fiber-optic connector. Photodiode is in an epoxy-filled case similar to, but slightly shorter than, a JEDEC TO-5. Low capacitance photodiode operates in a reverse-bias mode and has a guard-ring structure to minimize active-area dark current and provde excellent low noise characteristics. Risetimes vary from 60 ns at 12 volts to 35 ns at 50 volts.

Type	Radiant Responsivity	Type	Radiant Responsivity
TXED453C025	.30	TXED453C100	.25
TXED453C050	.28		

Texas Instruments Selection Guide

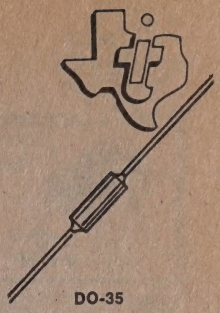
TRANSISTORS AND DIODES

DO-36

TO-5

TO-18

TO-18


DO-35

NPN SILICON HIGH VOLTAGE POWER TRANSISTORS

TI Type	$V_{BR(CEO)}$ V	V_{CBO} V	h_{FE} at I_C Min.	A
BUY69A	400	1000	15	2.5
BUY69B	325	800	15	2.5
BUY69C	200	500	15	2.5
BUY70A	400	1000	15	1
BUY70B	325	800	15	1
BUY70C	200	500	15	1

TI Type	V_{CEO} V	V_{CBO} V	h_{FE} @ Min.	I_C A
BD253	200	350	15	1
BD253A	250	500	15	1
BU105	.....	1500	.....	2.5*
BU108	.....	1500	.....	5*
BU126	300	750	15	1
BU137	.....	1000	.....	12*
BU157	.....	1500	.....	12*
BU500	.....	1500	3	4.5
BUW81	.....	600	200	3
BUW18A	.....	800	200	3

I_C = 10A except as otherwise noted
V_{CE} at I_{CEX} = 1mA
* I_C = 3A † I_C = 5A
‡ I_C = 2A

SILICON PNP SWITCH

Type	Case	Min. f_T MHz	Rated V_{CEO} V
2N2894	U	400	12
2N3012	U	400	12
2N3250	U	250	40
2N3251A**	U	300	60
2N3576	U	400	15
2N3829	G1	350	20

P_D = 360 mW at 25°C free air
** JAN, TX, TXV types available
collector in electrical contact w/case

NPN SILICON HIGH FREQUENCY AMPLIFIER/OSCILLATOR

Type	Case	Min. f_T MHz	Max. Cobo pF
2N917	TO-72	500	1.7
2N918**	TO-72	600	1.7
2N3570	TO-72	1500	0.75
2N3571	TO-72	1200	0.85
2N3572	TO-72	1000	0.85
2N4252	TO-72	600	0.45

P_D = 200 mW at 25°C free air
2N4874-2N4876 P_D = 6000 mW at 25°C case
** JAN, TX, TXV types available

NPN LOW LEVEL AMPLIFIER CASE U (TO-18)

Type	h_{FE} min — max	@ I_C mA	Min. f_T MHz
2N929**	40 — 120	10	30
2N930	100 — 300	10	30
2N2483	40 — 120	10	60
2N2484	100 — 500	10	60
2N2586	120 — 360	10	45
2N2604†	40 — 120	10	30
2N2605†	100 — 300	10	30
2N3117	250 — 500	10	60
2N3798	150 — 450	500	60
2N3799	300 — 900	500	60
2N3962	100 — 300	10	60
2N3963	100 — 300	10	80
2N3964	250 — 500	10	45
2N3965	250 — 500	10	60
2N4104	400 — 800	10	60

† Case TO-46 ** JAN and JANTX types availble
Collector in electrical contact w/case

CONSUMER CIRCUIT APPLICATIONS

PNP general purpose types.

2N1273	1	150	150	15
2N1274	1	150	150	25

Specifications and prices on request.

2N1372	1	250	200	25

† Bi-directional. ‡ Replacement only.
§ NPN.

SILICON COMPUTER DIODES (CASE AA—DO-35)

V_F = 1 volt except as otherwise noted. t_{rr} at 25°C

TI Type	$V_{(BR)}$ V	Max. T_{rr} msec	IF mA
TID31	75	6●●	200
TID32	100	10●●	200
TID33	75	10●●	200
TID34	100	10●●	150
TID35	75	10●●	150
TID36	100	10●●	100
TID37	75	6●●	100
TID40	250	30†	50
TID41	200	30†	100
TID42	150	30†	100
TID43	150	30†	150
TID44	100	30†	200
TI71	40	10†	6
TI72	40	20†	10
TI73	40	20†	20
TI74	40	30†	30
TI75	40	50†	75
1N251*	40	150‡	5
1N625	30	1000§	4♦
1N626	50	1000§	4♦
1N627	100	1000§	4♦
1N628	150	1000§	4♦
1N629	200	1000§	4♦
1N643*	200	300#	10
1N659	60	300§	6
1N660	120	300§	6
1N661	240	300§	6
1N662*	100	500■■	10
1N663*	100	500#	100
1N914**	100	48	10
1N914A	100	48	20

TI Type	$V_{(BR)}$ V	Max. T_{rr} msec	IF mA
1N914B	100	48	100
1N915	65	10†	50
1N916	100	48	10
1N916A	100	48	20
1N916B	100	48	30
1N917	40	36	10
1N3064	75	4▲	10
1N3070**	200	50■	100
1N4148**	100	4▲	10
1N4149	100	4▲	10
1N4150	50	6	200
1N4151	75	4†	50
1N4152	40	4†	20⧗
1N4153**	75	4†	20⧗
1N4154	35	4†	30
1N4305	75	4†	10x
1N4444	70	...	100
1N4446	100	4▲	20
1N4447	100	4▲	20
1N4448	100	4▲	100
1N4449	100	4†	30
1N4454**	75	4†	10
1N4531**	75	48	10
1N4532**	75	4†	10
1N4533	40	4†	20⧗
1N4534	75	4†	20⧗
1N4536	35	4†	30
IN4607	85	10	400
IN4608	85	10	500
1N4727	30	4▲	10x
1N4938**	200	50§	100

●●I_F=I_R=200 mA, recovery to 20 mA, R_L=100 ohms. †Lumatron: 10 mA I_F, switched to 10 mA I_R, recovery to 1 mA. ‡JAN256: 5 mA I_F, switched to V_R=10 V, recovery to 20 K. §JAN256: 30 mA I_F, switched to V_R=35 V, recovery to 400 K. #JAN256: 5 mA I_F, switched to V_R=40 V, recovery to 200 K. •JAN256: 5 mA I_F, switched to V_R=40 V, recovery to 80 K.

▲EGG Type 2236A; 10 mA I_F, switched to V_R=6 V, recovery to 1 mA reverse. ■Lumatron: 30 mA L_F, switched to 30 mA I_R, recovery to 1 mA. ♦V_F=1.5 V. ⧗V_F=0.88 V. xV_F=0.85 V. *JAN type available. **JAN and JANTX types available. ■■JAN256; 5 mA I_F, switched to V_R=40 V, recovery to 100 K.

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FAST DELIVERY FROM ON-THE-SHELF STOCKS.

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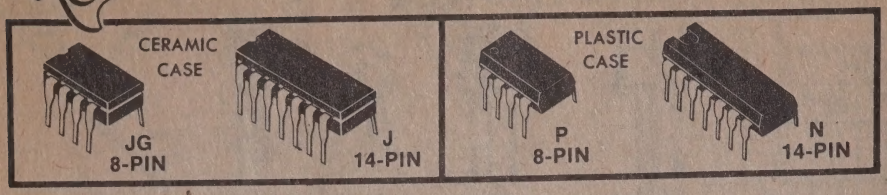
LINEAR CIRCUITS



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LINE CIRCUITS

Model	Case
General Purpose Drivers	
SN55450B	J
SN75450B	J,N
SN55451B	JG
SN75451B	JG,P
SN75361A	JG,P
SN55121	J
SN75121/N8T13	J,N
SN55183	J
SN75183	J,N
SN55114	J
SN75114/9614C	J,N
SN55113	J
SN75113	J,N
DS7831	J
DS8831	J,N
DS7832	J
DS8832	J,N
General Purpose Receivers	
SN75207	J,N
SN75207B	J,N
SN75208	J,N
SN75208B	J,N
SN55107A	J
SN75107A	J,N
SN75107B	J,N
SN55108A	J
SN75108A	J,N
SN55108B	J
SN75108B	J,N
SN55122/N8T14	J
SN75122	J,N
SN55140	JG
SN75140	JG,P
SN55141	JG
SN75141	JG,P
SN55142	J
SN75142	J,N
SN55143	J
SN75143	J,N
360/370 I/O Interface Drivers	
SN75123/NST23	J,N
360/370 I/O Interface Receivers	
SN75124/N8T24	J,N
SN75125	J,N
SN75127	J,N
SN75128	J,N
SN75129	J,N
Gas Discharge Displays	
SN75480	N
SN75484	N
SN75481	N
Thermal Print Displays	
SN75490	J,N
SN75270	J,N

Model	Case
Drivers Meeting EIA Standards RS-232C	
SN75150	JG,P
SN75188/MC1488	J,N
Drivers Meeting EIA Standards RS-422	
SN75159	J,N
MC3487	J,N
SN75151	J,N
SN75153	J,N
AM26L531	J,N
Receivers Meeting EIA Standards R5-232C	
SN75154	J,N
SN75189/MC1489	J,N
SN75189A/MC1489A	J,N
SN75152	J,N
Receivers Meeting EIA Standards RS422/423	
AM26L532	J,N
Current Made Drivers	
SN5510A	J
SN75110A	J,N
SN55109A	J
SN75109A	J,N
Receivers With Response Time Control	
SN5515	J
SN75115/9615C	J,N
SN55192	J
SN75102	J,N
Differential-Line Transceivers With Strobe	
SN55116	J
SN75116	J,N
SN55117	JG
SN55117	JG,P
Differential-Line Transceivers With Enable	
SN5518	J
SN75118	J,N
SN55119	JG
SN75119	JG,P
Single-ended Line Transceivers	
AM26510M	J
AM26510C	J,N
AM26511M	J
AM26511C	J,N
SN55138	J
SN75138	J,N
SN75136/N8T26	J,N
Single-ended Line Transceivers Meeting	
MC3446	J,N

PERIPHERAL DRIVERS

Model	Case
Dual-TTK-DTL Input	
SN75430	J,N
SN75431	JG,P
SN75432	JG,P
SN75433	JG,P
SN75434	JG,P
SN55450B	J
SN75450B	J,N
SN55451B	JG
SN75451B	JG,P
SN55452B	JG
SN75452B	JG,P
SN55453B	JG
SN75453B	JG,P
SN55454B	JG
SN75454B	JG,P
SN55460	J
SN75460	J,N
SN55461	JG
SN75461	JG,P
SN55462	JG
SN75462	JG,P
SN55463	JG
SN75463	JG,P
SN55464	JG
SN75464	JG,P
SN75401	NE
SN75402	NE
SN75403	NE
SN75404	NE
SN55470	J
SN75470	J,N
SN55471	JG
SN75471	JG,P
SN55472	JG
SN75472	JG,P
SN55473	JG
SN75473	JG,P
SN55474	JG
SN75474	JG,P
SN75411	NE
SN75412	NE
SN75413	NE
SN75414	NE
TTL, DTL MOS Input	
SN75476	JG,P
SN75477	JG,P
SN75478	JG,P
SN75479	JG,P
SN75416	NE
SN75417	NE
SN75418	NE
SN75419	NE

Model	Case
Darlington Transistor Array	
ULN2001A	J,N
ULN2002A	J,N
ULN2003A	J,N
ULN2004A	J,N
SN75466	J,N
SN75467	J,N
SN75469	J,N
ECL	
SN75441	

SENSE AMPS

Core Memory	
SN5520	J
SN7520	J,N
SN5522	J
SN7522	J,N
SN5524	J
SN2524	J,N
SN5528	J,N
SN75232	J
SN75232	J,N
SN55234	J
SN75234	J,N
SN55238	J
SN75238	J,N

MOS TO TTL

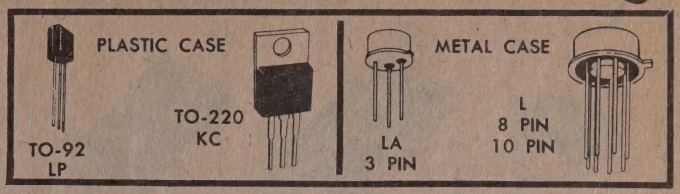
Converter Array	
SN7527p	J,N
MOS Memory	
SN55107A	J
SN75107A	J,N
SN55108A	J
SN75108A	J,N
SN75207	J,N
SN75208	J,N
TMS4062	
I/O Interface	
SN75370	

DISPLAY DRIVERS

Plasma Display	
SN55426	J
SN75426	J,N
SN55427	J
SN75427	J,N
SN75500	N
SN75501	
Led Display	
SN75491	N
SN75491A	N
SN75492	N
SN75492A	M
SN75493	N
SN75494	N
SN75496	N
SN75496A	N
SN75497	N
SN75498	N

Texas Instruments Selection Guide

LINEAR CIRCUITS



BIFET OP-AMPS

Model	Case
General Purpose	
TL081AC	JG, L, P
TL081BC	JG, L, P
TL081C	JG, L, P
TL081I	JG, L, P
TL082AC	JG, L, P
TL082BC	JG, L, P
TL082C	JG, L, P
TL082I	JG, L, P
TL083AC	J, N
TL083AM	J
TL083C	J, N
TL083	J, N
TL084AC	J, N
TL084BC	J, N
TL084C	J, N
TL084I	J, N
TL085C	N
TL087	JG, L, P
TL080AC	JG, L, J
TL080AM	JG, L, P
TL080C	J, G, L, P
TL080I	JG, L, P
TL080M	JG, L
Low Noise Audio	
TL071AC	JG, L, P
TL071BC	JG, L, P
TL071C	JG, L, P
TL071I	JG, L, P
TL071M	JG, L
TL072AC	JG, L, P
TL072BC	JG, L, P
TL072C	JG, L, P
TL072I	JG, L, P
TL074AC	J, N
TL074BC	J, N
TL074C	J, N
TL074I	J, N
TL075C	N
Low Power	
TL061AC	JG, P
TL061BC	JG, P
TL061C	JG, P
TL061I	JG, P
TL062AC	JG, P
TL062BC	JG, P
TL062C	JG, P
TL062I	JG, P
TL064AC	J, N
TL064BC	J, N
TL064C	J, N
TL064I	J, N
Low Power With Power Control	
TL066AC	JG, P
TL066BC	JG, P
TL066C	JG, P
TL066I	JG, P

JFET OP-AMPS

Model	Case
General Purpose	
LF355	L
LF355A	L
LF356	L
LF356A	L

BIPOLAR OP-AMPS

Model	Case
General Purpose Single	
MA702M	J, L
TL702C	J, L, N
TL702M	J, L
UA709C	J,JG,L,P,N
UA709M	J, JG, L
UA709AM	J, JG, L
UA741C	J,JG,L,P,N
UA741I	P
UA741M	J, JG, L
UA748C	JG, L, P, N
UA748M	J, JG, L
Single Supply	
TL321C	JG, P
TL321M	JG
General Purpose Dual	
LM358	JG, L, P
MC1458	JG, L, P
LM158	JG, L
UA747M	J, L
LM3900	J, N
UM147C	J, L, N
LM2904	.....
General Purpose Quad	
LM124	J
LM3900	J, N
MC3403	J, N
UM324	J, N
LM2902	J, N
High Performance Single	
LM101A	J, JG, L
LM301A	J,JG,L,P,N
UA777M	J, JG, L
UA777C	J,JG,L,P,N
LM107	J, JG, L
LM307	J, JG, L, P
LM118	JG, L
LM318	J,JG,L,P,P
High Performance Dual	
RM4558	JG, L
RC4558	JG, L, P
High Performance Quad	
RM4136	J
RC4136	J, N
Low Power Dual	
TL022M	JG, L
TL022C	JG, L, P
Low Power Dual	
TL022M	JG, L
TL022C	JG, L, P
Low Power Quad	
TL044M	J
TL044C	J, N

*Interchangeable

VOLTAGE REGULATORS

Model	Case
Fixed Output Positive	
UA78L02AC	JG, LP
UA78L02C	JG, LP
UA7805C	KC
LM340-5C	KC
UA7805AC	KC
UA78M05C	KF, KC, LA
LM109	LA
LM209	LA
LM309	LA
UA78L05AC	JG, LP
UA78L05C	JG, LP
UA7806C*	KC
LM340-6*	KC
UA78M06C	KF, KC, LA
UA78L06AC	JG, LP
UA78L06C	JG, LP
UA7808C	KC
LM340-8*	KC
UA78M08C	KF, KG, LA
UA78L08AC	JG, LP
UA78L08C	JG, LP
UA7885C	KC
UA78L09AC	JG, LP
UA78L05C	JG, LP
UA7810C*	KC
LM340-10*	KC
UA78M10C	KF, KC, LA
UA78L10AC	JG, LP
UA78L10C	JG, LP
UA7812C*	KC
LM340-12*	KC
UA78M12C	KF, KC, LA
UA78	JG, LP
UA781L12C	JG, LP
UA7815C*	KC
LM340-15*	KC
UA781115C	KF, KC, LA
UA78L15AC	JG, LP
UA78L15C	JG, LP
UA7818C*	KC
LM340-18*	KC
UA78M20C	KF, KC, LA
UA7824C	KC
UA78M24C*	KF, KC, LA
LM340-24*	KC
Fixed Output Negative	
UA7905C	KC
UA79M05C	KF, KC, LA
UA7952C	KC
UA7906C	KC
UA79M06C	KF, KC, LA
UA7908C	KC
UA79M08C	KF, KC, LA
UA7912C	KC
UA79M12C	KF, KC, LA
UA7915C	KC
UA79M15C	KF, KC, LA
UA7918C	KC
UA79M80C	KF, KC, LA
Control Circuits	
UA7924C	KC
UA79M24C	KF, KC, LA
UA7952C	KC
Variable Output Positive	
LM305	P, JG, L
LM305A	P, JG, L
LM205	P, JG, L
LM105	JG, L
LM376	P, JG, L
UA723C	N, J, L
UA723M	J, L
Variable Output Negative	
LM304	N, J, L
LM204	N, J, L
LM104	J, L
Switching	
TL497A	J, N
SG3524	J, N
SG1524	J
SG2524	J, N
TL494AM	J
TL494I	J, N
TL494C	J, N
TL495M	J
TL495I	J, N
TL495C	J, N
TL495C	J, N
TL496C	JG, P
Floating	
LM317	KF, KC, LA
LM217	KF, KC, LA
LM117	LA
Shunt	
TL430C	JG, LP
TL430I	JG, LP
TL431M	JG
TL431I	JG, LP
TL431C	JG, LP

VOLTAGE COMPARATORS

Model	Case
Single	
TL710M	J, JG, J, L
TL710C	P, N, JG, J, L
UA710M	J, JG, L
UA710C	P, N, JG, J, L
TL810M	J, JG, L
TL810C	P, N, JG, J, L
LM106	J, JG, L
LM206	P, N, JG, J, L
LM306	P, N, JG, J, L
LM111	J, JG, L
LM311	P, U, JG, J, L
TL510M	J, JG, L
TL510C	P, N, JG, J, L
TL331M	J, JG, L
TL331I	P, JG
TL331C	P, JG
Dual	
LM193	JG, L
LM293	P, JG, L
LM393	P, JG, L
TL720C	J
TL820M	J
TL820C	N, J
TL506M	J
TL506C	N, J
TL514M	J
TL514C	N, J
Dual Channel	
UA711M	J, L
UA711C	N, J, L
TL811M	J, L
TL810C	N, J, L
Quad	
LM139	J
LM239	N, J
LM339	N, J

SPECIAL FUNCTIONS

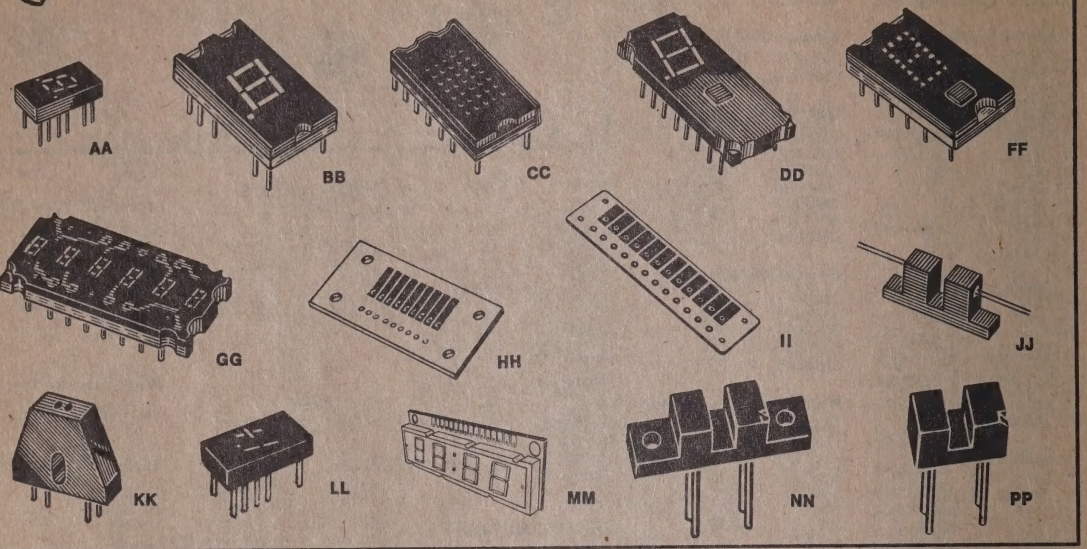
Model	Case
Over voltage Sensing Circuit	
MC3423	JG, P
Precision Timer Single	
NE555	JG, L, P
SE555	JG, L, P
Precision Timer Dual	
NC556	J, N
SE556	J
Hall Effect Switch	
UL170C	LP
Programmable Timer	
UA2240C	J, N
Analog Switches (Bifet)	
TL182M	L
TL182I	N, L
TL182C	N, L
TL185I	N
TL185C	N
TL188M	L
TL188I	N, L
TL188C	N, L
TL191I	N
TL191C	N
Zero Voltage Switch	
TL440C	J, N
Logarithmic Amplifier	
TL441C	J, N
Analog Level Detector	
TL489C	P
10 Step Linear Scale Indicator	
TL490C	N
TL491C	N
A/D Converters	
TL500C	N
TL501C	N
TL505C	N
TL507C	P
A/D Processors	
TL502C	N
TL503C	N
Precision Level Detector	
TL560C	JG, L, P
Analog Switches (BI-Mos)	
TL601C	JG, P
TL604	JG, P
TL607	JG, P
TL610	JG, P
Differential Video AMP	
UA733C	J, L, N

3

Texas Instruments Selection Guide

3

OPTOELECTRONIC DEVICES



VISIBLE DISPLAYS

Type	Fig.	Type of Char.(s)	Char. Hgt. (Ins.)	No. of Color	No. of Leads†
TIL302	BB	7-seg.	.27	Red	14
TIL303	BB				
TIL304	BB	Pol. & overflow	.27	Red	14
TIL305	CC	5 x 7 a. n.	.30	Red	14
TIL306	DD	7-seg.	.27	Red	16
TIL307	DD				
TIL308	DD				
TIL309	DD				
TIL311	FF	Hexadec.	.27	Red	14
TIL312	AA	7-seg.	.30	Red	14
TIL313	AA				
TIL314	AA	7-seg.	.30	Green	14
TIL315	AA				
TIL316	AA	7-seg.	.30	Amber	14
TIL317	AA				
TIL321	MM	7-seg.	.50	Red	10
TIL322	MM				
TIL323	MM	7-seg.	.50	Green	10
TIL324	MM				
TIL325	MM	7-seg.	.50	Amber	10
TIL326	MM				
TIL327	NN	Pol. & overflow	.30	Red	14
TIL328	NN		.30	Green	14
TIL329	NN		.30	Amber	14
TIL330	MM		.50	Red	10
TIL331	MM		.50	Green	10
TIL332	MM		.50	Amber	10
TIL360	GG	7-seg.	.10	Red	16
TIL364	NN	7-seg.	.50	Red	.....
TIL365	NN			Green	.....
TIL366	NN			Amber	.....
TIL367	NN			Red	.....
TIL370	NN	7-seg.	.50	Red	.....
TIL373	NN			Red	.....
TIL380-8	TT	7-seg. 8-digit	.11	Red	.....
TIL380-9	TT	7-seg. 9-digit	.11	Red	.....
TIL382	#	7-seg.	.10	Red	.....
TIL383	#	9-, 7-seg.	.10	Red	.....
TIL384	#	7-seg.	.116	Red	.....
TIL385	#	9-, 7-seg.	.116	Red	.....
TIL340	AA	7-seg.	.3	Yellow	.....
TIL345	MM	7-seg.	.5	Yellow	.....

VISIBLE DISPLAYS (CONT.)

Type	Fig.	Type of Char.(s)	Char. Hgt. (Ins.)	Display Color	No. of Leads†
TIL804-8	...	7-seg. 8-digit	.27	Red	.....
TIL804-10	...	7-seg. 10-digit	.27	Red	.....
TIL804-12	...	7-seg. 12-digit	.27	Red	.....
TIL807	...	7-seg.	.30	Red	16
TIL808	...	2-digit	.30	Red	16
TIL809	...		.30	Amber	16
TIL810	...		.30	Amber	16
5082-7730	AA	7-seg.	.3	Red	.....
5082-7731	AA	7-seg.	.3	Red	.....
5082-7736	MM	−+1	.3	Red	.....
5082-7740	AA	7-seg.	.3	Red	.....

#Watch display. †Plastic DIP.

SENSOR/EMITTER ARRAYS

Type	Fig.	Description
TIL131	HH	Nine-element LED array
TIL132	HH	Nine-element photo-transistor array
TIL133	HH	Mine-channel LED/ phototransistor array
TIL134	JJ	Twelve-element LED array
TIL135	JJ	Twelve-element photo-transistor array
TIL136	JJ	Twelve-channel LED/ phototransistor array
TIL138	KK	One-channel trans-missive assembly
TIL139	LL	One-channel reflective assembly
TIL141	.....	Twelve-channel optical reader
TIL142	.....	Twelve-channel optical reader w/plug-in conn.
TIL143	PP	One-channel trans-missive assembly
TIL144	PP	
TIL145	PP	
TIL146	PP	
TIL147	RR	
TIL148	RR	
TIL149	.....	One-channel reflective assembly

SILICON PLANAR LIGHT SENSORS

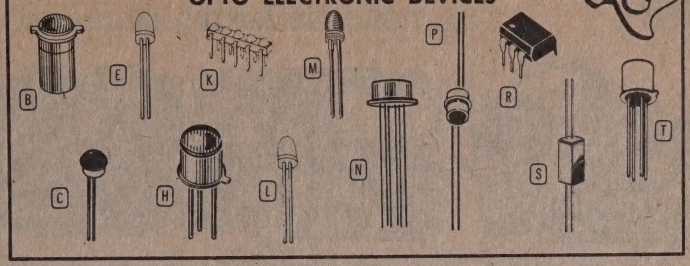
Light current given is minimum value; all other values are maximum. H = 20 mW/cm². Source is an unfiltered tungsten linear-filament bulb operating at a color temperature of 2870° K.

Type	Fig.	No. of Ele-ments	Current at Voltage Light mA	V	Dark nA	V	PD mW
1N5722	BB	1	0.5	5	25	30	50
1N5723	BB	1	2	5	25	30	50
1N5724	BB	1	4	5	25	30	50
1N5725	BB	1	7	5	25	30	50
LS400	AA	1	1	5	25	30	50
LS600	BB	1	0.8*	5	25	30	50
TIL78	EE	1	1	5	25	30	50
TIL81	FF	1	5	5	100	10	250
TIL99	DD	1	1	5	100	10	250
TIL401	AA	1	0.5	5	25	30	50
TIL402	AA	1	2	5	25	30	50
TIL403	AA	1	5	5	25	30	50
TIL404	AA	1	8	5	25	30	50
TIL405	AA	1	10	5	25	30	50
TIL406	AA	1	15	5	25	30	50
TIL601	BB	1	0.5	5	25	30	50
TIL602	BB	1	2	5	25	30	50
TIL603	BB	1	4	5	25	30	50
TIL604	BB	1	7	5	25	30	50
TIL605	BB†	1	0.5	5	25	30	50
TIL606	BB†	1	2	5	25	30	50
TIL607	BB†	1	4	5	25	30	50
TIL608	BB†	1	7	5	25	30	50
TIL609	GG	1	0.5	5	25	30	50
TIL610	GG	1	2	5	25	30	50
TIL611	GG	1	4	5	25	30	50
TIL612	GG	1	7	5	25	30	50
TIL613	GG†	1	0.5	5	25	30	50
TIL614	GG†	1	2	5	25	30	50
TIL615	GG†	1	4	5	25	30	50
TIL616	GG†	1	7	5	25	30	50
TIL621	LL	1	1.5	5	50	30	50
TIL622	LL	2	1.5	5	50	30	50
TIL623	LL	3	1.5	5	50	30	50
TIL624	LL	4	1.5	5	50	30	50
TIL625	LL	5	1.5	5	50	30	50
TIL626	LL	6	1.5	5	50	30	50
TIL627	LL	7	1.5	5	50	30	50
TIL628	LL	8	1.5	5	50	30	50
TIL629	LL	8	1.5	5	50	30	50
TIL630	LL	10	1.5	5	50	30	50

*H=9 mW/cm², wavelength=0.7 to 1μm.
†Less lens.

Texas Instruments Selection Guide

OPTO ELECTRONIC DEVICES



VISIBLE LIGHT SOURCES

Type	Fig.	No. of Elements	Light Color	Output Min. (μcd)	Output @IF (mA)
TIL209A	L	1	Red	500	20
TIL212	L	1	Yellow	1000	10
TIL216	L	1	Red	1500	10
TIL220	M	1	Red	800	20
TIL221	M	1	Red	1000	20
TIL222	M	1	Green	1000	25
TIL224	. . .	1	Yellow	1500	10
TIL228	. . .	1	Red	2000	10
TIL232	. . .	1	Green	700	10
TIL234	. . .	1	Green	1000	10
TIL261	K	1	Red	500†	20
TIL262	K	2	Red	500†	20
TIL263	K	3	Red	500†	20
TIL264	K	4	Red	500†	20
TIL265	K	5	Red	500†	20
TIL266	K	6	Red	500†	20
TIL267	K	7	Red	500†	20
TIL268	K	8	Red	500†	20
TIL269	K	9	Red	500†	20
TIL270	K	10	Red	500†	20
TIL271	K	1	Green	800	25
TIL272	K	2	Green	800†	25
TIL273	K	3	Green	800†	25
TIL274	K	4	Green	800†	25
TIL275	K	5	Green	800†	25
TIL276	K	6	Green	800†	25
TIL277	K	7	Green	800†	25
TIL278	K	8	Green	800†	25
TIL279	K	9	Green	800†	25
TIL280	K	10	Red	800†	25
5082-4550	M	1	Yellow	1.0	10
5082-4550A	M	1	Yellow	2.6	10
5082-4650	M	1	Yellow	2.2	10
5082-4650A	M	1	Red	1.0	10
5082-4655	M	1	Red	2.6	10
5082-4850	M	1	Red	3.0	10
5082-4950	M	1	Red	.8	10
5082-4950A	M	1	Green	1	20
5082-4955	M	1	Green	2.1	20

OPTICALLY COUPLED ISOLATORS

Type	Fig.	Isolation Voltage ± kV	$I_{C(ON)}$ Min. @ I_F mA	mA
4N22	N	1	2.5	10
4N23	N	1	6	10
4N24	N	1	10	10
TIL102	N	1	2.5	10
TIL103	N	1	10	10
TIL107	P	1	0.5	15
TIL108	P	1	1.6	15
TIL109	S	5	0.25	35
TIL111	R	1.5	2	16
TIL112	R	1.5	0.2	16
TIL113	R	1.5	30	10
TIL114	R	2.5	2	16
TIL115	R	2.5	0.2	10
TIL116	R	2.5	2	10
TIL117	R	2.5	5	10
TIL118	R	1.5	1	10
TIL119	R	1.5	30	10
TIL120	T	1	2.5	10
TIL121	T	1	5	10
TIL124	T	5	1	10
TIL125	T	5	2	10
TIL126	T	5	5	10
TIL127	T	5	30	10
TIL128	T	5	30	10
TIL153	T	3.54	. . .	. . .
TIL154	T	3.54	. . .	. . .
TIL155	T	3.54	. . .	. . .
TIL156	T	3.54	. . .	. . .
TIL157	T	3.54	. . .	. . .

GALLIUM ARSENIDE INFRARED SOURCES

Type	Fig.	No. of Elements	Min. P_O at I_F mW	mA
TIL23	B	1	0.4	50
TIL24	B	1	1.0	50
TIL25	B	1	0.75	50
TIL26	C	1	1	35
TIL31	H	1	3.3	100
TIL32	E	1	0.5	20
TIL33	H	1	2.5	100
TIL34	H	1	1.6	100
TIL41	K	1	0.5	20
TIL42	K	2	0.5†	20
TIL43	K	3	0.5†	20
TIL44	K	4	0.5†	20
TIL45	K	5	0.5†	20
TIL45	K	6	0.5†	20
TIL47	K	7	0.5†	20

ELECTRO OPTICAL COMPONENTS

AMPLIFIERS

Type	Equivalent Input Noise Current	Z_I TYP	Z_O TYP	Z_f TYP	Bandwidth TYP	Features
TIEF150	7.5 pA/√Hz TYP	35 Ω	0.5 Ω	1 kΩ	100 MHz	
TIEF151	4.5 pA/√Hz TYP	100 Ω	2 Ω	4 kΩ	50 MHz	Low-noise, high-speed amplifiers
TIEF152	3 pA/√Hz TYP	300 Ω	4 Ω	12 kΩ	20 MHz	designed for use with photodiodes

INFRARED-EMITTING DIODES

Type	Power Output Min mW	Power Output @ I_F mA	Θ_{HI} TYP	VF Max V	VF @ I_F mA	λ_p TYP μm	Features
TIES06	0.6	500	115°	2.3	500	0.91	0.0075-inch-dia emitting area
TIES12	40	300	130°	2	300	0.93	
TIES13	20	300	130°	2	300	0.93	0.036-inch-dia hemispherical dome emitting area
TIES13A	30	300	130°	2	300	0.93	
TIES14	60	1000	130°	2	1000	0.93	
TIES15	30	1000	130°	2	1000	0.93	0.072-inch-dia hemispherical dome emitting area
TIES16A	100	2000	150°	2	2000	0.93	
TIES16B	200	2000	150°	2	2000	0.93	0.072-inch-dia dome emitting area
TIES16C	350	3000	150°	2.2	3000	0.94	
TIES27	15	300	135°	2.2	300	0.93	Stud header with epoxy lens
TIES35	0.9	50	135°	2	50	0.91	0.018-inch-dia dome emitting area
TIES36	1	50	25°	2	50	0.91	Pill package with built-in reflector
TIES471	0.5	50	130°	2	50	0.91	For connection to fiber-optic-bundle termination

OPTICAL WAVEGUIDE TRANSMITTER MODULE

Type	Power Output Min @ I_F	Θ_{HI} TYP	λ_p TYP	t_r Max	Features
TIES472	0.5 mW 50 mA	130°	0.91 μm	20 ns	For connection to fiber-optic-bundle termination

AVALANCHE PHOTODIODES

Type	Breakdown Voltage V @ I_r = 100 μA Min	Breakdown Voltage Max	Avalanche Gain (TYP)	Capacitance pF	Features
TIED55	155	185	600	1.2	
TIED56	155	185	600	1.2	
TIED59	155	185	600	8.5	Low noise, High gain. Designed
TIED69	155	185	600	30	to operate in avalanche region
TIED83	80	120	600	4	
TIED84	80	120	600	17	
TIED85	80	120	600	4	
TIED86	80	120	600	17	Photodiode and reference diode
TIED87	155	185	600	2.5	have matched breakdown characteristics
TIED88	155	185	600	9	High gain. High speed.
TIED89	155	185	600	30	
TIED451	155	185	600	8.5	Fiber bundle applications

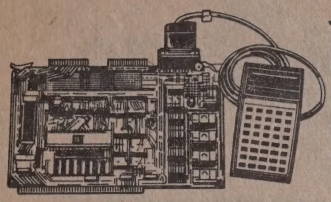
OTHER PHOTODIODES

Type	Radiant Responsivity (TYP) A W @ λ = 0.9μm	Dark Current nA	Capacitance pF	Diameter of Active Area mils	Features
TIED80	0.6	15	4.5	100	15ns rise time
TIED98	0.5	2	2	40	Wide spectral bandwidth
TIED82	0.68	100	15	650	High speed High responsitivity

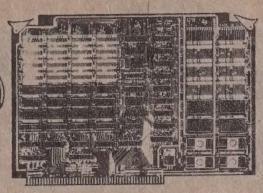
AVALANCHE PHOTODETECTOR MODULES

Type	Avalanche Gain (TYP)	Bandwidth MHz	Noise Equivalent Power pW/√Hz	Diameter of Active Area mils	Features
TIED90	200	20	0.12	10	Optimized to high-speed
TIED91	100	20	0.27	30	detection of visible light
TIED92	200	50	0.15	10	Low power consumption (0.63μm)
TIED93	100	50	0.34	30	
TIED94	200	20	0.15	10	Optimized for high-speed
TIED95	100	20	0.29	30	detection of near-infrared light
TIED96	200	50	0.20	10	Low power consumption (0.9μm)
TIED97	100	50	0.43	30	
TIED452	125	40	0.5	30	Direct self-aligning adapter for fiber optics

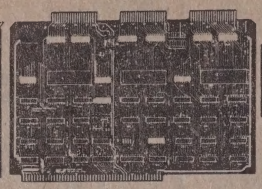
MICRO COMPUTER MODULES



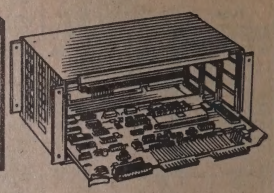
TM990/100M with TM990/301 microterminal



TM990/201



TM990/310



TM990/510

TM 990 microcomputer modules are a series of **TMS 9900** family microcomputers, assembled on a single printed circuit board. The **TMS 9900** 16-bit NMOS microprocessor and the **TMS 9980,** a software compatible 8-bit data bus microprocessor are the initial board systems. The entire 990/9900 family line fits into that level of hardware/software integration between the **TMS 9900** family component level application and the pre-packaged system nature of the 990/4 and 990/10 minicomputers. Instruction set enables engineer to base hardware decisions solely on considerations of time, design effort, and cost goals. The modules are supported by **AMPL** prototyping system which has capabilities for program development and debug as well as for a final systems test unit. The bus structure of the CPU module makes it possible to expand beyond the single board level. Memory, I/O and special purpose boards can be added for larger system applications. EIA or teletype terminals can be optionally selected by the user and a differential line driver can be added as a factory option. Software packages are delivered preprogrammed into EPROM units.

TM 990/100M is an assembled, tested microcomputer module utilizing the NMOS 16-bit, TMS9900 microprocessor as its CPU. Features 256 words of 4042-2 (2111-1) Static RAM, expandable to 512 words; 1K words of 2708 EPROM, expandable to 4K words; TMS9901 interface; TMS 9902 asynchronous communications controller; TIBUG operating monitor; and is software compatible. It also has a fully expandable bus structure.

TM 990/180M is an assembled, tested microcomputer module utilizing the NMOS 16-bit TMS 9980 microprocessor as its CPU. Features 512 bytes of 4042-2 (2111-1) Static RAM, expandable to 1 K bytes; 2K bytes of 2708 EPROM, expandable to 4K bytes; TMS 9901 programmable system interface; TMS 9902 asynchonous communications controller; and is software compatible.

TM 990/201 is an assembled, tested, memory expansion board designed for use with TMS 9900 based microcomputer modules. Contains 2K words of 4045 static RAM expandable to 8K words, and 4K words TMS 2716 EPROM expandable to 16K words. It has a TTL-compatible interface and is designed to fit the TM990/510 chassis.

TM 990/510 is an OEM chassis with four slots on 1 inch centers. Backpanel contains address bus, data bus, interrupt and control lines to permit memory, I/O and DMA expansion of CPU modules. A 10-terminal barrier strip is mounted on backpanel to permit connection of the following signals as the system requires: Reset, Restart, ±5V, ±12V, ±15V, GND, Power Down Interrupt. Outside dimensions of OEM chassis are: 5 inches high x 12.5 inches wide x 8 inches deep.

TM 990/206 is an assembled, tested, RAM expansion memory board designed for use with TMS 9900-based microcomputer modules. Contains static RAM memory devices up to a maximum configuration of 8K x 16 words. Is bus compatible with the TM 990/100M microcomputer module.

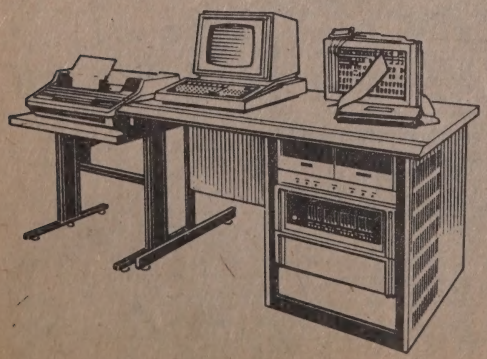
TM 990/310 is a fully assembled, fully tested, input/output expansion module compatible with all TM 990 family microcomputer modules. Offers a maximum I/O expansion capability of 48 I/O points, programmable as either inputs or outputs. Inputs/Outputs are TTL compatible, may be used w/ solder, wire wrap, or ribbon cable edge connectors.

TM 990/301 is a micro terminal designed to interface with the TM 990 series of microcomputer modules. The communications link is via EIA type cable and the serial terminal interface. Features include: a Hexadecimal pushbutton keyboard, 4 digit hexadecimal display of address and data, Register, memory, or CRU Display and entry keys, Execution, single instruction and conversion keys.

TM 990/511 is a connector bus compatible extender board. Extender board has a printed circuit tab and a connector with card guide at its edges.

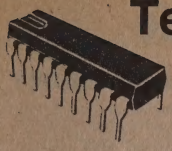
TM 990/512 is a universal prototyping card. Printed circuit board is designed to accommodate 0.3, 0.4, 0.6, and 0.9 inch wide, dual in line. IC packages or their equivalent solder tail or wire wrap sockets. TM 990/512 has GND and 5V planes, two power strips for +12V, plus two power strips for user-selectable voltage option.

AMPL PROTOTYPING SYSTEM

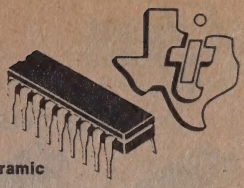


AMPL is a microprocessor prototyping lab for development and design support system based on the FS 990/4. The FS 990 system includes Model 911 Video Display Terminal, dual floppy disc, and TX 990/TXDS system software license, all packaged in a self-contained single-bay desk. The Model 810 Printer option for the FS 990 system provides user with a fast throughput for software listings, trace data, and other hard copy output requirements. 9900 Software Development features available provide an integrated, easy-to-use, basic interactive program. Includes a source editor, two pass assembler, and a link editor. PROM programming module offers user capability to implement his target system in PROM or EPROM. In-Circuit Emulation Support feature includes TMS 9900 emulator, buffer, and TMS 9900 target connector. All functions of the proposed target system can be simulated except input/output. Logic State Trace feature can be interconnected to the 9900 emulaor, and trace qualifying conditions used to stop/start emulation and trace cycles. Features interactive on-line control and analysis to provide fast data reduction and programmable emulation control based on results of this analysis. AMPL, An Interactive Control Language unifies the TMS9900 emulation and the logic state function provided by a higher level language executing within the FS990 system into a user-oriented system. AMPL software has designed-in features to simplify orientation for the new user, yet provide much flexibility and support for the experienced user.

Texas Instruments Selection Guide



Plastic



Ceramic

MICROPROCESSOR AND MEMORY CHIPS

9900 MICROPROCESSOR FAMILY

TI Type	Description	Tech-nology	Power Supply	Package Type	Package Pins
TMS9900	16-bit micro-processor	NMOS	±5, +12	CDIP	64
SBP9900	16-bit micro-processor	I^2L	I Source	CDIP	64
TMS9900	16-bit micro-processor with 8-bit data bus	NMOS	±5, +12	CDIP, Plas.	40
TMS9901	Programmable systems interface	NMOS	+5	CDIP, Plas.	40
TMS9902	Asynchronous communications controller	NMOS	+5	CDIP, Plas.	18
TMS9903	Synchronous communications controller	NMOS	+5	CDIP, Plas.	20
TIM9904/ SN74LS251	4-phase clock driver	LS-TTL	+5	CDIP, Plas.	20
TIM9906/ SN74LS289	8-bit latch	LS-TTL	+5	CDIP, Plas.	16
TIM9907/ SN74148	8-to-3 priority encoder	TTL	+5	CDIP, Plas.	16

NEWARK can supply all of your electronic needs. If an item is not listed, or you just need more information, call or write your nearest NEWARK distributor.

8080 MICROPROCESSOR FAMILY

TI Type	Description	Tech-nology	Power Supply	Package Type	Package Pins
TMS8080A	8-bit central processor unit	NMOS	±5, ±12	CDIP, Plas.	40
TMS5501	Multifunction controller	NMOS	±5, +12	CDIP, Plas.	40
TIM8212/ SN74S412	Multi-mode buffered latches	TTL	+5	CDIP, Plas.	24
TIM8224/ SN74LS424	Clock driver	LS-TTL	+5	CDIP, Plas.	16
TIM8228/ SN74S428	System controller	S-TTL	+5	CDIP, Plas.	28
TIM8238/ SN74S438	Controller and bus driver	S-TTL	+5	CDIP, Plas.	28

1080 MICROPROCESSOR FAMILY

TMS1018	Number cruncher —BCD I/O	PMOS	+15	Plas.	28
TMS1976	Capacitive touch interface chip	PMOS	+15	Plas.	16
TMS1098	Prototyping device for TMS1100	PMOS	+15	CDIP	64
TMS1099	Prototyping device for TMS1000	PMOS	+15	CDIP	64
TMS1117	Microwave oven controller	PMOS	+15	CDIP	28

MOS MEMORIES

RANDOM-ACCESS MEMORIES

TI Type	Circuits Function
TMS4030JL TMS4030JR TMS4030NL TMS4030-1JL TMD4030-1NL TMD4030-2JL TMS4030-2NL	4096 x 1 dynamic RAM
TMS4033JL TMS4033NL TMS4034JL TMS4034NL TMS4035JL TMS4035NL	1024 x 1 static RAM
TMS4036NL TMS4036-1NL TMS4036-2NL	64 8 static RAM
TMS4039JL TMS4039NL TMS4039-1JL TMS4039-1NL TMS4039-2JL TMS4039-2NL TMS4042JL TMS4042NL TMS4042-1JL TMS4042-1NL TMS4042-2JL TMS4042-2NL TMS4043JL TMS4043NL TMS4043-1JL TMS4043-1NL TMS4043-2JL TMS4043-2NL	256 x 4 static RAM
TMS4044-15JL TMS4044-15NL TMS4044-20JL TMS4044-20NL TMS4044-30JL TMS4044-30NL TMS4044-45JL TMS4044-45NL	4096 x 1 static RAM

TI Type	Circuits Function
TMS4045-15JL TMS4045-15NL TMS4045-20JL TMS4045-20NL TMS4045-30JL TMS4045-30NL TMS4045-45JL TMS4045-45NL	1024 x 4 static RAM
TMS4046-15JL TMS4046-15NL TMS4046-20JL TMS4046-20NL TMS4046-30JL TMS4046-30NL TMS4046-45JL TMS4046-45NL	4096 x 1 static RAM
TMS4047-15JL TMS4047-15NL TMS4047-20J TMS4047-20NL TMS4047-30JL TMS4047-30NL TMS4047-45JL TMS4047-45NL	1024 x 4 static RAM
TMS4050JL TMS4050JR TMS4050NL TMS4050-1JL TMS4050-1NL TMS4050-2JL TMS4050-2NL TMS4051JL TMS4051NL TMS4051-1JL TMS4051-1NL TMS4060JL TMS4060JR TMS4060NL TMS4060-1JL TMS4060-1NL TMS4060-2JL TMS4060-2NL	4096 x 1 dynamic RAM
TMS4062JL TMS4062NL TMS4063JL TMS4063NL	1024 x 1 dynamic RAM
TMS4071JL	16,384 x 1 dynamic RAM

ROM'S AND EPROM'S

TI Type	Circuits Function
TMS2708JL	1024 x 8 EPROM
TMS27L08JL	1024 x 8 EPROM
TMS2501JC TMS2501NC	64 x 5 x 7 static USACH
TMS2532JL	4096 x 8 EPROM
TMS2516JL	2048 x 8 EPROM
TMS2716JL	2048 x 8 EPROM
TMS4103JC TMS4103NC	64 x 5 x 7 static USACH II
TMS4700NC	1024 x 8 ROM
TMS4710NC TMS4710NL	128 x 5 x 7 dynamic USACII

SHIFT REGISTERS

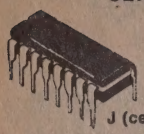
TMS3112JC TMS3112NC	Hex 32-bit static
TMS3113JC TMS3113NC	Dual 133-bit static
TMS3114JC TMS3114NC	Dual 128-bit static
TMS3120JC TMS3120NC	Quad 80-bit static
TMS3121JC TMS3121NC	Quad 64-bit static
TMS3126NC	Dual 96-bit static
TMS3127NC	Dual 100-bit static
TMS3128NC	Dual 128-bit static
TMS3129NC	Dual 132-bit static
TMS3130NC	Dual 133-bit static
TMS3132NC	Dual 144-bit static
TMS3409JC TMS3409NC	Quad 8-bit dynamic
TMS3417JC TMS3417NC	Quad 64-bit dynamic

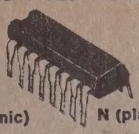
COMMUNICATIONS DEVICES

TMS4024JC	9 x 64 bit dynamic FIFO memory
TMS6011JC TMS6011NC	Asynchronous data interface (UART)

Texas Instruments Selection Guide

SERIES 74LS LOW POWER SCHOTTKY-CLAMPED DIGITAL TTL LOGIC AND MEMORY


J (ceramic)


N (plastic)

Industrial temperature range devices (0 C to +70 C). Add suffix J for ceramic package for N for Plastic package, to part number. Also available in SN54LS-J, SN54LS-W and SN54LS-N

3

TYPE	CIRCUITS FUNCTION
SN74LS00	Quad 2-input NAND Gate
SN74LS01	Quad 2-input NAND Gate with OC outputs
SN74LS02	Quad 2-input NOR Gate
SN74LS03	Quad 2-input NAND Gate with OC outputs
SN74LS04	Hex inverter
SN74LS05	Hex inverter w/OC outputs
SN74LS08	Quad 2-input AND Gate
SN74LS09	Quad 2-input AND Gate w/OC outputs
SN74LS10	Triple 3-input NAND Gate
SN74LS11	Triple 3-input AND Gate
SN74LS12	Triple 3-input NAND Gate with OC outputs
SN74LS13	Dual NAND Schmitt trigger
SN74LS14	Hex Schmitt trigger
SN74LS15	Triple 3-input AND Gate with OC outputs
SN74LS20	Dual 4-input NAND Gate
SN74LS21	Dual 4-input AND Gate
SN74LS22	Dual 4-input NAND Gate w/OC outputs
SN74LS26	Quad 2-input NAND (high volt)
SN74LS27	Triple 3-input NOR Gate
SN74LS28	Quad 2-input NOR buffer
SN74LS30	8-input NAND Gate
SN74LS32	Quad 2-input OR Gate
SN74LS33	Quad 2-input NOR Gate w/OC outputs
SN74LS37	Quad 2-input NAND buffer
SN74LS38	Quad 2-input NAND buffer w/OC outputs
SN74LS40	Dual 4-input NAND buffer
SN74LS42	1-of-10 decoder
SN74LS47	BCD-to-seven segment decoder /driver w/OC outputs
SN74LS48	BCD-to-seven segment decoder /driver
SN74LS49	BCD-to-seven segment decoder /driver w/OC outputs
SN74LS51	Dual AND-OR-Invert Gate
SN74LS54	2-3-3-2 input AND-OR-Invert
SN74LS55	2-wide 4-input AND-OR-Invert
SN74LS63	Hex current-sensing Gates
SN74LS73	Dual J-K flip-flop
SN74LS74A	Dual D flip-flop
SN74LS75	4-bit bi-stable latch
SN74LS76	Dual J-K flip-flop
SN74LS78	Dual J-K flip-flop
SN74LS83A	4-bit full adder
SN74LS85	4-bit magnitude comparator
SN74LS86	Quad EXCLUSIVE-OR Gates
SN74LS90	Decade counter
SN74LS91	8-bit shift register
SN74LS92	Divide-by-twelve counter
SN74LS93	4-bit binary counter
SN74LS95B	4-bit shift register
SN74LS96	5-bit shift register
SN74LS107	Dual J-K flip-flop
SN74LS109A	Dual J-K edge-triggered F/F
SN74LS112	Dual J-K edge triggered F/F
SN74LS113	Dual J-K edge-triggered F/F
SN74LS114	Dual J-K edge-triggered F/F
SN74LS122	Retriggerable monostable multivibrator
SN74LS123	Dual retriggerable mono-stable multivibrator
SN74LS124	Dual voltage controlled oscillator
SN74LS125A	Quad 3-state buffer, low enable
SN74LS126A	Quad 3-state buffer, high enable
SN74LS132	Quad 2-input Schmitt trigger
SN74LS136	Quad EXCLUSIVE-OR w/OC Outputs
SN74LS138	1-of-8 decoder/demultiplexer
SN74LS139	Dual 1-of-4-decoder/ demultiplexer
SN74LS145	BCD-to-decimal decoder/ driver

TYPE	CIRCUITS FUNCTION
SN74LS147	10-line-to-1-line encoder
SN74LS148	8-line-to-3-line encoder
SN74LS151	8-input multiplexer
SN74LS152	8-input multiplexer
SN74LS153	Dual 4-input multiplexer
SN74LS155	Dual 1-of-4 decoder
SN74LS156	Dual 1-of-4 decoder with OC outputs
SN74LS157	Quad 2-input multiplexer (non-inverting)
SN74LS158	Quad 2-input multiplexer (inverting)
SN74LS160A	BCD decade counter w/ a sychronous reset
SN74LS161A	4-bit binary counter with a sychronous reset
SN74LS162A	BCD decade counter with synchronous reset
SN74LS163A	4-bit binary counter with sychronous reset
SN74LS164	8-bit serial-in/parallel-out shift register
SN74LS165	8-bit parallel-in, serial-out shift register
SN74LS166	8-bit parallel-in/serial-out shift register
SN74LS170	4-bit-by-4-bit register file with OC outputs
SN74LS173	Quad D Type register 3-state
SN74LS174	Hex D type flip-flop w/clear
SN74LS175	Quad D type flip-flop w/clear
SN74LS181	4-bit arithmetic logic unit
SN74LS183	Dual carry-save adder
SN74LS190	Decade up/down counter
SN74LS191	Binary up/down counter
SN74LS192	Decade up/down counter
SN74LS193	Binary up/down counter
SN74LS194A	4-bit right-shift /left shift register
SN74LS195A	4-bit shift register
SN74LS196	Decade Counter
SN74LS197	4-bit binary counter
SN74LS200A	256-bit RAM, 3-S output 256 one-bit words
SN74LS202	256-bit RAM, 3-S output 256 one-bit words
SN74LS207	1024-bit RAM, common I/O, 3-S output, 256 four-bit words
SN74LS208	1024-bit RAM separate I/O, 3-S output, 256 four-bit words
SN74LS214JD	1024-bit RAM, 3-S output
SN74LS214	1024 one-bit words
SN74LS215JD	1024-bit power down RAM, 3-S
SN74LS215	output, 1024 one-bit words
SN74LS221	Dual Schmitt trigger monostable multivibrator
SN74LS240	Octal inverting driver 3-state
SN74LS241	Octal non-inverting driver 3-state
SN74LS242	Quad inverting bus transceiver
SN74LS243	Quad non-inverting bus transceiver
SN74LS244	Octal non-inverting driver 3-state
SN74LS245	Octal non-inverting bus transceiver
SN74LS247	BCD-to-seven segment decoder/ driver w/OC output
SN74LS248	BCD-to-seven segment decoder/ driver
SN74LS249	BCD-to-seven segment decoder/ driver w/OC output
SN74LS251	8-input multiplexer, 3-state
SN74LS253	Dual 4-input multiplexer 3-S
SN74LS257	Quad 2-input multiplexer 3-S
SN74LS258A	Quad 2-input multiplex 3-S
SN74LS259	8-bit addressable latch
SN74LS261	2-bit-by-4-bit parallel binary multiplier

TYPE	CIRCUITS FUNCTION
SN74LS266	Quad EXCLUSIVE-OR w/OC output
SN74LS273	Octal D type flip-flop w/clear
SN74LS275	7-bit-slice Wallace tree
SN74LS279	Quad set-reset latch
SN74LS280	9-bit odd/even parity generator checker
SN74LS283	4-bit full adder
SN74LS290	Decade counter
SN74LS291	Parallel bidirectional S-R counter
SN74LS293	4-bit binary counter
SN74LS295B	4-bit shift register, 3-state
SN74LS298	Quad 2-input multiplexer with output latches
SN74LS299	8-bit univ. parallel-in parallel-out shift register
SN74LS300A	256-bit RAM, OC output, 256 one-bit words
SN74LS302	256-bit RAM, OC output, 256 one-bit words
SN74LS314JD	1024-bit RAM, OC output
SN74LS314	1024 one-bit words
SN74LS315JD	1024-bit power down RAM, OC output, 1024 one-bit words
SN74LS322	8-bit S/P register
SN74LS323	8-bit shift/storage register
SN74LS324	Voltage controlled oscillator
SN74LS325	Dual voltage controlled oscillator
SN74LS326	Dual voltage controlled oscillator
SN74LS327	Dual voltage controlled oscillator
SN74LS347	SN74LS46 except 7 V output
SN74LS348	SN74LS148 except w/tri-state output
SN74LS352	Dual 4-to-1 data selector/multi-plexer
SN74LS353	Dual 4-to-1 data selector 3-state
SN74LS362	4-phase clock driver
SN74LS363	Octal transparent latch
SN74LS364	Octal D type flip-flop 3-state
SN74LS365A	Hex buffer with common enable 3-state
SN74LS366A	Hex inverter with common enable, 3-state
SN74LS367A	4-bit-by-2-bit hex buffer 3-S
SN74LS368A	4-bit-by-2-bit hex buffer 3-S
SN74LS373	SN74LS363 except low voltage output
SN74LS374	SN74LS364 except low voltage output
SN74LS375	4-bit bistable latch
SN74LS377	Octal D type flip-flop with enable
SN74LS378	Hex D type flip-flop with enable
SN74LS379	Quad D type flip-flop with enable
SN74LS384	8-bit multiplier
SN74LS386	Quad 2-input EXCLUSIVE-OR gate
SN74LS388	4-bit register, 3-state
SN74LS390	Dual SN74LS90
SN74LS393	Dual SN74LS93
SN74LS395A	4-bit cascadable shift register 3-state
SN74LS396	Octal storage register
SN74LS398	Quad D type flip-flop w/latch
SN74LS399	Quad 2-input multiplexer with storage
SN74LS424	2-phase clock driver
SN74LS445	SN74LS145 with 7 V output
SN74LS447	SN74LS247 with 7 V output
SN74LS490	Dual SN74LS90
SN74LS668	4-bit decade counter with sychronous reset
SN74LS669	4-bit binary counter with sychronous reset
SN74LS670	4-bit-by-4-bit register file 3-state

PRODUCT SELECTION GUIDE

RCA

INDEX

		Page
I.	Microprocessors	67
II.	NPN Silicon Power Transistors	68, 69
III.	PNP Silicon Power Transistors	69
IV.	NPN Monolithic Darlington Transistors	69
V.	Triacs	
	A. Sensitive Gate	70
	B. General Purpose	70, 71
	C. 400 Hz	71
	D. Zero Voltage Switch	71, 72
VI.	SCR's	72
VII.	COS/MOS Integrated Circuits	74
VIII.	Linear Integrated Circuits	75, 76
IX.	Rectifiers	73

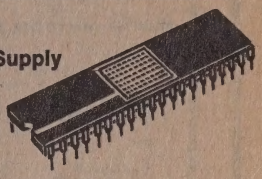
3

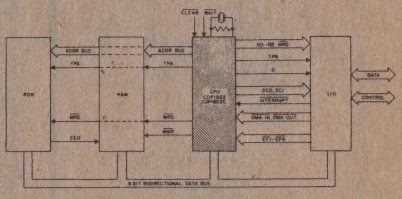
MICROPROCESSORS

RCA-CDP1802 is an LSI COS/MOS 8-bit register-oriented central-processing unit (CPU) designed for use as a general-purpose computing or control element in a wide range of stored-program systems or products. **CDP1802** includes all of the circuits required for fetching, interpreting, and executing instructions which have been stored in standard types of memories. Extensive input/output (I/O) control features are also provided to facilitate system design. **COSMAC** architecture is designed with emphasis on the total microcomputer system as an integral entity so that systems having maximum flexibility and minimum cost can be realized. **COSMAC** CPU also provides a synchronous interface to memories and external controllers for I/O devices, and minimizes the cost of interface controllers. Further, the I/O interface is capable of supporting devices operating in polled, interrupt-driven, or direct memory-access modes. **CDP1802D** and **CDP1802CD** are functionally identical. They differ in that **CDP1802D** has a recommended operating voltage rating of 4-12 volts, and **CDP1802CD,** a recommended operating voltage of 4-6 volts. These types are supplied in 40-lead dual-in-line ceramic packages (D suffix).

- Full military-temperature range (−55 to +125°C)
- Memory addressing up to 65,536 bytes
- Four I/O flag inputs directly tested by branch instructions

- **Single Voltage Supply**
- **Low power**
- **TTL compatible**
- **On-chip DMA**





INPUT/OUTPUT SUPPORT

- 4 CPU-tested flag inputs (EF) for slowly varying binary inputs or for I/O-to-CPU signalling
- Interrupt request; maskable for flexibility
- 2 state-code output lines to tell I/O devices what the CPU is doing

CDP1852 I/O port
CDP1853 N-Bit Decoder
CDP1854 UART (Universal Asynchronous Receiver/Transmitter)
CDP1856 4-Bit Bus Buffer/Separator (Memory)
CDP1857 4-Bit Bus Buffer/Separator (I/O)
CDP1858 Memory-Address Latch with 1 of 4 Decoders
CDP1859 Memory-Address Latch with Dual 1 of 4 Decoders

MANUALS

MPM-109 COSMAC Microtutor Manual
MPM-201A User Manual for the CDP1802 COSMAC Microprocessor
MPM-202 Timesharing Manual for the CDP1802 COSMAC Microprocessor
MPM-204 Installation Manual for the RCA COSMAC Software Development Package
MPM-206 Binary Arithmetic Subroutines for RCA COSMAC Microprocessors
MPM-208 Operation Manual for the RCA COSMAC Development System
MPM-211 Instruction Manual for the COSMAC Floppy Disk System
MPM-212 Instruction Manual for the RCA COSMAC Microterminal

MEMORY SUPPORT CIRCUITS

- Low power consumption
- All fully static parts
- Single power supply
- Direct interfacing with 1800-series microprocessor systems
- 3-state outputs
- TTL drive capability
- Small MOQ on custom ROM patterns
- Industry standard pin-outs
- Different parts designed for small, medium or large memory systems

ROMs

CDP1831 .....512 X 8
CDP1832 .....512 X 8
CDP1833 .....1024 X 8
CDP1834 .....1024 X 8

RAMs

CDP1821S .....1024 X 1
CDP1822S .....256 X 1
CDP1823S .....128 X 8
CDP1824 .....32 X 8

SOFTWARE

COSMAC Software Development Package (CSDP)

- Cross-assembler, simulator, editor, debugger
- One-pass assembler with Level I and Level II assembly language power
- Versatile, powerful, and easy-to-use
- Interactive simulator/debugger acts as a "software oscilloscope" for multiple debug features
- Directly downloads programs into COSMAC Development System

CDP18S910 Magnetic Tape 32-bit version
CDP18S911 Card Deck
CDP18S912 Magnetic Tape 16-bit version
CDP18S913 Card Deck HP-2100
CDP18S914 Magnetic Tape 16-bit version
CDP18S915 Card Deck (PDP-11)

P.C. CARDS

CDP18S200 1K RAM Card†
CDP18S201 4K RAM Card†
CDP18S202 Memory Bank Select Card†
CDP18S400 512-Byte PROM Card†
CDP18S500 Monitor Card†
CDP18S501 Byte I/O Card†
CDP18S502 Extender Card†
CDP18S504 Terminal Interface Card†
CDP18S801 Floppy Disk Drive**
CDP18S811 CDS-Floppy Interface Card**
CDP18S812 Disk Util. and Mon. Prgm. (ROM)**
CDP18S821 Disk Software Programs (disk)**
CDP18S829 Blank Diskette**

(†) Included with CDS
(**) Includes complete CDS Interface

HARDWARE

- Full spectrum of design aids: software, hardware, support, and literature
- Low cost systems for complete system design and debugging functions
- Hardware and software application support at your fingertips
- Offers "graduated steps" to microprocessor design
- Complete series of necessary literature and application notes

CDP18S011 Microtutor
CDP18S004 COSMAC Development System
CDP18S800 Floppy Disk System
CDP18S020 COSMAC Evaluation Kit
CDP18S021 Microterminal
CDP18S826 Fixed Point Arithmetic Package
CDP18S91X CSDP

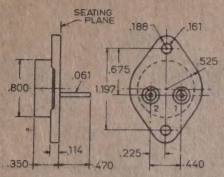
BINARY ARITHMETIC SUBROUTINE FIXED-POINT PACKAGE

- Consists of 31 routines including register save and mathematical companion operations
- 16-bit 2's complement arithmetic subroutines
- Features double precision capability for the basic functions of (+), (−), (×), (÷)
- BCD-binary conversion
- All functions executed in .05ms to 32ms at 6-MHz clock rate
- Available on diskette or tape

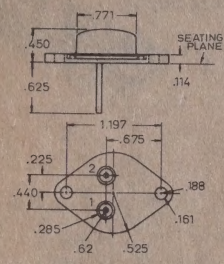
CDP18S826 Diskette
CDP18S826V1 Paper Tape
CDP18S826V2 Cassette Tape

3

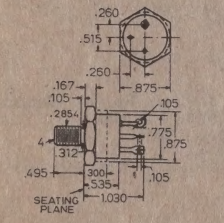
TO-3



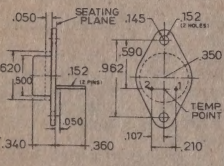
MODIFIED TO-3 (2N6032, 2N6033)



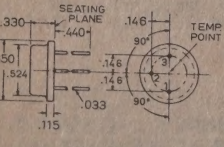
TO-63



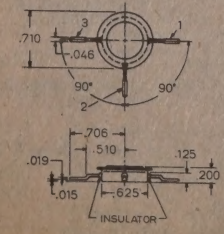
TO-66



TO-8



RADIAL PACKAGE



N-P-N SILICON POWER TRANSISTORS

Type No.	VCEO (sus) V	Current Gain hFE	IC A	VCE V	PT (Max.) W	IC A	fT MHz	Sw. Times▲ tON μs	tf μs	Package	p-n-p Complement
IC (Max.) = 0.15 to 1 A, fT = 3 to 25 MHz											
40346	175	25 min.	0.010	10	10	1	15	—	—	TO-39	—
41505	200	20 min.	0.050	10	20	1	21	—	—	Plastic TO-5	—
2N3440	250	40-160	0.020	10	10	1	15	—	—	TO-39	2N5415
40412	250*	40 min.	0.030	20	10	1	15	—	—	TO-39	—
40321	300*	25-200	0.020	10	5	1	15	—	—	TO-39	—
2N3439	350	40-160	0.020	10	10	1	15	—	—	TO-39	2N5416
IC (Max.) = 1.5 to 2A, fT = 0.2 to 1.5 MHz											
2N1479	40	20-60	0.200	4	5	1.5	1.4	1.2	1	TO-39#	—
2N1481	40	35-100	0.200	4	5	1.5	1.4	1.2	1	TO-39#	—
40347	40	20-150	0.450	4	8.75	1.5	1.5	—	—	TO-39#	—
2N1480	55	20-60	0.200	4	5	1.5	1.4	1.2	1	TO-39#	—
2N1482	55	35-100	0.200	4	5	1.5	1.4	1.2	1	TO-39#	—
40348	65	10 min.	1	4	8.75	1.5	1.5	—	—	TO-39#	—
40349	140	10 min.	0.450	4	8.75	1.5	0.9	—	—	TO-39#	—
IC (Max.) = 2.5 to 5 A, fT = 0.2 to 1 MHz											
41504	35*	25 min.	1	4	36	4	0.8	—	—	TO-220AB	—
2N1483	40	20-60	0.750	4	25	3	0.8	1.2	1.1	TO-8	—
2N1485	40	35-100	0.750	4	25	3	0.8	1.2	1.1	TO-8	—
2N5786	40	20-100	1.6	2	10	3.5	1	5	15★	TO-39#	2N5783
2N5295	40	30-120	1	4	36	4	0.8	5	15★	TO-220AA	2N6108
2N5296	40	30-120	1	4	36	4	0.8	5	15★	TO-220AB	2N6109
2N6260	40	3 min.	4	2	29	3	0.8	—	—	TO-66	—
40250	40	25 min.	1.5	4	29	4	1	—	—	TO-66	2N5956
RCA29/SDH	40	15 min.	1	4	36	4	0.8	2.3	6★	TO-220AB	—
RCA31/SDH	40	25 min.	1	4	36	4	0.8	2.3	6★	TO-220AB	—
2N5785	50	20-100	1.2	2	10	3.5	1	5	15★	TO-39#	2N5782
2N1484	55	20-80	0.750	4	25	3	0.8	1.2	1.1	TO-8	—
2N1486	55	35-100	0.750	4	25	3	0.8	1.2	1.1	TO-8	—
2N3054	55	5 min.	3	4	25	4	0.8	—	—	TO-66	2N5955
RCA3054	55	5 min.	3	4	36	4	0.8	—	—	TO-220AB	—
2N5297	60	20-80	1.5	4	36	4	0.8	5	15★	TO-220AA	2N6106
2N5298	60	20-80	1.5	4	36	4	0.8	5	15★	TO-220AB	2N6107
RCA29A/SDH	60	15 min.	1	4	36	4	0.8	2.3	6★	TO-220AB	—
RCA31A/SDH	60	25 min.	1	4	36	4	0.8	2.3	6★	TO-220AB	—
2N5784	65	20-100	1	2	10	3.5	1	5	15★	TO-39#	2N5781
2N5293	70	30-120	0.5	4	36	4	0.8	5	15★	TO-220AA	2N6106
2N5294	70	30-120	0.5	4	36	4	0.8	5	15★	TO-220AB	2N6107
2N6261	80	5 min.	4	2	50	4	0.8	—	—	TO-66	—
RCA29B/SDH	80	15 min.	4	4	36	4	0.8	2.3	6★	TO-220AB	—
RCA31B/SDH	80	25 min.	4	4	36	4	0.8	2.3	6★	TO-220AB	—
IC (Max.) = 2.5 to 5 A, fT = 0.2 to 1 MHz											
RCA29C/SDH	100	15 min.	1	4	50	2.5	0.8	2.3	6★	TO-220AB	—
RCA31C/SDH	100	25 min.	1	4	50	2.5	0.8	2.3	6★	TO-220AB	—
2N6477	120	5 min.	2.5	4	50	2.5	0.2	—	—	TO-220AB	—
2N6263	120	3 min.	3	2	20	3	0.2	—	—	TO-66	2N6468
RCA6263	120	20-150	0.5	4	36	3	0.2	—	—	TO-220AB	—
2N4347	120	10 min.	5	4	100	5	0.2	—	—	TO-3	2N6248
2N6478	140	5 min.	2.5	4	50	2.5	0.2	—	—	TO-220AB	—
2N3441	140	5 min.	2.7	4	25	3	0.2	—	—	TO-66	2N6468
RCA3441	140	20-150	0.5	4	36	3	0.2	—	—	TO-220AB	—
2N6264	150	5 min.	3	2	50	3	0.2	—	—	TO-66	—
IC = 6 to 10 A, fT = 0.2 to 1 MHz											
2N1487	40	15-45	1.5	4	75	6	0.8	—	—	TO-3	—
2N1489	40	25-75	1.5	4	75	6	0.8	—	—	TO-3	—
2N5490	40	20-100	2	4	50	7	0.8	5	15★	TO-220AB	2N6109
2N5491	40	20-100	2	4	50	7	0.8	5	15★	TO-220AA	2N6108
2N5494	40	20-100	3	4	50	7	0.8	5	15★	TO-220AB	2N6109
2N5495	40	20-100	3	4	50	7	0.8	5	15★	TO-220AA	2N6108
2N1488	55	15-45	1.5	4	75	6	0.8	—	—	TO-3	—
2N1490	55	25-75	1.5	4	75	6	0.8	—	—	TO-3	—
2N5492	55	20-100	2.5	4	50	7	0.8	5	15★	TO-220AB	2N6107
2N5493	55	20-100	2.5	4	50	7	0.8	5	15★	TO-220AA	2N6106
2N6098	60	5 min.	10	4	75	10	0.8	—	—	TO-220AA	—
2N6099	60	5 min.	10	4	75	10	0.8	—	—	TO-220AB	—
RCA41A/SDH	60	15 min.	3	4	75	10	0.8	3.2●	3.7★●	TO-220AB	—
2N5496	70	20-100	3.5	4	50	7	0.8	5	15★	TO-220AB	2N6107
2N5497	70	20-100	3.5	4	50	7	0.8	5	15★	TO-220AA	2N6106
2N6100	70	20-80	5	4	75	10	0.8	—	—	TO-220AA	—
2N6101	70	20-80	5	4	75	10	0.8	—	—	TO-220AB	—
RCA41B/SDH	80	15 min.	3	4	75	10	0.8	3.2●	3.7★●	TO-220AB	—
2N4348	120	10 min.	10	4	120	10	0.2	—	—	TO-3	2N6248
2N3442	140	7.5 min.	10	4	117	10	0.8	—	—	TO-3	—
2N6262	150	5 min.	10	2	150	10	0.8	—	—	TO-3	—
2N6078	250	12-70	1.2	1	45	7	1	0.32	0.3	TO-66	—
2N6077	275	12-70	1.2	1	45	7	1	0.32	0.3	TO-66	—
2N6079	350	12-50	1.2	1	45	7	1	0.32	0.3	TO-66	—
40851	350	12 min.	1.2	1	45	7	1	—	—	TO-66	—

▲Measured at same current level as hFE unless otherwise indicated. ★tOFF.
#Also available in JEDEC TO-5 package. *VCER (sus).

Product Selection Guide

RCA

N-P-N SILICON POWER TRANSISTORS (Cont.)

Type No.	VCEO (sus) V	Current Gain hFE	IC A	VCE V	PT (Max.) W	IC (Max.) A	fT MHz	Sw. Times▲ tON μs	tf μs	Package	p-n-p Complement
IC = 6 to 10 A, fT = 50 to 100 MHz											
2N3879	75	12-100	4	2	35	7	60	0.44	0.4	TO-66	—
2N6354	120	2 min.	10	2	140	10	80	1@	0.2	TO-3	—
IC = 12 to 20 A, fT = 0.2 to 1 MHz											
2N6102	40	5 min.	16	4	75	16	0.8	—	—	TO-220AA	—
2N6103	40	5 min.	16	4	75	16	0.8	—	—	TO-220AB	—
2N6257	40	5 min.	20	4	150	20	0.2	—	—	TO-3	—
2N6371	40	4 min.	16	4	117	16	0.8	—	—	TO-3	2N6469
RCA41/SDH	40	15 min.	3	4	75	16	0.8	3.23@	3.7★●	TO-220AB	—
2N6253	45	3 min.	15	4	115	15	0.8	—	—	TO-3	—
2N3055	60	5 min.	10	4	115	15	0.8	—	—	TO-3	2N6246
2N3772	60	5 min.	20	4	150	20	0.2	—	—	TO-3	2N6246
BD182	60	20-70	4	4	117	15	0.8	—	—	TO-3	—
RCA3055	60	5 min.	10	4	75	15	0.8	—	—	TO-220AB	—
RCS258	60	5 min.	20	4	250	20	0.2	—	—	TO-3	—
40363	70*	20-70	4	4	115	15	0.7	—	—	TO-3	—
2N6254	80	5 min.	15	4	150	15	0.8	—	—	TO-3	—
IC = 25 to 50 A, fT = 0.2 to 1 MHz											
2N3771	40	5 min.	30	4	150	30	0.2	—	—	TO-3	—
IC = 25 to 50 A, fT = 2.5 to 25 MHz											
2N3264	60	20-80	15	3	125	25	20	0.5	0.5	Radial	—
2N3266	60	20-80	15	3	125	25	20	0.5	0.5	TO-63	—
2N3263	90	25-75	15	3	125	25	20	0.5	0.5	Radial	—
2N3265	90	25-75	15	3	125	25	20	0.5	0.5	TO-63	—
IC = 25 to 50 A, fT = 50 to 100 MHz											
2N6032	90	10-50	50	2.6	140	50	50	1@	0.5	Mod. TO-3	—
2N5671	90	20-100	15	2	140	30	50	0.5	0.5	TO-3	—
2N6033	120	10-50	40	2	140	40	50	1@	0.5	Mod. TO-3	—
2N5672	120	20-100	15	2	140	30	50	0.5	0.5	TO-3	—
IC ≥ 60 A, fT = 0.4 MHz											
2N5575	50	10-40	60	4	300	80	0.4	15	15	Mod. TO-3	—
2N5578	70	10-40	40	3	300	60	0.4	15	15	Mod. TO-3	—

P-N-P SILICON POWER TRANSISTORS

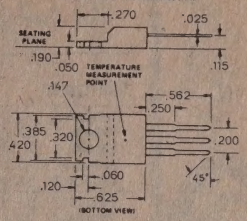
Type No.	VCEO (sus) V	Current Gain hFE	IC A	VCE V	PT (Max.) W	IC (Max.) A	fT MHz	Sw. Times▲ tON μs	tf μs	Package	n-p-n Complement
IC = −0.15 to −1A, fT = 50 to 100 MHz											
41503	−30	20 min.	−0.150	−10	7	−1	60	—	—	TO-39	41502
2N4037	−40	50-250	−0.150	−10	7	−1	60	—	—	TO-39	2N3053
2N4036	−65	40-140	−0.150	−10	7	−1	60	0.11	0.1	TO-39	2N2102
2N4314	−65	50-250	−0.150	−10	7	−1	60	—	—	TO-39	—
IC = −2.5 to −5 A, fT = 2.5 to 25 MHz											
2N5783	−40	4 min.	−3.2	−2	10	−3.5	8	0.5	2.5★	TO-39#	2N5786
RCA30	−40	15-150	−1	−4	30	−3	3	0.2	1★	TO-220AB	RCA29
RCA32	−40	25 min.	−1	−4	40	−5	3	0.2	1★	TO-220AB	RCA31
RCS30	−40	15-150	−1	−4	30	−3	3	0.2	1★	TO-66	RCS29
RCS32	−40	25 min.	−1	−4	40	−5	3	0.2	1★	TO-66	RCS31
TIP30	−40	15-150	−1	−4	30	−3	3	0.2	1	TO-220AB	TIP29
2N5782	−50	4 min.	−3.2	−4	10	−3.5	8	0.5	2.5★	TO-39#	2N5785
RCA30A	−60	15-150	−1	−4	30	−5	3	0.2	1★	TO-220AB	RCA29A
RCA32A	−60	25 min.	−1	−4	40	−5	3	0.2	1★	TO-220AB	RCA31A
RCS30A	−60	15-150	−1	−4	30	−3	3	0.2	1★	TO-66	RCS29A
RCS32A	−60	25 min.	−1	−4	40	−5	3	0.2	1★	TO-66	RCS31A
2N5781	−65	20-100	−1	−2	10	−3.5	8	0.5	2.5★	TO-39#	2N5784
RCA30B	−80	15-150	−1	−4	30	−3	3	0.2	1★	TO-220AB	RCA29B
RCA32B	−80	25 min.	−1	−4	40	−5	3	0.2	1★	TO-220AB	RCA31B
RCS30B	−80	15-150	−1	−4	30	−3	3	0.2	1★	TO-220AB	RCS29B
RCS32B	−80	25 min.	−1	−4	40	−5	3	0.2	1★	TO-66	RCS31B
2N6467	−100	5 min.	−4	−4	40	−4	5	—	—	TO-66	2N6465
2N6475	−100	2 min.	−2.5	−4	40	−4	10	—	—	TO-220AB	2N6473
IC = −2.5 to −5 A, fT = 2.5 to 25 MHz											
RCA30C	−100	15-150	−1	−4	30	−3	3	0.2	1★	TO-220AB	RCA29C
RCA32C	−100	25 min.	−1	−4	40	−5	3	0.2	1★	TO-220AB	RCA31C
RCS30C	−100	15-150	−1	−4	30	−3	3	0.2	1★	TO-66	RCS29C
RCS32C	−100	25 min.	−1	−4	40	−5	3	0.2	1★	TO-66	RCS31C
2N6468	−120	5 min.	−4	−4	40	−4	5	—	—	TO-66	2N6466
2N6476	−120	2 min.	−4	−2.5	40	−4	10	—	—	TO-220AB	2N6474

N-P-N MONOLITHIC DARLINGTON TRANSISTORS

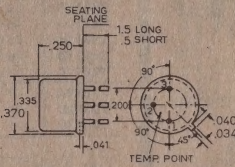
Type No.	VCEO (sus) V	hFE	IC A	VCE V	PT (Max.) W	IC (Max.) A	fT MHz	tON μs	tf μs	Package	p-n-p Complement
IC = 8A											
TIP120	60	1000	3	3	65	8		—	—	TO-220AB	TIA12
TIP121	80	1000	3	3	65	8		—	—	TO-220AB	TIA12
IC(Max.) = 10 A											
2N6383	40	1000-20,000	5	3	100	10	20	—	—	TO-3	RCA8350
2N6386	40	1000-10,000	3	3	65	10	20	—	—	TO-220AB	RCA8203
2N6384	60	1000-20,000	5	3	100	10	20	—	—	TO-3	RCA8350A
2N6387	60	1000-20,000	5	3	65	10	20	—	—	TO-220AB	RCA8203A
2N6385	80	1000-20,000	5	3	100	10	20	—	—	TO-3	RCA8350B
2N6388	80	1000-20,000	5	3	65	10	20	—	—	TO-220AB	RCA8203B

▲Measured at same current level as hFE unless otherwise indicated.
●At IC = 6A @ tr ★tOFF.

TO-220AB VERSAWATT



TO-39/TO-5



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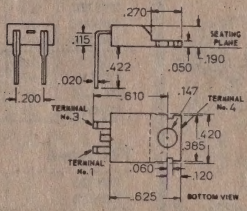
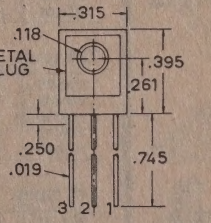
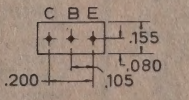
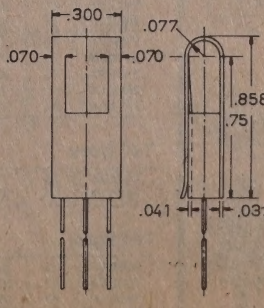


PLASTIC PACKAGES
PLASTIC TO-5 AND PLASTIC TO-5 WITH HEAT CLIP





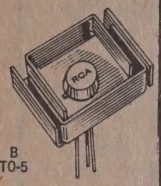


RCA

Product Selection Guide

SENSITIVE-GATE TRIACS

A
TO-5



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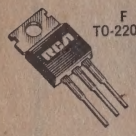

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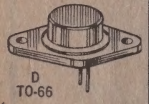
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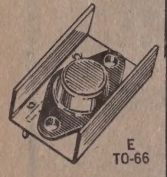

E
TO-66

G

H

J

G-1

RCA TYPE	Current IT (RMS) A	Current ITSM A	Current Temp. TC °C	Case	Voltage VDROM V	Temp. Range Operating °C	Max. Gate Trigger Current IGT-mA Modes I+	III−	I−	III+	Critical Rate of Rise of: Commutation Voltage dv/dt-V/μs Min.	Typ.	TC-°C	Off-State Voltage dv/dt-V/μs Min.	Typ.	TC-°C	Thermal Resistance RθJC °C/W
T23 types																	
T2300A	2.5	25	60	A	100	-40 to 90	3	3	3	3	0.5	—	90	3	5	90	8.5
T2300B	2.5	25	60	A	200	-40 to 90	3	3	3	3	0.5	—	90	3	5	90	8.5
T2300D	2.5	25	60	A	400	-40 to 90	3	3	3	3	0.5	—	90	3	5	90	8.5
T2301A	2.5	25	60	A	100	-40 to 90	4	4	4	4	0.5	—	90	3	5	90	8.5
T2301B	2.5	25	60	A	200	-40 to 90	4	4	4	4	0.5	—	90	3	5	90	8.5
T2301D	2.5	25	60	A	400	-40 to 90	4	4	4	4	0.5	—	90	3	5	90	8.5
T2302A	2.5	25	70	A	100	-40 to 100	10	10	10	10	0.5	—	100	6	10	100	8.5
T2302B	2.5	25	70	A	200	-40 to 100	10	10	10	10	0.5	—	100	6	10	100	8.5
T2302D	2.5	25	70	A	400	-40 to 100	10	10	10	10	0.5	—	100	6	10	100	8.5
T2310A	1.6	25	25•	B	100	-40 to 90	3	3	3	3	0.5	—	90	3	5	90	35▲
T2310B	1.6	25	25•	B	200	-40 to 90	3	3	3	3	0.5	—	90	3	5	90	35▲
T2310D	1.6	25	25•	B	400	-40 to 90	3	3	3	3	0.5	—	90	3	5	90	35▲
T2311A	1.6	25	25•	B	100	-40 to 90	4	4	4	4	0.5	—	90	3	5	90	35▲
T2311B	1.6	25	25•	B	200	-40 to 90	4	4	4	4	0.5	—	90	3	5	90	35▲
T2311D	1.6	25	25•	B	400	-40 to 90	4	4	4	4	0.5	—	90	3	5	90	35▲
T2312A	1.9	25	25•	B	100	-40 to 100	10	10	10	10	0.5	—	100	6	10	100	35▲
T2312B	1.9	25	25•	B	200	-40 to 100	10	10	10	10	0.5	—	100	6	10	100	35▲
T2312D	1.9	25	25•	B	400	-40 to 100	10	10	10	10	0.5	—	100	6	10	100	35▲

GENERAL-PURPOSE TRIACS

T23 types																	
2N5754	2.5	25	70	A	100	-65 to 100	25	25	40	40	0.5	—	70	10	100	100	8.5
2N5755	2.5	25	70	A	200	-65 to 100	25	25	40	40	0.5	—	70	10	100	100	8.5
2N5756	2.5	25	70	A	400	-65 to 100	25	25	40	40	0.5	—	70	10	100	100	8.5
2N5757	2.5	25	70	A	600	-65 to 100	25	25	40	40	0.5	—	70	10	100	100	8.5
T2313A	1.9	25	25•	B	100	-65 to 100	25	25	40	40	0.5	—	70	10	100	100	30▲
T2313B	1.9	25	25•	B	200	-65 to 100	25	25	40	40	0.5	—	70	10	100	100	30▲
T2313D	1.9	25	25•	B	400	-65 to 100	25	25	40	40	0.5	—	70	10	100	100	30▲
T2313M	1.9	25	25•	B	600	-65 to 100	25	25	40	40	0.5	—	70	10	100	100	30▲
T25 types																	
T2500B	6	60	80	F	200	-65 to 100	25	25	60	60	4	10	80	100	300	100	2.7
T2500D	6	60	80	F	400	-65 to 100	25	25	60	60	4	10	80	75	250	100	2.7
T27 types																	
T2700B	6	100	75	D	200	-65 to 100	25	25	40	40	3	10	75	30	150	100	4
T2700D	6	100	75	D	400	-65 to 100	25	25	40	40	3	10	75	20	100	100	4
T2710B	3.3	100	25•	E	200	-65 to 100	25	25	40	40	3	10	25•	30	150	100	24▲
T2710D	3.3	100	25•	E	400	-65 to 100	25	25	40	40	3	10	25•	20	100	100	24▲
T28 types																	
T2800B	8	100	80	F	200	-65 to 100	25	25	60	60	4	10	80	100	300	100	2.2
T2800C	8	100	80	F	300	-65 to 100	25	25	60	60	4	10	80	85	275	100	2.2
T2800D	8	100	80	F	400	-65 to 100	25	25	60	60	4	10	80	75	250	100	2.2
T2800E	8	100	80	F	500	-65 to 100	25	25	60	60	4	10	80	65	225	100	2.2
T2800M	8	100	80	F	600	-65 to 100	25	25	60	60	4	10	80	60	200	100	2.2
T41 types																	
2N5567	10	100	85	G	200	-65 to 100	25	25	40	40	2	5	85	30	150	100	1
2N5568	10	100	85	G	400	-65 to 100	25	25	40	40	2	5	85	20	100	100	1
T4101M	10	100	85	G	600	-65 to 100	25	25	40	40	2	5	85	10	75	100	1
2N5569	10	100	85	H	200	-65 to 100	25	25	40	40	2	5	85	30	150	100	1
2N5570	10	100	85	H	400	-65 to 100	25	25	40	40	2	5	85	20	100	100	1
T4111M	10	100	85	H	600	-65 to 100	25	25	40	40	2	5	85	10	75	100	1
T4121B	10	100	85	J	200	-65 to 100	25	25	40	40	2	5	85	30	150	100	1.1
T4121D	10	100	85	J	400	-65 to 100	25	25	40	40	2	5	85	20	100	100	1.1
T4121M	10	100	85	J	600	-65 to 100	25	25	40	40	2	5	85	10	75	100	1.1
2N5571	15	100	80	G	200	-65 to 100	50	50	80	80	2	10	80	30	150	100	1
2N5572	15	100	80	G	400	-65 to 100	50	50	80	80	2	10	80	20	100	100	1
T4100M	15	100	80	G	600	-65 to 100	50	50	80	80	2	10	80	10	75	100	1
2N5573	15	100	80	H	200	-65 to 100	50	50	80	80	2	10	80	30	150	100	1
2N5574	15	100	80	H	400	-65 to 100	50	50	80	80	2	10	80	20	100	100	1
T4110M	15	100	80	H	600	-65 to 100	50	50	80	80	2	10	80	10	75	10	1
T47 types																	
T4700B	15	100	70	D	200	-40 to 100	30	30	80	80	—	10	70	—	40	100	1.3
T4700D	15	100	70	D	400	-40 to 100	30	30	80	80	—	10	70	—	40	100	1.3
T64 types																	
T6401B	30	300	65	G-1	200	-65 to 100	50	50	80	80	3	20	65	40	200	100	0.8
T6401D	30	300	65	G-1	400	-65 to 100	50	50	80	80	3	20	65	25	150	100	0.8
T6401M	30	300	65	G-1	600	-65 to 100	50	50	80	80	3	20	65	20	100	100	0.8

• Ambient Temperature (T_A)

▲ Junction-to-Ambient ($R_{\theta JA}$)

Product Selection Guide

GENERAL PURPOSE TRIACS (Cont.)

RCA TYPE	Current IT (RMS) A	Current ITSM A	Temp. TC °C	Case	Voltage VDROM V	Temp. Range Operating °C	Max. Gate Trigger Current IGT-mA Modes I+	III−	I−	III+	Critical Rate of Rise of: Commutation Voltage dv/dt-V/μs Min.	Typ.	TC-°C	Off-State Voltage dv/dt-V/μs Min.	Typ.	TC-°C	Thermal Resistance RθJC °C/W
T64 types (cont.)																	
T6411B	30	300	60	H-1	200	-65 to 100	50	50	80	80	3	20	60	40	200	100	0.9
T6411D	30	300	60	H-1	400	-65 to 100	50	50	80	80	3	20	60	25	150	100	0.9
T6411M	30	300	60	H-1	600	-65 to 100	50	50	80	80	3	20	60	20	100	100	0.9
T6421B	30	300	55	J-1	200	-65 to 100	50	50	80	80	3	20	55	40	200	100	1
T6421D	30	300	55	J-1	400	-65 to 100	50	50	80	80	3	20	55	25	150	100	1
T6421M	30	300	55	J-1	600	-65 to 100	50	50	80	80	3	20	55	20	100	100	1
2N5441	40	300	70	G-1	200	-65 to 110	50	50	80	80	5	30	70	50	200	110	0.8
2N5442	40	300	70	G-1	400	-65 to 110	50	50	80	80	5	30	70	30	150	110	0.8
2N5443	40	300	70	G-1	600	-65 to 110	50	50	80	80	5	30	70	20	100	110	0.8
T6400N	40	300	70	G-1	800	-65 to 110	50	50	80	80	5	30	70	10	75	110	0.8
2N5444	40	300	65	H-1	200	-65 to 110	50	50	80	80	5	30	65	50	200	110	0.9
2N5445	40	300	65	H-1	400	-65 to 110	50	50	80	80	5	30	65	30	150	110	0.9
2N5446	40	300	65	H-1	600	-65 to 110	50	50	80	80	5	30	65	20	100	110	0.9
T6410N	40	300	65	H-1	800	-65 to 110	50	50	80	80	5	30	65	10	75	110	0.9
400-HZ TRIACS																	
T23 types																	
T2304B	0.5	25	90	A	200	-50 to 100	10	10	10	10	1	4	90	10	100	100	8.5
T2304D	0.5	25	90	A	400	-50 to 100	10	10	10	10	1	4	90	10	100	100	8.5
T2305B	0.5	25	90	A	200	-50 to 100	25	25	40	40	1	4	90	10	100	100	8.5
T2305D	0.5	25	90	A	400	-50 to 100	25	25	40	40	1	4	90	10	100	100	8.5
T41 types																	
T4105B	6	100	90	G	200	-50 to 100	50	50	80	80	5	10	90	30	150	100	1
T4105D	6	100	90	G	400	-50 to 100	50	50	80	80	5	10	90	30	150	100	1
T4115B	6	100	90	H	200	-50 to 100	50	50	80	80	5	10	90	30	150	100	1
T4115D	6	100	90	H	400	-50 to 100	50	50	80	80	5	10	90	30	150	100	1
T4113B	15	100	80	H	200	-50 to 100	50	50	80	80	5	10	80	30	150	100	1
T4113D	15	100	80	H	400	-50 to 100	50	50	80	80	5	10	80	20	150	100	1
ZERO-VOLTAGE SWITCH TRIACS																	
T23 types																	
T2316A	1.9	25	70	B	100	-40 to 100	45	—	—	45	2	—	70	10	—	100	30▲
T2316B	1.9	25	70	B	200	-40 to 100	45	—	—	45	2	—	70	10	—	100	30▲
T2316D	1.9	25	70	B	400	-40 to 100	45	—	—	45	2	—	70	10	—	100	30▲
T2306A	2.5	25	70	A	100	-40 to 100	45	—	—	45	2	—	70	10	—	100	8.5
T2306B	2.5	25	70	A	200	-40 to 100	45	—	—	45	2	—	70	10	—	100	8.5
T2306D	2.5	25	70	A	400	-40 to 100	45	—	—	45	2	—	70	10	—	100	8.5
T27 types																	
T2706B	6	100	75	D	200	-65 to 100	45	—	—	45	3	—	75	30	—	100	4
T2706D	6	100	75	D	400	-65 to 100	45	—	—	45	3	—	75	20	—	100	4
T2716B	3.3	100	25●	E	200	-65 to 100	45	—	—	45	3	—	25●	30	—	100	24▲
T2716D	3.3	100	25●	E	400	-65 to 100	45	—	—	45	3	—	25●	20	—	100	24▲
T28 types																	
T2806B	8	100	80	F	200	-40 to 100	45	—	—	45	4	—	80	100	—	100	2.2
T2806D	8	100	80	F	400	-40 to 100	45	—	—	45	4	—	80	75	—	100	2.2
T2856B	8	100	75	F-4	200	-65 to 100	45	—	—	45	4	—	75	100	—	100	3.1
T2856D	8	100	75	F-4	400	-65 to 100	45	—	—	45	4	—	75	75	—	100	3.1
T41 types																	
T4117B	10	100	85	H	200	-40 to 100	45	—	—	45	2	—	85	30	—	100	1
T4117D	10	100	85	H	400	-40 to 100	45	—	—	45	2	—	85	20	—	100	1
T4117M	10	100	85	H	600	-40 to 100	45	—	—	45	2	—	85	10	—	100	1
T4106B	15	100	80	G	200	-40 to 100	45	—	—	45	2	—	80	30	—	100	1
T4106D	15	100	80	G	400	-40 to 100	45	—	—	45	2	—	80	20	—	100	1
T4106M	15	100	80	G	600	-40 to 100	45	—	—	45	2	—	80	10	—	100	1
T47 types																	
T4706B	15	100	70	D	200	-40 to 100	45	—	—	45	—	10	70	—	40	100	1.3
T4706D	15	100	70	D	400	-40 to 100	45	—	—	45	—	10	70	—	40	100	1.3
T64 types																	
T6407B	30	300	65	G-1	200	-40 to 100	45	—	—	45	3	—	65	40	—	100	0.8
T6407D	30	300	65	G-1	400	-40 to 100	45	—	—	45	3	—	65	25	—	100	0.8
T6407M	30	300	65	G-1	600	-40 to 100	45	—	—	45	3	—	65	20	—	100	0.8
T6417B	30	300	60	H-1	200	-40 to 100	45	—	—	45	3	—	60	40	—	100	0.9
T6417D	30	300	60	H-1	400	-40 to 100	45	—	—	45	3	—	60	25	—	100	0.9
T6417M	30	300	60	H-1	600	-40 to 100	45	—	—	45	3	—	60	20	—	100	0.9
T6427B	30	300	55	J-1	200	-65 to 100	45	—	—	45	3	—	55	40	—	100	1
T6427D	30	300	55	J-1	400	-65 to 100	45	—	—	45	3	—	55	25	—	100	1

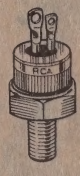
▲Junction-to-Ambient ($R_{\theta JA}$) ●Ambient Temperature (T_A)

J-1

G-1

A
TO-5

G



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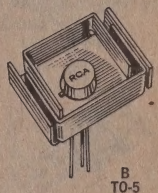

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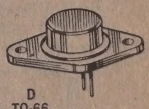
TO-5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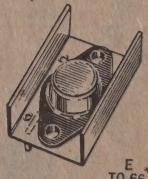
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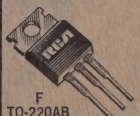

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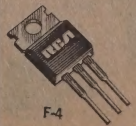

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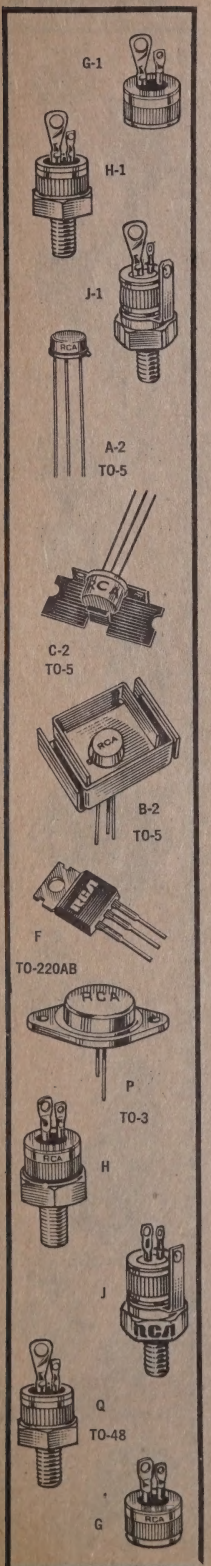


RCA TYPE	Current IT (RMS) A	Current ITSM A	Current Temp. TC °C	Case	Voltage VDROM V	Temp. Range Operating °C	Max. Gate Trigger Current IGT-mA Modes I+	Max. Gate Trigger Current IGT-mA Modes III−	Max. Gate Trigger Current IGT-mA Modes I−	Max. Gate Trigger Current IGT-mA Modes III+	Critical Rate of Rise of: Commutation Voltage dv/dt-V/μs Min.	Commutation Voltage dv/dt-V/μs Typ.	Commutation Voltage dv/dt-V/μs TC-°C	Off-State Voltage dv/dt-V/μs Min.	Off-State Voltage dv/dt-V/μs Typ.	Off-State Voltage dv/dt-V/μs TC-°C	Thermal Resistance RθJC °C/W
T64 types (cont.)																	
T6427M	30	300	55	J-1	600	-65 to 100	45	—	—	45	3	—	55	20	—	100	1
T6406B	40	300	70	G-1	200	-40 to 110	45	—	—	45	5	—	70	50	—	110	0.8
T6406D	40	300	70	G-1	400	-40 to 110	45	—	—	45	5	—	70	30	—	110	0.8
T6406M	40	300	70	G-1	600	-40 to 110	45	—	—	45	5	—	70	20	—	110	0.8
T6416B	40	300	65	H-1	200	-40 to 110	45	—	—	45	5	—	65	50	—	110	0.9
T6416D	40	300	65	H-1	400	-40 to 110	45	—	—	45	5	—	65	30	—	110	0.9
T6416M	40	300	65	H-1	600	-40 to 110	45	—	—	45	5	—	65	20	—	110	0.9
T6426B	40	300	60	J-1	200	-65 to 110	45	—	—	45	5	—	60	50	—	110	1
T6426D	40	300	60	J-1	400	-65 to 110	45	—	—	45	5	—	60	30	—	110	1
T6426M	40	300	60	J-1	600	-65 to 110	45	—	—	45	5	—	60	20	—	110	1

GENERAL PURPOSE SCR's

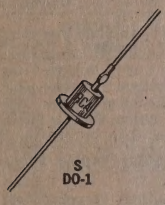
RCA TYPE	Current IT (RMS) A	Current ITSM A	Current Temp. TC °C	Case	Voltage VDROM VRROM V	Temp. Range Operating °C	Maximum Gate Trigger Characteristic IGT mA	Maximum Gate Trigger Characteristic VGT V	Critical Rate of Rise of Off-State Voltage dv/dt-V/μs Min.	Critical Rate of Rise of Off-State Voltage dv/dt-V/μs Typ.	Critical Rate of Rise of Off-State Voltage dv/dt-V/μs TC-°C	Maximum Instantaneous Holding Current iHO-mA	Maximum Instantaneous Holding Current TC-°C	Thermal Resistance RθJC °C/W
S26 types														
S2600B	7	100	60	A-2	200	-65 to 100	15	1.5	20	200	100	20	25	5
S2600D	7	100	60	A-2	400	-65 to 100	15	1.5	20	200	100	20	25	5
S2600M	7	100	60	A-2	600	-65 to 100	15	1.5	20	200	100	20	25	5
S2620B	7	100	50‡	C-2	200	-65 to 100	15	1.5	20	200	100	20	25	7♦
S2620D	7	100	50‡	C-2	400	-65 to 100	15	1.5	20	200	100	20	25	7♦
S2620M	7	100	50‡	C-2	600	-65 to 100	15	1.5	20	200	100	20	25	7♦
S2610B	3.3	100	25●	B-2	200	-65 to 100	15	1.5	20	200	100	20	25	35▲
S2610D	3.3	100	25●	B-2	400	-65 to 100	15	1.5	20	200	100	20	25	35▲
S2610M	3.3	100	25●	B-2	600	-65 to 100	15	1.5	20	200	100	20	25	35▲
S28 types														
S2800F	10	100	80	F	50	-65 to 100	15	1.5	100	—	100	20	25	2
S2800A	10	100	80	F	100	-65 to 100	15	1.5	75	—	100	20	25	2
S2800B	10	100	80	F	200	-65 to 100	15	1.5	50	—	100	20	25	2
S2800C	10	100	80	F	300	-65 to 100	15	1.5	40	—	100	20	25	2
S2800D	10	100	80	F	400	-65 to 100	15	1.5	30	—	100	20	25	2
S2800E	10	100	80	F	500	-65 to 100	15	1.5	25	—	100	20	25	2
S2800M	10	100	80	F	600	-65 to 100	15	1.5	20	—	100	20	25	2
S2800S	10	100	80	F	700	-65 to 100	15	1.5	15	—	100	20	25	2
S40 types														
2N3668	12.5	200	80	P	100	-40 to 100	40	2	10	100	100	50	25	1.7
2N3669	12.5	200	80	P	200	-40 to 100	40	2	10	100	100	50	25	1.7
2N3670	12.5	200	80	P	400	-40 to 100	40	2	10	100	100	50	25	1.7
2N4103	12.5	200	80	P	600	-40 to 100	40	2	10	100	100	50	25	1.7
S62 types														
S6200A	20	200	75	G	100	-65 to 100	15	2	10	100	100	20	25	1.2
S6200B	20	200	75	G	200	-65 to 100	15	2	10	150	100	20	25	1.2
S6200D	20	200	75	G	400	-65 to 100	15	2	10	150	100	20	25	1.2
S6200M	20	200	75	G	600	-65 to 100	15	2	10	75	100	20	25	1.2
S6210A	20	200	75	H	100	-65 to 100	15	2	10	100	100	20	25	1.2
S6210B	20	200	75	H	200	-65 to 100	15	2	10	150	100	20	25	1.2
S6210D	20	200	75	H	400	-65 to 100	15	2	10	100	100	20	25	1.2
S6210M	20	200	75	H	600	-65 to 100	15	2	10	75	75	20	25	1.2
S6220A	20	200	75	J	100	-65 to 100	15	2	10	100	100	20	25	1.4
S6220B	20	200	75	J	200	-65 to 100	15	2	10	150	100	20	25	1.4
S6220D	20	200	75	J	400	-65 to 100	15	2	10	100	100	20	25	1.4
S6220M	20	200	75	J	600	-65 to 100	15	2	10	75	100	20	25	1.4
S64 types														
2N681	25	150	65	Q	25	-65 to 125	25	3	10	40	125	15*	125	2
2N682	25	150	65	Q	50	-65 to 125	25	3	10	40	125	15*	125	2
2N683	25	150	65	Q	100	-65 to 125	25	3	10	40	125	15*	125	2
2N684	25	150	65	Q	150	-65 to 125	25	3	10	40	125	15*	125	2
2N685	25	150	65	Q	200	-65 to 125	25	3	10	40	125	15*	125	2
2N686	25	150	65	Q	250	-65 to 125	25	3	10	40	125	15*	125	2
2N687	25	150	65	Q	300	-65 to 125	25	3	10	40	125	15*	125	2
2N688	25	150	65	Q	400	-65 to 125	25	3	10	40	125	15*	125	2
2N689	25	150	65	Q	500	-65 to 125	25	3	10	40	125	15*	125	2
2N690	25	150	65	Q	600	-65 to 125	25	3	10	40	125	15*	125	2
2N3870	35	350	65	G	100	-40 to 100	40	2	10	100	100	70	25	0.9
2N3871	35	350	65	G	200	-40 to 100	40	2	10	100	100	70	25	0.9
2N3872	35	350	65	G	400	-40 to 100	40	2	10	100	100	70	25	0.9
2N3873	35	350	65	G	600	-40 to 100	40	2	10	100	100	70	25	0.9
S6400N	35	350	65	G	800	-40 to 100	40	1	10	100	100	70	25	0.9
2N3896	35	350	65	H	100	-40 to 100	40	2	10	100	100	70	25	0.9

*Ambient Temperature (T_A) ▲Junction-to-Ambient ($R_{\theta JA}$) ‡Heat-Spreader Temperature (T_{HS})
♦Junction-to-Heat Spreader ($R_{\theta JHS}$) *Typical value

GENERAL-PURPOSE SCR's (CONT.)

RCA TYPE	Current IT(RMS) A	ITSM A	Temp. TC °C	Case	Voltage VDROM VRROM V	Temp. Range Operating °C	Maximum Gate Trigger Characteristic IGT mA	VGT V	Critical Rate of Rise of Off-State Voltage dv/dt-V/μs Min.	Typ.	TC-°C	Maximum Instantaneous Holding Current IHO-mA	TC-°C	Thermal Resistance RθJC °C/W
S64 types (cont.)														
2N3897	35	350	65	H	200	-40 to 100	40	2	10	100	100	70	25	0.9
2N3898	35	350	65	H	400	-40 to 100	40	2	10	100	100	70	25	0.9
2N3899	35	350	65	H	600	-40 to 100	40	2	10	100	100	70	25	0.9
S6410N	35	350	65	H	800	-40 to 100	40	2	10	100	100	70	25	0.9
S6420A	35	350	60	J	100	-40 to 100	40	2	10	100	100	70	25	1
S6420B	35	350	60	J	200	-40 to 100	40	2	10	100	100	70	25	1
S6420D	35	350	60	J	400	-40 to 100	40	2	10	100	100	70	25	1
S6420M	35	350	60	J	600	-40 to 100	40	2	10	100	100	70	25	1
S6420N	35	350	60	J	800	-40 to 100	40	2	10	100	100	70	25	1

RECTIFIERS



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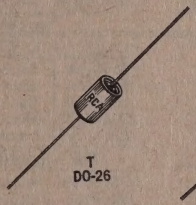

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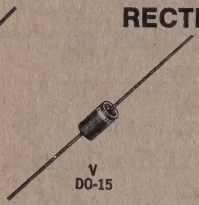

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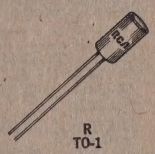


R
TO-1

W
DO-4

X
DO-5

STANDARD RECTIFIERS with Lead-Type Packages

RCA TYPE	Forward Current Av. Io A	Surge IFSM A	Temp. TA °C	Case	Voltage VRRM V	Temp. Range Operating °C	Voltage Drop VF V	Io A
D11 types								
1N536	0.75	15	50	S	50	-65 to 165	1.1	0.5
1N537	0.75	15	50	S	100	-65 to 165	1.1	0.5
1N538	0.75	15	50	S	200	-65 to 165	1.1	0.5
1N539	0.75	15	50	S	300	-65 to 165	1.1	0.5
1N540	0.75	15	50	S	400	-65 to 165	1.1	0.5
1N1095	0.75	15	50	S	500	-65 to 165	1.2	0.5
1N547	0.75	15	50	S	600	-65 to 165	1.2	0.5
1N2858A	1	35	75	S	50	-65 to 135	1.2	1
1N2859A	1	35	75	S	100	-65 to 135	1.2	1
1N2860A	1	35	75	S	200	-65 to 135	1.2	1
1N2861A	1	35	75	S	300	-65 to 135	1.2	1
1N2862A	1	35	75	S	400	-65 to 135	1.2	1
1N2863A	1	35	75	S	500	-65 to 135	1.2	1
1N2864A	1	35	75	S	600	-65 to 135	1.2	1
D12 Types								
D1201F	1	30	75	V	50	-65 to 175	1.1	1
D1201A	1	30	75	V	100	-65 to 175	1.1	1
D1201B	1	30	75	V	200	-65 to 175	1.1	1
D1201D	1	30	75	V	300	-65 to 175	1.1	1
D1201M	1	30	75	V	400	-65 to 175	1.1	1
D1201N	1	30	75	V	800	-65 to 175	1.1	1
D1201P	1	30	75	V	1000	-65 to 175	1.1	1
D13 types								
D1300A	0.25	30	65	R	100	-65 to 125	1	0.25
D1300B	0.25	30	65	R	200	-65 to 125	1	0.25
D1300D	0.25	30	65	R	400	-65 to 125	1	0.25
D16 types								
1N3193	0.75	35	75	T	200	-65 to 100	1.2	0.5
1N3194	0.75	35	75	T	400	-65 to 100	1.2	0.5
1N3195	0.75	35	75	T	600	-65 to 100	1.2	0.5
1N3196	0.5	35	75	T	800	-65 to 100	1.2	0.5
1N5211	1	50	75	T	200	-65 to 175	1.2	1
1N5212	1	50	75	T	400	-65 to 175	1.2	1
1N5213	1	50	75	T	600	-65 to 175	1.2	1
1N5214	0.75	50	75	T	800	-65 to 175	1.2	1
D17 types								
1N3253	0.75	35	75	T	200	-65 to 100	1.2	0.5
1N3254	0.75	35	75	T	400	-65 to 100	1.2	0.5

STANDARD RECTIFIERS with Lead-Type Packages (Cont.)

RCA TYPE	Forward Current Av. Io A	Surge IFSM A	Temp. TA °C	Case	Voltage VRRM V	Temp. Range Operating °C	Voltage Drop VF V	Io A
D17 types								
1N3255	0.75	35	75	T	600	-65 to 100	1.2	0.5
1N3256	0.5	35	75	T	800	-65 to 100	1.2	0.5
1N3563	0.4	35	75	T	1000	-65 to 100	1.2	0.5
1N5215	1	50	75	T	200	-65 to 175	1.2	1
1N5216	1	50	75	T	400	-65 to 175	1.2	1
1N5217	1	50	75	T	600	-65 to 175	1.2	1
1N5218	0.75	50	75	T	800	-65 to 175	1.2	1

STANDARD RECTIFIERS with Stud-Type Packages‡

RCA TYPE	Forward Current Av. Io A	Surge IFSM A	Temp. TA °C	Case	Voltage VRRM V	Temp. Range Operating °C	Voltage Drop VF V	Io A
D15 types								
1N1199A	12	240	150	W	50	-65 to 200	0.55■	12
1N1200A	12	240	150	W	100	-65 to 200	0.55■	12
1N1202A	12	240	150	W	200	-65 to 200	0.55■	12
1N1203A	12	240	150	W	300	-65 to 200	0.55■	12
1N1204A	12	240	150	W	400	-65 to 200	0.55■	12
1N1205A	12	240	150	W	500	-65 to 200	0.55■	12
1N1206A	12	240	150	W	600	-65 to 200	0.55■	12
1N1183A	40	800	150	X	50	-65 to 200	0.65■	40
1N1184A	40	800	150	X	100	-65 to 200	0.65■	40
1N1186A	40	800	150	X	200	-65 to 200	0.65■	40
1N1187A	40	800	150	X	300	-65 to 200	0.65■	40
1N1188A	40	800	150	X	400	-65 to 200	0.65■	40
1N1189A	40	800	150	X	500	-65 to 200	0.65■	40
1N1190A	40	800	150	X	600	-65 to 200	0.65■	40

‡ Reverse-polarity versions available ■ At full cycle average

DIACS — For Triggering Triacs

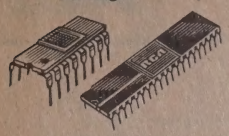
RCA TYPE	Peak Pulse Amps	Temp. Range Operating °C	Case	Breakover Voltage V(BO) V	*	†
D32 type						
D3202Y	2	-40 to 100	V	29 min. 35 max.	±3 max.	9
D3202U	2	-40 to 100	V	25 min. 40 max.	±3 max.	9

*Breakover Voltage Symmetry $|+V_{(BO)}|-|-V_{(BO)}|$V
†Dynamic Breakback Voltage $|\triangle V\pm|$ V (min.)

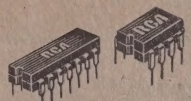
RCA Product Selection Guide

COS/MOS INTEGRATED CIRCUITS

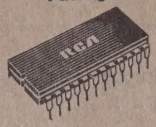
D Suffix
Ceramic Dual-in-Line Packages



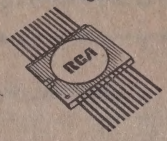
E Suffix
Plastic Dual-in-Line Packages



F Suffix
Frit-Seal Ceramic Dual-in-Line Packages



K Suffix
Ceramic Flat Packages



T Suffix
12-Lead TO-5 Style Package

PACKAGE	SUFF.
Dual-in-line Ceramic	D
Dual-in-line Frit-seal Cer.	F
Dual-in-line Plastic	E
Ceramic Flat Package	K
TO-5 Style (CD4062A only)	T
Chip	H

Most COS/MOS integrated circuits are available in the following package styles and are identified by suffix letters indicated in chart: dual-in-line ceramic, ceramic flat package, dual-in-line frit-seal ceramic, dual-in-line plastic and in chip form.

3

GATES

NOR/NAND

TYPE	FUNCTION
CD4002B	Dual 4-input NOR
CD4002UB	
CD4002A	
CD4012B	Dual 4-input NAND
CD4012A	
CD4025B	Triple 3-input NOR
CD4025UB	
CD4025A	
CD4023B	Triple 3-input NOR
CD4023UB	
CD4023A	
CD4001B	Quad 2-input NOR
CD4001UB	
CD4001A	
CD4011B	Quad 2-input NAND
CD4011UB	
CD4011A	
CD4078B	8-input NOR/OR
CD4068B	8-input NAND/AND
CD4000B	Dual 3-input NOR + Inverter
CD4000UB	
CD4000A	
CD40107B	Dual 2-input NAND buffer/driver

Level Shifter

CD40109B	Quad low-to-high voltage
CD4009UB	Hex high-to-low voltage (inv.)
CD4049UB	
CD4049A	
CD4010B	Hex high-to-low voltage (noninv.)
CD4050B	
CD4050A	

OR/AND

CD4072B	Dual 4-input OR
CD4082B	Dual 4-input AND
CD4075B	Triple 3-input OR
CD4073B	Triple 3-input AND
CD4071B	Quad 2-input OR
CD4081B	Quad 2-input AND

Buffers and Inverters

CD4007UB	Dual complementary pair + inv.
CD4007A	
CD4069UB	Hex inverter
CD4502B	Strobed hex inverter/buffer
CD4041A	Quad true/complement buffer

Multifunction/AOI

CD4037A	Triple AND-OR bi-phase pairs
CD4030A	Quad exclusive-OR
CD4070B	Quad exclusive-OR
CD4077B	Quad exclusive-NOR
CD4019A	Quad AND/OR Select
CD4085B	Dual 2-wide, 2-input AND/OR inv.
CD4086B	Expandable 4-wide, 2-input AOI
CD4048B	Multifunc. expndbl. 8-input

Decoders/Encoders

CD4028A	BCD-to-Decimal decoder
CD4532B	8-input priority encoder
CD4514B	4-bit latch/4-to-16 line decoder
CD4515B	4-bit latch/4-to-16 line decodedr
CD4555B	Dual 1-of-4 decoder/demultiplxr
CD4556B	Dual 1-of-4 decoder/demultiplxr

Schmitt Trigger

CD4093B	Quad 2-input NAND

TYPE	FUNCTION
	MULTIVIBRATORS
CD4047B	Monostable/astable
CD4047A	
CD4098B	Dual monostable
	Flip-flops
CD4013B	Dual D with set/reset
CD4013A	
CD4027B	Dual J-K with set/reset
CD4027A	
CD4095B	Gated J-K non-inverting
CD4096B	Gated J-K invert & noninvert
CD4076B	4-bit D w/3-state outputs
	Latches
CD4042	Quad clocked D
CD4042A	
CD4043B	Quad NOR R/S 3-S outputs
CD4043A	
CD4044B	Quad NAND R/S 3-S outputs
CD4044A	
CD4508B	Dual 4-bit
CD4099B	8-bit addressable
	REGISTERS
	Shift Registers-Static
CD4015A	Dual 4-stage w/serial in/parallel out
CD4006A	18-stage
CD4031A	64-stage
CD4014A	8-stg w/syn
CD4021A	8-stg w/serial out.
CD4035A	4-stg J-K in. true/compl. out
CD4034A	8-stg. bidirect. parl. out.
CD40194B	4-bit left/right
CD40104B	3-state 4-bit left/right
CD40100B	32-bit left/right
CD4094B	8-stg. shift-and-store bus
	Storage Registers
CD4099B	8-bit addressable latch
CD4076B	4-bit D type w/3-S outputs
CD40108B	4 x 4 Multiport
	FIFO Buffer Registers
CD40105B	4-bit x 16 word
	COUNTERS
	Binary Ripple
CD4024A	7-stage
CD4040A	12-stage
CD4020A	14-stage
CD4060B	14-stage counter/divider & osc.
CD4060A	
	Clock Timer
CD4045A	21-stage
	Synchrounous
CD4017B	Decade counter/divider + 10 decoded decimal outputs
CD4017A	
CD4022B	Divide-by-8 counter/divider w/ 8 decimal outputs
CD4022A	
CD4018B	Presettable divide-by-N counter fixed or programmable
CD4018A	
CD4059A	Programmable div.-by-N counter
CD4029B	Presettable up/down counter binary or BCD-decade
CD4029A	
CD4510B	4-bit BCD up/down counter
CD4516B	4-bit binary up/down counter
CD40102B	2-decade BCD down counter

TYPE	FUNCTION
	COUNTERS (cont)
	Synchronous
CD40103B	8-bit binary down counter
CD40192B	4-bit BCD up/down counter
CD40193B	4-bit binary up/down counter
CD4518B	Dual BCD up counter
CD4520B	Dual binary up counter
CD40160B	Decade counter/asynchronous clr.
CD40161B	Binary counter/asynchronous clr.
CD40162B	Decade counter/synchronous clr.
CD40163B	Binary counter/synchronous clr.
	DISPLAY DRIVERS
	With Counter
CD4026B	Decade counter/divider 7-seg.
CD4026A	displ. outputs and displ. enable
CD4033B	Decade counter/divider 7-seg.
CD4033A	displ. outputs & ripple blanking
CD40110B	Up/down counter-latch-decoder
	For Liquid-Crystal-Display Drive
CD4054B	4-line
CD4055B	BCD-to-7 seg. decoder/driver
CD4056B	BCD-to-7 seg. decoder/driver
	For Light-Emitting-Diode Drive
CD4511B	BCD-to-7 seg. latch decoder driver
	MULTIPLEXERS/DEMULTIPLEXERS
	Analog/Digital
CD4053B	Triple 2-channel
CD4052B	Differntial 4-channel
CD4051B	Single 8-channel
CD4097B	Differential 8-channel
CD4067B	Single 16-channel
CD4016B	Quad bilateral switch
CD4016A	
CD4066B	Quad bilateral switch
CD4066A	
CD4019B	Quad AND/OR select
CD4019A	
CD4555B	Dual 1-of-4 decoder/de-MUX
CD4556B	Dual 1-of-4 decoder/de-MUX
	Data Selector
CD40257B	Quad 2-line-to-1-line
	PHASE LOCKED LOOP
CD4046B	Micropower
CD4046A	
	ARITHMETIC CIRCUITS
	Adders/Comparators
CD4008B	4-bit full adder
CD4008A	
CD4032	Triple serial adder positive logic
CD4032A	
CD4038B	Triple serial adder negative logic
CD4038A	
CD4063B	4-bit magnitude comparator
CD4030B	Quad exclusive-OR gate
CD4030A	
CD4070B	Quad exclusive-OR gate
CD4077B	Quad exclusive-NOR gate
	ALU/Rate Multipiers
CD40181B	4-bit arithmetic logic unit
CD4057A	
CD4527B	BCD rate multiplier
CD4089B	Binary rate multiplier
CD40182B	Look-ahead-carry block
	Parity Generator/Checker
CD40101B	9-bit
	Multiport Register
CD40108B	4 x 4
CD40208B	4 x 4

Linear Integrated Circuits

RCA

Fig. A
T Suffix
TO-5 Style Package with Straight Leads

H1463

8,10, and 12-lead versions

Fig. B
V1 Suffix
TO-5 Style Package with Radial Formed Leads

H1561

8,10, and 12-lead versions

Fig. E
G and E Suffix
Dual-in-Line Plastic Package

H1817

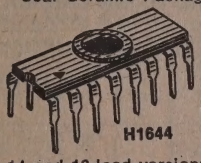
8,14, and 16-lead versions

Fig. G
S Suffix
TO-5 Style Package with Dual-in-Line Formed Leads (DIL-CAN)

H1787

8-lead version only

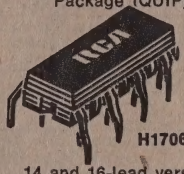
Fig. F
D Suffix
Dual-in-Line Welded-Seal Ceramic Package



H1644

14 and 16-lead versions

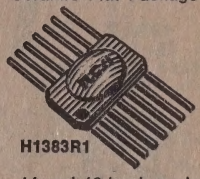
Fig. H
Q Suffix
Quad-in-Line Plastic Package (QUIP)



H1706

14 and 16-lead versions

Fig. J
K Suffix
Ceramic Flat Package



H1383R1

14 and 16-lead versions

OPERATIONAL AMPLIFIERS

RCA Type	Fig.*	Description
CA124G	E	General purpose
CA224G	E	General purpose
CA324G	E	General purpose
CA3401G	E	General purpose
CA101S	G	Wideband
CA101T	A	Wideband
CA101AG	E	Wideband
CA101AS	G	Wideband
CA101AT	A	Wideband
CA201S	G	Wideband
CA201T	A	Wideband
CA201AG	E	Wideband
CA201AS	G	Wideband
CA201T	A	Wideband
CA301AG	E	Wideband
CA301AS	G	Wideband
CA301AT	A	Wideband
CA107AG	E	Wideband
CA107S	G	Wideband
CA107T	A	Wideband
CA207G	E	Wideband
CA207S	G	Wideband
CA207T	A	Wideband
CA307G	E	Wideband
CA307S	G	Wideband
CA307T	A	Wideband
CA3008	J	Wideband
CA3008A	J	Wideband
CA3010	A	Wideband
CA3010A	A	Wideband
CA3015	A	Wideband
CA3015A	A	Wideband
CA3016	J	Wideband
CA3016A	J	Wideband
CA3029	E	Wideband
CA3029A	E	Wideband
CA3030	E	Wideband
CA3030A	E	Wideband
CA3033	F	High current
CA3033A	F	High current

OPERATIONAL AMPLIFIERS

RCA Type	Fig.*	Description
CA3037	F	Wideband
CA3037A	F	Wideband
CA3038	F	Wideband
CA3038A	F	Wideband
CA3047	E	High current
CA3047A	E	High current
CA3060AD	F	Triple transconductance Amplifier array (OTA)
CA3060BD	F	
CA3060D	F	
CA3060E	E	
CA3078AT	A	Single operational Amplifier
CA3078T	A	
CA3080	G	Single tranconductance Amplifier (OTA)
CA3080A	G	
CA3100S	G	BiMOS (MOS and Bipolar devices on same chip)
CA3100T	A	
CA3130E	E	Wideband
CA3130S	G	Wideband
CS3130T	A	Wideband
CA3130AE	E	Wideband
CA3130AS	G	Wideband
CA3130AT	A	Wideband
CA3130BS	G	Wideband
CA3130BT	A	Wideband
CA3140E	E	Wideband
CA3140S	G	Wideband
CA3140T	A	Wideband
CA3140AE	E	Wideband
CA3140AS	G	Wideband
CA3104AT	A	Wideband
CA3140BS	G	Wideband
CA3140BT	A	Wideband
CA3160E	E	Wideband
CA3160S	G	Wideband
CA3160T	A	Wideband
CA3160AE	E	Wideband
CA3160AS	G	Wideband
CA3160AT	A	Wideband
CA3160BS	G	Wideband

OPERATIONAL AMPLIFIERS

RCA Type	Fig.*	Description
CA3160BT	A	Wideband
CA6078AT	A	Low popcorn noise
CA6741AT	A	Low popcorn noise

LINEAR ARRAYS

RCA Type	Fig.	Description
		TRANSISTOR
CA3018	A	Darlington connected pair plus two individual
CA3018A	A	
CA3036	A	Dual Darlington connected
CA3045	F	Differentially connected pair plus 3 individual
CA3046	F	
CA3050	F	Dual Darlington connected
CA3051	E	Dual Darlington connected
CA3081	E	NPN general purpose
CA3082	E	NPN general purpose
CA3083	E	NPN general purpose
CA3084	E	PNP general purpose
CA3086	E	NPN general purpose
CA3093E	E	2 zener diodes, 1 diode and 3 transistors
CA3095E	E	Super beta
CA3096AE	E	NPN-PNP general purpose
CA3096E	E	NPN-PNP general purpose
CA3118AT	A	Darlington-connected pair plus 2 individual
CA3119T	A	
CA3146AE	E	Differential-connected pair plus 2 individual
CA3146E	E	
CA3183AE	E	NPN general purpose
CA3183E	E	NPN general purpose
CA3724G	E	Four individual, sealed-junction high-current NPN
CA3725G	E	
CA3127E	E	Five high frequency NPN
CA3095E	E	Super-beta differential-cascode amp. plus three NPN
CA3097E	E	Thyristor/transistor (PUT, SCR, PNP, Zener, PNP/NPN pair
CA3600E	E	Three comp. pairs of N-channel and P-channel enhancement MOS types

LINEAR ARRAYS

MATCHED DIODE LINEAR ARRAY

RCA Type	Fig.*	Description
CA3019	A	Individual
CA3039	A	Quad plus two
CA3141E	E	Ten general purpose (including three common-cathode pairs) high reverse-breakdown types

AMPLIFIER

CA3026	A	Dual independent
CA3035	A	Three amplifiers
CA3035V1	B	Three amplifiers
CA3048	E	Four amplifiers
CA3049	A	Dual independent
CA3054	E	Dual independent
CA3094AT	A	Programmable power switch/amplifier
CA3094BT	A	
CA3094T	A	
CA3102E	E	Dual independent

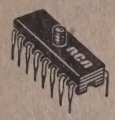
SPECIAL FUNCTION CIRCUITS

RCA Type	Fig. *	Description
CA3091D	F	Four quadrant multiplier

(*) For these figures see this page or following page

RCA Linear Integrated Circuits

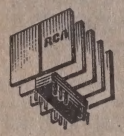
Fig. C
E Suffix
Power Stud Plastic
Dual-in-line Package



H1828

CA3134E only

Fig. D
EM Suffix
Modified 16-lead Dual-
In-Line plastic Package



H1827

CA3131EM, CA3132EM only

Fig. K
Q Suffix
Modified 16-lead
QUIP

H1825

CA810Q, CA810AQ, and CA1190Q only
(A Flat wing-tab version, QM suffix is also available for the CA810, CA810A)

(*) Fig on this page or previous page

HIGH-GAIN WIDEBAND AMPLIFIERS

RCA Type	Fig.*	Description
CA3011	A	—1 MHz to 20 MHz FM IF amplifiers
CA3012	A	
CA3020	A	DC to 9 MHz Multipurpose power
CA3020A	A	DC to 8 MHz
CA3021	A	DC to 6 MHz Low power video
CA3022	A	DC to 20 MHz
CA3023	A	DC to 40 MHz
CA3040	A	DC to 200 MHz—video

DIFFERENTIAL AMPLIFIERS

CA3000	A	DC to 30 MHz
CA3001	A	Video and wideband—DC to 55 MHz
CA3002	A	IF—DC to 15 MHz
CA3004	A	RF—DC to 100 MHz
CA3005	A	RF—DC to 100 MHz
CA3006	A	RF—DC to 100 MHz
CA3007	B	BW=0.01 MHz at 3 db
CA3008	J	AF—DC to 3 kHz
CA3008A	J	AF—DC to 3 kHz
CA3028A	A	Cascade—DC to 500 MHz
CA3028B	A	Cascade—DC to 500 MHz
CA3053	A	Cascade—DC to 500 MHz

AUDIO CIRCUITS

CA3036	A	Dual Darlington amps., matched low noise transistors
CA3052	E	Four-channel preamp., single-supply, 4 independent amps.
CA3094E	E	Programmable power switch/
CA3094S	G	amp., operation to 24 V
CA3094T	A	
CA3094AE	E	Same, except operation
CA3094AS	G	to 36 V
CA3094AT	A	
CA3094BS	G*	Same, except operation
CA3094BT	A	to 44 V
CA8100	K	6 W audio amp. w/thermal shutdown
CA3131EM	D	5 W audio amp., 48 db gain w/internal feedback
CA3132EM	D	CA3131EM without feedback
CA758E	E	PPL stereo decoder, low
CA1310E	E	THD, RC osc., excellent SCA rejection
CA3090Q	H	Multiplex decoder, stereo defeat/enable, 100 mA lamp drive

COMPARATORS

RCA Type	Fig.*	Description
CA139G	E	Quad voltage comparators
CA139AG	E	Quad voltage comparators
CA239G	E	Quad voltage comparators
CA239AG	E	Quad voltage comparators
CA339G	E	Quad voltage comparators
CA339AG	E	Quad voltage comparators
CA111G	E	Quad voltage comparators
CA111S	G	Quad voltage comparators
CA111T	A	Quad voltage comparators
CA211G	E	Quad voltage comparators
CA211S	A	Quad voltage comparators
CA211T	A	Quad voltage comparators
CA311G	E	Quad voltage comparators
CA311S	G	Quad voltage comparators
CA311T	A	Quad voltage comparators

LINEAR POWER CONTROL CIRCUITS

VOLTAGE REGULATOR

Type	Fig.*	Description
CA723E	E	V_{REF}=7.15 V typ.;
CA723T	A	V_O=2 V min.;
CA723CE	E	V_I=9.5 V min.
CA723CT	A	
CA3085	A	V_{REF}=1.6 V typ.;
CA3085A	A	V_O=1.6 V min.;
CA3085B	A	V_I=7.5 V min.

AC THYRISTOR

CA3058	E	Zero voltage switches
CA3059	E	Zero voltage switches
CA3079	E	Zero voltage switches
CA3098E	E	Programmable Schmitt
CA3098T	E	trigger with memory
CA3099E	E	Programmable comparator with memory

OPTOELECTRONIC

CA3062	A	Photo detector and power amplifier

LINEAR ARRAYS

Type	Fig.*	Description
		REMOTE CONTROL
CA3035	A	Single-supply, low noise,
CA3035V1	B	3 A, adjustable gain

TIMERS

CA555G	E	Astable or monostable
CA555S	C	Astable or monostable
CA555T	A	Astable or monostable
CA555CG	E	Astable or monostable
CA555CS	G	Astable or monostable
CA555CT	A	Astable or monostable

TOP-OF-THE-LINE SOLID-STATE REPLACEMENT GUIDE

RCA SK-SERIES REPLACEMENT GUIDE
51F944.....NET 1.50

SK-Series of entertainment and industrial solid-state devices are backed by original manufacturer production standards and premium specifications. Tested for use specifically as replacements for solid-state devices designed into original equipment. Each SK transistor, triac, silicon-controlled rectifier (SCR), rectifier, and integrated circuit can be used to replace a broad variety of solid-state devices used in original equipment. Electrical characteristics for each unit are comparable to, or better than, devices originally designed in.

FEATURES:

- **Replacement Cross Reference for more than 140,000 Devices**
- **Complete Index of RCA SK-Series products—MORE THAN 750 Replacement Devices Selected for Optimum Electrical and Mechanical Interchangeability**
- **Significant Electrical Characteristics, Package Outlines, and Terminal-Arrangement Information for SK-Series Devices**
- **Procedures to Assure Most Effective Device Replacement**

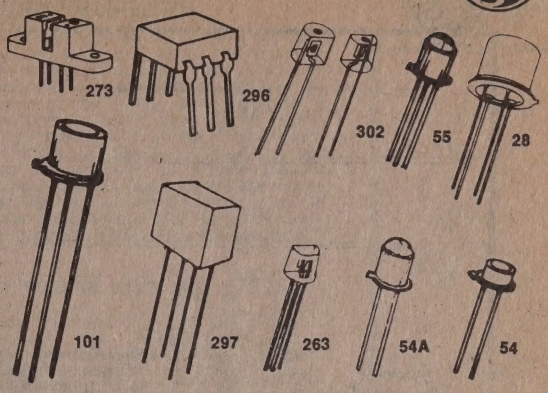
TO USE THE GUIDE:

- **Locate original-equipment solid-state device in Solid-State Replacement Directory. An adjacent column indicates recommended SK-Series replacement type**
- **SK Product Index indicates product type of each SK-Series device and lists data chart and page that provide descriptive device data**
- **Refer to data charts for significant characteristics, package outlines, and terminal arrangemens for SK-Series devices**
- **Replacement Considerations provide procedures that should be followed for most effective replacement of any solid-state device with an SK-Series type.**

General Electric Optoelectronics

INDEX

		Page
I.	Optoelectronics	77
II.	Silicon Rectifiers	78
III.	Triacs and Triac Triggers	79
IV.	Silicon Controlled Rectifiers	80, 81
V.	Power Modules	82
VI.	Silicon Small Signal Transistors	83
VII.	Silicon Power Transistors	84
VIII.	Silicon Power PAC Transistors	85
IX.	Unijunctions & Silicon Switches	86
X.	GE-Mov Metal Oxide Varistors	87



INFRARED EMITTERS

Type	Min. Power Output at I_F=100 mA	Max. Forward Voltage at I_F=100 mA	Peak Emission Wavelength Typical Nanometers	Rise Time Typical Nanoseconds	Fall Time Typical Nanoseconds	Max. Power Diss. mW	Max. Forward Current Continuous mA
LED55B	3.5 mW	1.7	940	300	200	1300	100
LED55BF	3.5 mW	1.7	940	300	200	1300	100
LED55C	5.4 mW	1.7	940	300	200	1300	100
LED55CF	5.4 mW	1.7	940	300	200	1300	100
LED56	1.5 mW	1.7	940	300	200	1300	100
LED56F	1.5 mW	1.7	940	300	200	1300	100

DETECTORS
PHOTO TRANSISTORS

GE TYPE	SENS. (ma/mw/cm²) min.	SENS. (ma/mw/cm²) max.	BV CEO	BV BCO	I_D (nA) MAX.	SW. t_r (μsec)	TYP. t_f (μsec)	TYP. V_{CE}(V) (sat)	PKG.
L14G1	.6	—	45	45					55
L14G2	.3	—	45	45					55
L14G3	1.2	—	45	45					55
L14H1	.05	—	60	60	100	5	5	.4	263
L14H2	.2	—	30	30					263
L14H3	.2	—	60	60					263
L14H4	.05	—	30	30					263

PHOTO DARLINGTONS

2N5777	.25	—	25	25	100	75	45	.8	263
2N5778	.25	—	40	40	100	75	45	.8	263
2N5779	1.0	—	25	25	100	75	45	.8	263
2N5780	1.0	—	40	40	100	75	45	.8	263
L14F1	15.0	—	25	25	100	300	250	.8	55
L14F2	5.0	—	25	25	100	300	250	.8	55

PHOTO SWITCHES

GE TYPE	IRRADIANCE TO TRIGGER (mw/cm²) min.	IRRADIANCE TO TRIGGER (mw/cm²) max.	BLOCKING VOLTAGE	I_D (μA) MAX.	V_T(V)
L8	—	10	25-200	10	1.4
L9	—	4.2	25-200	10	1.4

OPTO COUPLERS
PHOTO TRANSISTOR OUTPUT

GE Type	Isolation V_{pk} Min.	Current Transfer Ratio Min.	I_D(nA) Max.	BVCEO Volts Min.	Typ. (μsec) T_R	Typ. (μsec) T_F	V_{CE}(SAT) Max.	Pkg.
H11A1	2500	50%	50	30	2	2	.4	296
H11A2	1500	20%	50	30	2	2	.4	296
H11A3	2500	20%	50	30	2	2	.4	296
H11A4	1500	10%	50	30	2	2	.4	296
H11A5	1500	30%	100	30	2	2	.4	296
H11A520	5656	20%	50	30	2	2	.4	296
H11A550	5656	50%	50	30	2	2	.4	296
H11A5100	5656	100%	50	30	2	2	.4	296
H15A1	4000 Vrms	20%	100	30	3	3	.4	297
H15A2	4000 Vrms	10%	100	30	3	3	.4	297
4N25	2500	20%	50	30	3	3	.5	296
4N25A	1775 Vrms	20%	50	30	3	3	.5	296
4N26	1500	20%	50	30	3	3	.5	296
4N27	1500	10%	50	30	3	3	.5	296
4N28	500	10%	50	30	3	3	.5	296
4N35	2500 Vrms	100%	50	30	5	5	.3	296
4N36	1750 Vrms	100%	50	30	5	5	.3	296
4N37	1050 Vrms	100%	50	30	5	5	.3	296
H74A1	1500		100	15				296

PROGRAMMABLE THRESHOLD COUPLER

H11A10	1500	10%	50	30	2	2	.4	296

AC INPUT COUPLER

GE Type	Isolation Voltage(V_{pk}) Min.	Current Transfer Ratio	I_D(nA) Max.	BVCEO Volts Min.	Typ. (μsec) T_R	Typ. (μsec) T_F	V_{CE}(Sat) Max.(V)	Pkg.
H11AA1	1500	20%	100	30	2	2	.4	296
H11AA2	1500	10%	200	30	2	2	.4	296

HIGH VOLTAGE COUPLER

H11D1	2500	20%	100	300	5	5	.4	296
H11D2	1500	20%	100	300	5	5	.4	296
H11D3	1500	20%	100	200	5	5	.4	296
H11D4	1500	10%	100	200	5	5	.4	296
4N38	1500	10%	50	80	5	5	1.0	296
4N38A	1775 Vrms	10%	50	80	5	5	1.0	296

PHOTO DARLINGTON OUTPUT

H11B1	2500	500%	100	25	125	100	1.0	296
H11B2	1500	200%	100	25	125	100	1.0	296
H11B3	1500	100%	100	25	125	100	1.0	296
H11B255	1500	100%	100	55	125	100	1.0	296
H15B1	4000 Vrms	400%	100	25	125	100	1.4	297
H15B2	4000 Vrms	200%	100	25	125	100	1.4	297
4N29	2500	100%	100	30	5	40	1.0	296
4N29A	1775 Vrms	100%	100	30	5	40	1.0	296
4N30	1500	100%	100	30	5	40	1.0	296
4N31	1500	50%	100	30	5	40	1.2	296
4N32	2500	500%	100	30	5	100	1.0	296
4N32A	1775 Vrms	500%	100	30	5	100	1.0	296
4N33	1500	500%	100	30	5	100	1.0	296

PHOTO SCR OUTPUT

GE Type	Isolation Voltage Min.	I_F Trigger Max.	I_D (μA) 100 C Max.	Blkng. Voltage Min.	Typical Ton (μsec)	V_F Max. (V)	Pkg.
H11C1	2500	20mA	50	200	1	1.5	296
H11C2	1500	20mA	50	200	1	1.5	296
H11C3	1500	30mA	50	200	1	1.5	296
H11C4	2500	20mA	100	400	1	1.5	296
H11C5	1500	20mA	100	400	1	1.5	296
H11C6	1500	30mA	100	400	1	1.5	296
4N39	1500	14mA	50	200	1	1.5	296
4N40	1500	14mA	150	400	1	1.5	296
H74C1	1500			200			296
H74C2	1500			400			296

PHOTO COUPLED INTERRUPTER MODULE

GE Type	Output Current Min.	Output Current Max.	I_D (nA)	BVECO (V)	Typical (μsec) TON	Typical (μsec) t_f	V_{CE} Max.	Pkg.
H13A1	I_F=20mA	200μA	100	30	5	5	.4	273
H13A2	I_F=20mA	50μA	100	30	5	5	.4	273
H13B1	I_F=20mA	2500μA	100	25	150	150	1.2	273
H13B2	I_F=20mA	1000μA	100	25	150	150	1.2	273

MATCHED EMITTER DETECTOR PAIRS

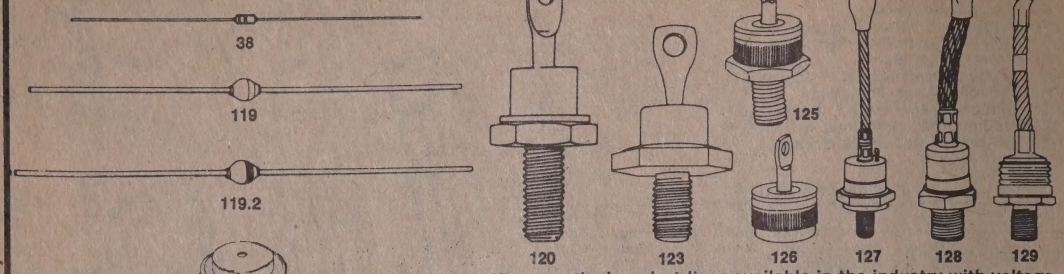
H17A1	I_F=20mA	59μA	100	30	5	5	.4	302
H17B1	I_F=20mA	1000μA	100	25	150	150	1.2	302

PHOTO COUPLED BILATERAL ANALOGUE FET

GE Type	Surge Isolation Voltage (Vpk)	On State Res. I_F=16mA (I_{46}=100mA)	Isolation Res.	Input To Output Capacitance	Pkg.
H11F1	2500	200	100 gigohms	2.5 picofarad	296
H11F2	2500	330	100 gigohms	2.5 picofarad	296
H11F3	1500	470	100 gigohms	2.5 picofarad	296

General Electric Product Selection Guide

SILICON RECTIFIERS



These power rectifiers are the broadest lines available in the industry with voltage ratings up to 1800 volts and currents to 1500 amperes.
I_F is the average forward current rating.

I_{FM} is the maximum peak non-recurrent surge current (one 60 Hz cycle). The voltage rating given is the maximum repetitive peak reverse voltage.
§Fast recovery types.

GE Type	Case	I_F Amps	I_{FM} Amps	Volts
DT230B	38	.25	5	200
1N4247	119	1	25	600
1N4249	119	1	25	1000
A14F	119	1	50	50
A14A	119	1	50	100
1N5059	119	1	50	200
A14C	119	1	50	300
1N5060	119	1	50	400
A14E	119	1	50	500
1N5061	119	1	50	600
1N5062	119	1	50	800
A14P	119	1	50	1000
A15F	119.2	3	125	50
A15A	119.2	3	125	100
1N5624	119.2	3	125	200
1N5625	119.2	3	125	400
1N5626	119.2	3	125	600
1N5627	119.2	3	125	800
A115F§	119.2	3	110	50
A115A§	119.2	3	110	100
A115B§	119.2	3	110	200
A115C§	119.2	3	110	300
A115D§	119.2	3	110	400
A115E§	119.2	3	110	500
A115M§	119.2	3	110	600
1N1612	120	5	150	50
1N1614	120	5	150	200
1N1615	120	5	150	400
1N1342A	120	6	150	100
1N1348A	120	6	150	600
1N3880§	120	6	75	100
1N3881§	120	6	75	200
1N3882§	120	6	75	300
1N3883§	120	6	75	400
1N1203A	120	12	240	300
1N1204A	120	12	240	400
1N1205A	120	12	240	500
1N1206A	120	12	240	600
1N3673A	120	12	240	1000
1N3890§	120	12	150	100
1N3891§	120	12	150	200
1N3893§	120	12	150	400
A28F§	120	12	240	50
A28A§	120	12	240	100
A28B§	120	12	240	200
A28C§	120	12	240	300
A28D§	120	12	240	400
1N3209	125	20	300	100
1N3210	125	20	300	200
1N3212	125	20	300	400
1N3214	125	20	300	600
A44A	126	20	300	100
A44B	126	20	300	200
A44C	126	20	300	300
A44D	126	20	300	400
A44E	126	20	300	500
A44M	126	20	300	600
1N1198A	123	20	350	600

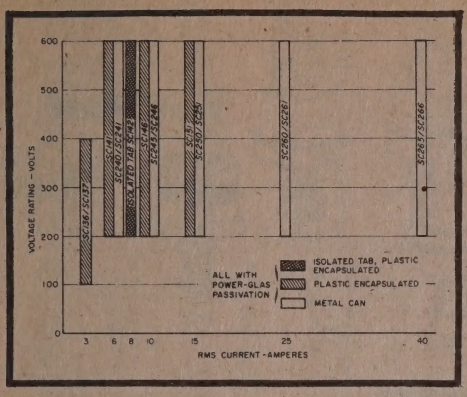
GE Type	Case	I_F Amps	I_{FM} Amps	Volts
1N2154	123	25	400	50
1N2155	123	25	400	100
1N2156	123	25	400	200
1N2157	123	25	400	300
1N2158	123	25	400	400
1N2159	123	25	400	500
1N2160	123	25	400	600
1N3913§	123	30	300	400
1N1184	123	35	500	100
1N1186	123	35	500	200
1N1188	123	35	500	400
1N1189	123	35	500	500
1N1190	123	35	500	600
1N3766	123	35	500	800
1N3768	123	35	500	1000
A70B	127	100	1600	200
1N3289	127	100	1600	200
A70C	127	100	1600	300
A70D	127	100	1600	400
1N3291	127	100	1600	400
A70E	127	100	1600	500
1N3292	127	100	1600	500
A70M	127	100	1600	600
1N3293	127	100	1600	600
A70N	127	100	1600	800
1N3294	127	100	1600	800
A70P	127	100	1600	1000
1N3295	127	100	1600	1000
A70PB	127	100	1600	1200
1N3296	127	100	1600	1200
A177A	127	100	1600	100
A177D	127	100	1600	400
A177M	127	100	1600	600
A177P	127	100	1600	1000
A177PE	127	100	1600	1500
A180A	127	150	2500	100
A180D	127	150	2500	400
A180M	127	150	2500	600
A180P	127	150	2500	1000
A180PE	127	150	2500	1500
A187A§	127	150	2000	100
A187D§	127	150	2000	400
A187M§	127	150	2000	600
A187P§	127	150	2000	1000
A187PE§	127	150	2000	1500
1N3268	128	160	2000	500
1N3269	128	160	2000	600
1N3738	128	250	4500	400
1N3740	128	250	4500	600

GE Type	Case	I_F Amps	I_{FM} Amps	Volts
1N3741	128	250	4500	800
A190A	128	250	6500	100
A190D	128	250	6500	400
A190M	128	250	6500	600
A190N	128	250	6500	800
A190P	128	250	6500	1000
A190PB	128	250	6500	1200
A190PD	128	250	6500	1400
A291PE	129	250	4500	1500
A197A§	128	250	5000	100
A197D§	128	250	5000	400
A197M§	128	250	5000	600
A197N§	128	250	5000	800
A197P§	128	250	5000	1000
A197PB§	128	250	5000	1200
A197PD§	128	250	5000	1400
A197PE§	128	250	5000	1500
A390M	109.1	400	7000	600
A390N	109.1	400	7000	800
A390P	109.1	400	7000	1000
A390PB	109.1	400	7000	1200
A390PD	109.1	400	7000	1400
A390PE	109.1	400	7000	1500
A397A§	109.1	400	5000	100
A397D§	109.1	400	5000	400
A397M§	109.1	400	5000	600
A397N§	109.1	400	5000	800
A397P§	109.1	400	5000	1000
A397PB§	109.1	400	5000	1200
A397PD§	109.1	400	5000	1400
A397PE§	109.1	400	5000	1500
A295B	129	500	7000	200
A295D	129	500	7000	400
A295M	129	500	7000	600
A295N	129	500	7000	800
A295P	129	500	7000	1000
A295PB*	129	500	7000	1200
A437M§	276	750	10000	600
A437N§	276	750	10000	800
A437P§	276	750	10000	1000
A437PB§	276	750	10000	1200
A437PD§	276	750	10000	1400
A437PE§	276	750	10000	1500
A430M	276	1000	10000	600
A430N	276	1000	10000	800
A430P	276	1000	10000	1000
A430PB	276	1000	10000	1200
A430PD	276	1000	10000	1400
A430PE	276	1000	10000	1500
A540D	182	1000	12000	400
A540M	182	1000	12000	600
A540N	182	1000	12000	800
A540P	182	1000	12000	1000
A540PB	182	1000	12000	1200
A540PD*	182	1000	12000	1400
A570A	182	1500	18000	100
A570B	182	1500	18000	200
A570D	182	1500	18000	400
A570M	182	1500	18000	600

§Fast recovery types. *Series is available up to 3000 volts, write or call for more information.

General Electric Product Selection Guide

TRIACS AND TRIAC TRIGGERS



Triac is a silicon AC switch which may be gate triggered from an OFF-state to an ON-state for either polarity of applied voltage. Triac is also an AC phase controller, that performs in a single device the function of two SCR's connected back to back to control heat, light and motor speed. Plastic triacs feature low cost and reliability. **Power Glas™** passivated junctions, rugged and industry proven packaging and are available in various types of (TO-5, TO-66, etc.) formed leads. Metal can triacs feature **Power Glas** passivated junctions, glass to metal seal, high performance and reliability, transient voltage immunity and comprehensive specifications.

TRIACS IN PLASTIC POWER TAB CASE (173.2)

GE Type	rms On-State Current† Amps	V_{DRM} Off-State† Volts	I_{gt} DC Trigger Current† mA§	V_{gt} DC Trigger Volts	I_{TSM}† Amps
SC136A	3	100	10	2	30
SC136B	3	200	25	2	30
SC136D	3	400	25	2	30

TRIACS IN PLASTIC POWER PAC CASE (173.1)

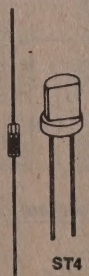
SC141B	6	200	50	2.5	80
SC141D	6	400	50	2.5	80
SC141E	6	500	50	2.5	80
SC141M	6	600	50	2.5	80
SC146B	10	200	50	2.5	120
SC146D	10	400	50	2.5	120
SC146E	10	500	50	2.5	120
SC146M	10	600	50	2.5	120
SC151B	15	200	50	2.5	120
SC151D	15	400	50	2.5	120
SC151E	15	500	50	2.5	120
SC151M	15	600	50	2.5	120

TRIACS IN ISOLATED POWER PAC CASE (230)

SC142B	8	200	50	2.5	110
SC142D	8	400	50	2.5	110
SC142E	8	500	50	2.5	110
SC142M	8	600	50	2.5	110
SC147B	10	200	50	2.5	110
SC147D	10	400	50	2.5	110
SC147E	10	500	50	2.5	110
SC147M	10	600	50	2.5	110

TRIAC TRIGGERS

ST2 (diac) is a silicon bi-directional diode which may be used for triggering triacs or SCR's. It has three layer structure with negative resistance switching characteristics in both directions. ST4 is an asymmetrical AC trigger integrated circuit for use in triac phase control applications. This device reduces the snap-on effects that are present in conventional trigger circuits by eliminating control circuit hysteresis. This performance is possible with a single RC time constant.



GE Type	V_{S2} Switching Volts Min.	V_{S2} Switching Volts Max.	V_{S1} Switching Volts Min.	V_{S1} Switching Volts Max.	Max. Switching Current μA	Min. Pulse Output Volts
ST2	28*	36*	28*	36*	200	3.0
ST4	7	9	14	18	80	3.5

*For ST2, $V_{S2}-V_{S1}\pm10\%$.

TRIACS IN ISOLATED STUD CASE (243, 244)

GE Type	rms On-State Current† Amps	V_{DRM} Off-State† Volts	I_{gt} DC Trigger Current† mA§	V_{gt} DC Trigger Volts	I_{TSM}† Amps
SC240B2,3	6	200	50	2.5	80
SC240D2,3	6	400	50	2.5	80
SC240E2,3	6	500	50	2.5	80
SC240M2,3	6	600	50	2.5	80
SC245B2,3	10	200	50	2.5	100
SC245D2,3	10	400	50	2.5	100
SC245E2,3	10	500	50	2.5	100
SC245M2,3	10	600	50	2.5	100
SC250B2,3	15	200	80	2.5	100
SC250D2,3	15	400	80	2.5	100
SC250E2,3	15	500	80	2.5	100
SC250M2,3	15	600	80	2.5	100
SC260B2,3	25	200	80	2.5	250
SC260D2,3	25	400	80	2.5	250
SC260E2,3	25	500	80	2.5	250
SC260M2,3	25	600	80	2.5	250

†At 12 volts, 25°C. †Surge current at 60 Hz, one cycle non-negative. §MT2+G+, MT2–G–, MT2+ G–.

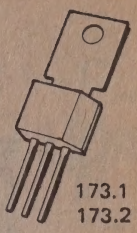
TRIACS IN STUD CASE (242)

GE Type	rms On-State Current† Amps	V_{DRM} Off-State† Volts	I_{gt} DC Trigger Current† mA	V_{gt} DC Trigger Volts	I_{TSM}† Amps
SC240B	6	200	50	2.5	80
SC240D	6	400	50	2.5	80
SC240E	6	500	50	2.5	80
SC240M	6	600	50	2.5	80
SC245B	10	200	50	2.5	100
SC245D	10	400	50	2.5	100
SC245E	10	500	50	2.5	100
SC245M	10	600	50	2.5	100
SC250B	15	200	80	2.5	100
SC250D	15	400	80	2.5	100
SC250E	15	500	80	2.5	100
SC250M	15	600	80	2.5	100
SC260B	25	200	80	2.5	250
SC260D	25	400	80	2.5	250
SC260E	25	500	80	2.5	250
SC260M	25	600	80	2.5	250
SC265B	40	200	80	2.5	300
SC265D	40	400	80	2.5	300
SC265E	40	500	80	2.5	300
SC265M	40	600	80	2.5	300

TRIACS IN PRESS FIT CASE (241)

SC241B	6	200	50	2.5	80
SC241D	6	400	50	2.5	80
SC241E	6	500	50	2.5	80
SC241M	6	600	50	2.5	80
SC246B	10	200	50	2.5	100
SC246D	10	400	50	2.5	100
SC246E	10	500	50	2.5	100
SC246M	10	600	50	2.5	100
SC251B	15	200	50	2.5	100
SC251D	15	400	50	2.5	100
SC251E	15	500	50	2.5	100
SC251M	15	600	50	2.5	100
SC261B	25	200	50	2.5	250
SC261D	25	400	50	2.5	250
SC261E	25	500	50	2.5	250
SC261M	25	600	50	2.5	250
SC266B	40	200	80	2.5	300
SC266D	40	400	80	2.5	300
SC266E	40	500	80	2.5	300
SC266M	40	600	80	2.5	300

†At 12 volts, 25°C. †Surge current at 60 Hz, one cycle non-negative. §MT2+G+, MT2–G–, MT2+ G–.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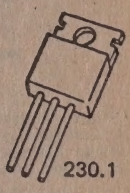
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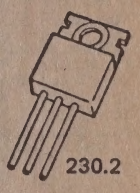
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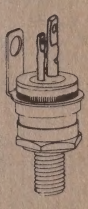
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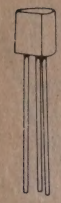
244

241

General Electric Product Selection Guide

SILICON CONTROLLED RECTIFIERS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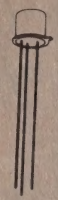
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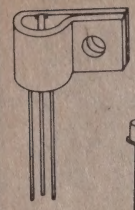
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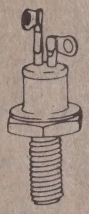
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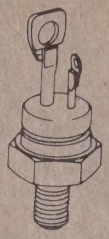
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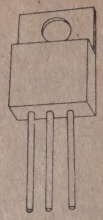
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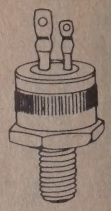
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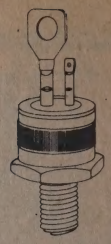
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SELECTOR GUIDE PHASE CONTROL SCR'S

"Phase Control" is a term used to describe SCR's where fast turn-off time is not a prime requirement. The trade-offs in SCR design are such that turn-off time has an inverse relationship to current and voltage capability for any given junction size.

Primary applications for a device with relatively slow turn-off are AC phase control—hence the name "Phase Control." This type of device is also used for zero voltage switching and select pulse applications.

15 VOLTS TO 500 VOLTS

rms Current Amps	Case	GE Type Repetitive Peak Forward and Reverse Voltages 15	25	30	50	100	150	200	250	300	400	500
0.5	112			2N877	2N878*	2N879	2N880	2N881				
0.8	195.1, 228			C103Y	C103YY*	C103A		C103B				
1.6	101		2N2344		2N2345	2N2346	2N2347	2N2348				
1.6	101		2N2322		2N2323	2N2324	2N2325	2N2326	2N2327	2N2328	2N2329	
1.6	101				2N1595	2N1596		2N1597		2N1598	2N1599	
4.0	232	C106Q		C106Y	C106F	C106A		C106B		C106C	C106D	C106E
4.0	232	C107Q		C107Y	C107F	C107A		C107B		C107C	C107D	C107E
5	232	C108Q		C108Y	C108F	C108A		C108B		C108C	C108D	C108E
7.4	104		C10U		C10F	C10A	C10G	C10B	C10H	C10C	C10D	
7.4	104		2N1770A		2N1771A	2N1772A	2N1773A	2N1774A	2N1775A	2N1776A	2N1777A	
7.4	104		C11U		C11F	C11A	C11G	C11B	C11H	C122C1	C11D	C11E
7.4	104		2N1770		2N1771	2N1772	2N1773	2N1774	2N1775	2N1776	2N1777	2N1778
10.0	241-243		C220U		C220F	C220A		C220B		C220C	C220D	C220E
10.0	241-243		C222U		C222F	C222A		C222B		C222C	C222D	C222E
8.0	104		C15U		C15F	C15A	C15G	C15B		C15C	C15D	C15E
8.0	173				C122F1	C122A1		C122B1			C122D1	C122E1
10.0	107		2N1842		2N1843	2N1844	2N1845	2N1846	2N1847	2N1848	2N1849	2N1850
16.0	107		C36U		C36F	C36A	C36G	C36B	C36H	C36C	C36D	C36E
25.0	241-243		C230U		C230F	C230A		C230B		C230C	C230D	C230E
25.0	241,243		C231U		C231F	C231A		C231B		C231C	C231D	C231E
25.0	241-243		C232U		C232F	C232A		C232B		C232C	C232D	C232E
25.0	241-243		C233U		C233F	C233A		C233B		C233C	C233D	C233E
25.0	107		C37U		C37F	C37A		C37B		C37C	C37D	C37E
16.0	107		2N681		2N682	2N683	2N684	2N685	2N686	2N687	2N688	2N689
35.0	107		C35U		C35F	C35A	C35G	C35B	C35H	C35C	C35D	C35E
35.0	107		C38U		C38F	C38A	C38G	C38B	C38H	C38C	C38D	C38E
35.0	107											C137E
35.0	257-260		C228U		C228F	C228A		C228B		C228C	C228D	C228E
35.0	257-260		C229U		C229F	C229A		C229B		C229C	C229D	C229E
80.0	108		C45U		C45F	C45A	C45G	C45B	C45H	C45C	C45D	C45E
80.0	109		C46U		C46F	C46A	C46G	C46B	C46H	C46C	C46D	C46E
63.0	108.1					C147A		C147B		C147C	C147D	C147E
110.0	108		2N1909		2N1910	2N1911	2N1912	2N1913	2N1914	2N1915	2N1916	C50E
110.0	109		C52U		2N1792	2N1793	2N1794	2N1795	2N1796	2N1797	2N1798	C52E
110.0	108											C150E
110.0	109											C152E
110.0	108		2N2023		2N2024	2N2025	2N2026	2N2027	2N2028	2N2029	2N2030	C60E
110.0	109		C62U		C62F	C62A	C62G	C62B	C62H	C62C	C62D	C62E

*60 volts.

600 VOLTS to 800 VOLTS

rms Current Amps	Case	GE Type Repetitive Peak Voltage (Volts) 600	700	800
7.4	104	2N2619		
25.0	107	C37M	C37S	C37N
25.0	107	2N690	2N691	2N692
25.0	241-243	C230M		
35.0	107	C35M	C35S	C35N
35.0	107	C137M	C137S	C137N
35.0	107	2N5204		2N5205
35.0	257-260	C228M		
35.0	257-260	C229M		
80.0	108	C45M	C45S	C45N
80.0	109	C46M	C46S	C46N
63.0	108.1	C147M	C147S	C147N
110.0	108	C50M	C50S	C50N
110.0	109	C52M	C52S	C52N

600 VOLTS to 800 VOLTS (Con't)

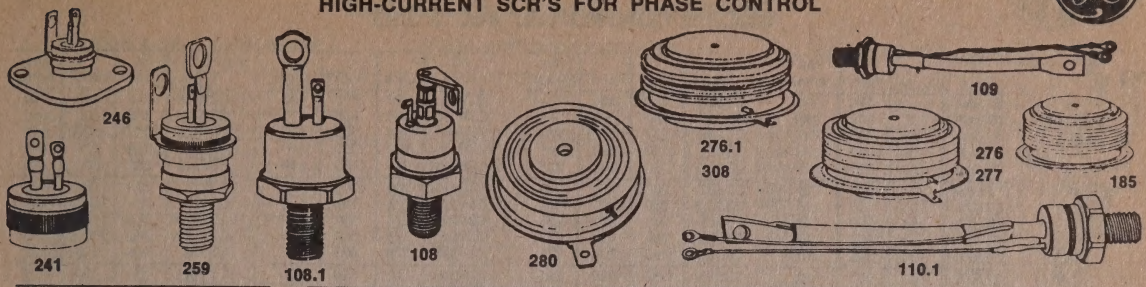
rms Current Amps	Case	GE Type Repetitive Peak Voltage (Volts) 600	700	800
110.0	108	C150M	C150S	C150N
110.0	109	C152M	C152S	C152N

900 VOLTS TO 1300 VOLTS

rms Current Amps	Case	GE Type Repetitive Peak Voltage (Volts) 900	1000	1100	1200	1300
35.0	107	C137T	C137P	C137PA	C137PB	
35.0	107		2N5206		2N5207	
63.0	108.1	C147T	C147P	C147PA	C147PB	
110.0	108	C150T	C150P	C150PA	C150PB	C150PC
110.0	109	C152T	C152P	C152PA	C152PB	C152PC

General Electric Product Selection Guide

HIGH-CURRENT SCR'S FOR PHASE CONTROL



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GE Type	Case	Volts	rms Amps
C147A	108.1	100	63
C147B	108.1	200	63
C147C	108.1	300	63
C147D	108.1	400	63
C147E	108.1	500	63
C147M	108.1	600	63
C62U	108	25	110
C62F	108	50	110
C62A	108	100	110
C62G	108	150	110
C62B	108	200	110
C62H	108	250	110
C62C	108	300	110
C62D	108	400	110
C62E	108	500	110
C50E	109	500	110
C50M	109	600	110
C50S	109	700	110
C50N	109	800	110
C50T	109	900	110
C50P	109	1000	110
C50PA	109	1100	110
C50PB	109	1200	110
C150E	109	500	110
C150M	109	600	110
C150S	109	700	110
C150N	109	800	110
C150T	109	900	110
C150P	109	1000	110
C150PA	109	1100	110
C150PB	109	1200	110
C150PC	109	1300	110
C350E	280	500	180
C350M	280	600	180
C350S	280	700	180
C350N	280	800	180
C350T	280	900	180
C350P	280	1000	180
C350PA	280	1100	180
C350PB	280	1200	180

GE Type	Case	Volts	rms Amps
C350PC	280	1300	180
C180E	110	500	235
C180M	110	600	235
C180S	110	700	235
C180N	110	800	235
C180T	110	900	235
C180P	110	1000	235
C180PA	110	1100	235
C180PB	110	1200	235
C180PC	110	1300	235
C180AX500	110	100	300
C180BX500	110	200	300
C180CX500	110	300	300
C180DX500	110	400	300
C180EX500	110	500	300
C180MX500	110	600	300
C180SX500	110	700	300
C180NX500	110	800	300
C380A	280	100	400
C380B	280	200	400
C380C	280	300	400
C380D	280	400	400
C380E	280	500	400
C380M	280	600	400
C380S	280	700	400
C380N	280	800	400
C380T	280	900	400
C380P	280	1000	400
C380PA	280	1100	400
C380PB	280	1200	400
C380PC	280	1300	400
C380AX500	280	100	500
C380BX500	280	200	500
C380CX500	280	300	500
C380DX500	280	400	500
C380EX500	280	500	500
C380MX500	280	600	500
C380SX500	280	700	500
C380NX500	280	800	500
C501S	185	700	550

GE Type	Case	Volts	rms Amps
C501N	185	800	550
C501T	185	900	550
C501P	185	1000	550
C501PA	185	1100	550
C501PB	185	1200	550
C501PC	185	1300	550
C501PD	185	1400	550
C501PE	185	1500	550
C501PM	185	1600	550
C501PS	185	1700	550
C501PN	185	1800	550
C501PT	185	1900	550
C501L	185	2000	550
C602PS	277	1700	600
C602PN	277	1800	600
C602PT	277	1900	600
C602L	277	2000	600
C602LA	277	2100	600
C602LB	277	2200	600
C602LC	277	2300	600
C602LD	277	2400	600
C602LE	277	2500	600
C602LM	277	2600	600
C441PC	276	1300	750
C441PD	276	1400	750
C441PE	276	1500	750
C441PM	276	1600	750
C441PS	276	1700	750
C441PN	276	1800	750
C390M	276	600	850
C390S	276	700	850
C390N	276	800	850
C390T	276	900	850
C390P	276	1000	850
C390PA	276	1100	850
C390PB	276	1200	850
C391PC	276	1300	850
C391PD	276	1400	850
C391PE	276	1500	850
C391PM	276	1600	850

GE Type	Case	Volts	rms Amps
C391PS	276	1700	850
C391PN	276	1800	850
C440E	276	500	900
C440M	276	600	900
C440S	276	700	900
C440N	276	800	900
C440T	276	900	900
C440P	276	1000	900
C440PA	276	1100	900
C440PB	276	1200	900
C702L	276,1	2000	1000
C702LA	276.1	2100	1000
C702LB	276.1	2200	1000
C702LC	276.1	2300	1000
C702LD	276.1	2400	1000
C601PA	277	1100	1100
C601PB	277	1200	1100
C601PC	277	1300	1100
C601PD	277	1400	1100
C601PE	277	1500	1100
C601PM	277	1600	1100
C601PS	277	1700	1100
C701PA	276.1	1100	1250
C791PB	276.1	1200	1250
C701PC	276.1	1300	1250
C701PD	276.1	1400	1250
C701PE	276.1	1500	1250
C701PM	276.1	1600	1250
C701PS	276.1	1700	1250
C701PN	276.1	1800	1250
C701PT	276.1	1900	1250
C701PL	276.1	2000	1250
C502PE	185	1500	550
C502PM	185	1600	550
C502PS	185	1700	550
C502PN	185	1800	550
C502PT	185	1900	550
C502L	185	2000	550
C502LA	185	2100	550

MEDIUM CURRENT SCR'S FOR INVERTER CONTROL

GE Type	Case	Volts*	rms Amps
C234F	242-246	50	25
C234A	242-246	100	25
C234B	242-246	200	25
C234C	242-246	300	25
C234D	242-246	400	25
C234E	242-246	500	25
C234M	242-246	600	25
C235F	241	50	25
C235A	241	100	25
C235B	241	200	25
C235C	241	300	25
C235D	241	400	25
C235E	241	500	25
C235M	241	600	25
C138E**	107	500	35
C138M**	107	600	35
C138S**	107	700	35
C138N**	107	800	35
C139E**	107	500	35
C139M**	107	600	35

GE Type	Case	Volts*	rms Amps
C139S**	107	700	35
C139N**	107	800	35
C140F†	107	50	35
C140A†	107	100	35
C140B†	107	200	35
C140C†	107	300	35
C140D†	107	400	35
C141F†	107	50	35
C141A†	107	100	35
C141B†	107	200	35
C141C†	107	300	35
C141D†	107	400	35
C144E**	107	500	35
C144**	107	600	35
C144S**	107	700	35
C144N**	107	800	35
C149A**	108.1	100	63
C149B**	108.1	200	63
C149C**	108.1	300	63
C149D**	108.1	400	63

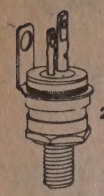
GE Type	Case	Volts*	rms Amps
C149E**	108.1	500	63
C149M**	108.1	600	63
C154A	109	100	110
C154B	109	200	110
C154C	109	300	110
C154D	109	400	110
C154E	109	500	110
C154M	109	600	110
C155A	109	100	110
C155B	109	200	110
C155C	109	300	110
C155D	109	400	110
C155E	109	500	110
C155M	109	600	110
C156A	108	100	110
C156B	108	200	110
C156C	108	300	110
C156D	108	400	110
C156E	108	500	110
C156M	108	600	110

GE Type	Case	Volts*	rms Amps
C358E	280	500	225
C358M	280	600	225
C358S	280	700	225
C358N	280	800	225
C358T	280	900	225
C358P	280	1000	225
C358PA	280	1100	225
C358PB	280	1200	225
C354A	280	100	275
C354B	280	200	275
C354C	280	300	275
C354D	280	400	275
C354E	280	500	275
C354M	280	600	275
C184A	110.1	100	300
C184B	110.1	200	300
C184C	110.1	300	300
C184D	110.1	400	300
C184E	110.1	500	300
C184M	110.1	600	300

*Repetitive peak forward and reverse voltage. ‡Also available as 2N3649, 50, 51, 52, and 53.
**Specify suffix 10M or 20M to indicate cut-off time desired (μ seconds). †Also available as 2N3649 to 2N3658.

General Electric Product Selection Guide

SILICON CONTROLLED RECTIFIERS



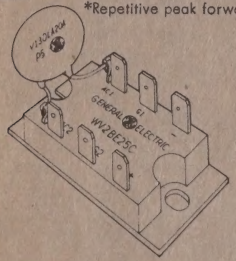
GE Type	Case	Volts*	rms Amps
C156A	....	100	110
C156B	108	200	110
C156C	108	300	110
C156D	108	400	110
C156E	108	500	110
C156M	....	600	110
C157A	108	100	110
C157B	108	200	110
C157C	108	300	110
C157D	108	400	110
C157E	108	500	110
C157M	108	600	110
C158E	109	500	110
C158M	109	600	110
C158S	109	700	110
C158N	109	800	110
C158T	109	900	110
C158P	109	1000	110
C158PA	109	1100	110
C158PB	109	1200	110
C159E	108	500	110
C159M	108	600	110
C159S	108	700	110
C159N	108	800	110
C159T	108	900	110
C159P	108	1000	110
C159PA	108	1100	110
C159PB	108	1200	110
C164A	109	100	110
C164B	109	200	110
C164C	109	300	110
C164D	109	400	110
C164E	109	500	110
C164M	109	600	110
C165A	108	100	110
C165B	108	200	110
C165C	108	300	110
C165D	108	400	110
C165E	108	500	110
C165M	108	600	110
C354A	280	100	275
C354B	280	200	275
C354C	280	300	275
C354D	280	400	275
C354E	280	500	275

GE Type	Case	Volts*	rms Amps
C354M	280	600	275
C355A	280	100	275
C355B	280	200	275
C355C	280	300	275
C355D	280	400	275
C355E	280	500	275
C355M	280	600	275
C358E	280	500	225
C358M	280	600	225
C358S	280	700	225
C358N	280	800	225
C358T	280	900	225
C358P	280	1000	225
C358PA	280	1100	225
C358PB	280	1200	225
C186S	110.1	700	235
C186N	110.1	800	235
C186T	110.1	900	235
C186P	110.1	1000	235
C186PA	110.1	1100	235
C186PB	110.1	1200	235
C364A	280	100	275
C364B	280	200	275
C364C	280	300	275
C364D	280	400	275
C364E	280	500	275
C364M	280	600	275
C365A	280	100	275
C365B	280	200	275
C365C	280	300	275
C365D	280	400	275
C365E	280	500	275
C365M	280	600	275
C185A	110.1	100	300
C185B	110.1	200	300
C185C	110.1	300	300
C185D	110.1	400	300
C185E	110.1	500	300
C185M	110.1	600	300
C385A	280	100	400
C385B	280	200	400
C385C	280	300	400
C385D	280	400	400
C385E	280	500	400
C385M	280	600	400

GE Type	Case	Volts*	rms Amps
C386S	280	700	400
C386N	280	800	400
C386T	280	900	400
C386P	280	1000	400
C386PA	280	1100	400
C386PB	280	1200	400
C392A	276	100	500
C392B	276	200	500
C392C	276	300	500
C392D	276	400	500
C392E	276	500	500
C392M	276	600	500
C393A	276	100	500
C393B	276	200	500
C393C	276	300	500
C393D	276	400	500
C393E	276	500	500
CC93M	276	600	500
C387E	276	500	500
C387M	276	600	500
C387S	276	700	500
C387N	276	800	500
C387T	276	900	500
C387P	276	1000	500
C387PA	276	1100	500
C387PB	276	1200	500
C388E	276	500	500
C388M	276	600	500
C388S	276	700	500
C388N	276	800	500
C388T	276	900	500
C388P	276	1000	500
C388PA	276	1100	500
C388PB	276	1200	500
C394A	276	100	700
C394B	276	200	700
C394C	276	300	700
C394D	276	400	700
C394E	276	500	700
C394M	276	600	700
C395A	276	100	700
C395B	276	200	700
C395C	276	300	700
C395D	276	400	700
C395E	276	500	700

GE Type	Case	Volts*	rms Amps
C395M	276	600	700
C397E	276	500	650
C397M	276	600	650
C397S	276	700	605
C397N	276	800	650
C397T	276	900	650
C397P	276	1000	650
C397PA	276	1100	650
C397PB	276	1200	650
C398E	276	500	650
C398M	276	600	605
C398S	276	700	650
C398N	276	800	650
C398T	276	900	650
C398P	276	1000	650
C398PA	276	1100	650
C398PB	276	1200	650
C447S	276	700	1000
C447N	276	800	1000
C447T	276	900	1000
C447P	276	1000	1000
C447PA	276	1100	1000
C447PB	276	1200	1000
C448S	276	700	1000
C448N	276	800	1000
C448T	276	900	1000
C448P	276	1000	1000
C448PA	276	1100	1000
C448PB	276	1200	1000
C444A	276	100	1100
C444B	276	200	1100
C444C	276	300	1100
C444D	276	400	1100
C444E	276	500	1100
C444M	276	600	1100
C445A	276	100	1100
C445B	276	200	1100
C445C	276	300	1100
C445D	276	400	1100
C445E	276	500	1100
C445M	276	600	1100
C447E	....	500	.....
C447M	....	600	.....
C448E	....	500	.....
C448M	....	600	.....

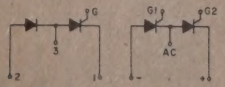
*Repetitive peak forward and reverse voltage.



POWER MODULES

- **Used in Power Supplies & Battery Chargers**

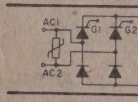
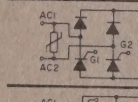
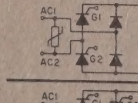
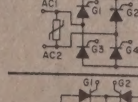
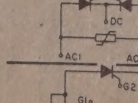
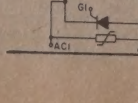
Power modules are miniaturized, self-contained, epoxy encapsulated modules capable of performing basic AC to DC conversion functions. Typical applications include — DC power supplies, DC motor controls, battery chargers, magnetic clutches and brakes. ALL modules incorporate Power Glas™ Passivated semiconductors with pellet mountdown and interconnect techniques.



BASIC BUILDING BLOCKS COMMON CHARACTERISTICS

Isolation Breakdown .....2500 V_{peak}
Gate voltage to trigger.....25 mV
Gate Current to Trigger 40mA
Operating Temperature.....40 to 125 C
Surge, Peak one cycle.....300 A
Fusing, I^2 t @ 8.3 mSec.....370 A^2 sec

GE TYPES

	Io AVERAGE @85° (A)	V_{IN} (V)	BASIC CIRCUIT	WITHOUT GE-MOV® VARISTOR
	25	120	WV2BE25C	W2BE25C
		240	WV2BE25E	W2BE25E
	25	120	WV2BJ25C	W2BJ25C
		240	WV2BJ25E	W2BJ25E
	25	120	WV2BA25C	W2BA25C
		240	WV2BA25E	W2BA25E
	25	120	WV2BH25C	W2BH25C
		240	WV2BH25E	W2BH25E
	25	120	WV2CA25C	W2CA25C
		240	WV2CA25E	W2CA25E
	50A RMS	120	WV2AA50C	W2AA50C
		240	WV2AA50E	W2AA50E

General Electric Product Selection Guide

SILICON SMALL SIGNAL TRANSISTORS

SILICON SIGNAL DARLINGTON TRANSISTORS

Type	Polarity	BV_{CEO} @ 10 mA Volts	hFE @ Ic Min.-Max.	mA	fT MHz
TO-98 PACKAGE					
2N5305	NPN	25	2K-20K	2	60
2N5306	NPN	25	7K-70K	2	60
2N5306A	NPN	25	7K-70K	2	60
2N5307	NPN	40	2K-20K	2	60
2N5308	NPN	40	7K-70K	2	60
2N5308A	NPN	40	7K-70K	2	60
D16P1	NPN	12	2K-70K	2	.....
TO-92 PACKAGE					
GES5305	NPN	25	2K-20K	2	50
GES5306	NPN	25	7K-70K	2	50
GES5306A	NPN	25	7K-70K	2	50
GES5307	NPN	40	2K-20K	2	50
GES5308	NPN	40	7K-70K	2	50
GES5308A	NPN	40	7K-70K	2	50
D38L1	NPN	40	2K-20K	2	80
D38L2	NPN	40	7K-70K	2	80
D38L3	NPN	40	50K min.	2	80
D38L4	NPN	25	2K-20K	2	80
D38L5	NPN	25	7K-70K	2	80
D38L6	NPN	25	50K min.	2	80
D39C1	PNP	40	2K-20K	2	80
D39C2	PNP	40	7K-70K	2	80
D39C3	PNP	40	50K min.	2	80
D39C4	PNP	25	2K-20K	2	80
D39C5	PNP	25	7K-70K	2	80
D39C6	PNP	25	50K min.	2	80

SILICON GENERAL PURPOSE SIGNAL AMPLIFIERS

Type	Polarity	BV_{CEO} @ 10 mA Volts	hFE @ Ic Min.-Max.	mA	fT MHz
TO-98 PACKAGE					
2N2711	NPN	18	30-90	2	120
2N2712	NPN	18	75-225	2	120
2N2713	NPN	18	30-90	2	120
2N2714	NPN	18	75-225	2	120
2N2923	NPN	25	90-180	2	120
2N2924	NPN	25	150-300	2	120
2N2925	NPN	25	235-470	2	120
2N2926	NPN	18	35-470	2	120
2N3390	NPN	25	400-800	2	120
2N3391†	NPN	25	250-500	2	120
2N3391A†	NPN	25	250-500	2	120
2N3392	NPN	25	150-300	2	120
2N3393	NPN	25	90-180	2	120
2N3394	NPN	25	55-110	2	120
2N3395	NPN	25	150-500	2	120
2N3396	NPN	25	90-500	2	120
2N3397	NPN	25	55-500	2	120
2N3398	NPN	25	55-800	2	120
2N3402	NPN	25	75-225	2	150
2N3403	NPN	25	180-540	2	150
2N3404	NPN	50	75-225	2	150
2N3405	NPN	50	180-540	2	150
2N3414	NPN	25	75-225	2	150
2N3415	NPN	25	180-540	2	150
2N3416	NPN	50	75-225	2	150
2N3417	NPN	50	180-540	2	150
2N3662	NPN	12	20 min.	8	1000
2N3663	NPN	12	20 min.	8	1000
2N3721	NPN	18	60-660	2	120
2N3843	NPN	30	20-40	2	150
2N3843A	NPN	30	20-40	2	150
2N3844†	NPN	30	35-70	2	150
2N3844A	NPN	30	35-70	2	150
2N3845†	NPN	25	60-120	2	150
2N3845A†	NPN	25	60-120	2	150
2N3854	NPN	36	35-70	2	200
2N3854A	NPN	36	35-70	2	200
2N3855	NPN	36	60-120	2	200
2N3855A	NPN	36	60-120	2	200
2N3856	NPN	36	100-200	2	200
2N3856A	NPN	36	100-200	2	200
2N3858	NPN	40	60-120	2	150
2N3858A	NPN	60	60-120	2	150
2N3859	NPN	40	100-200	2	150
2N3859A	NPN	60	100-200	2	150
2N3860	NPN	40	150-300	2	150
2N3877	NPN	70	20 min.	2	120
2N3877A	NPN	85	20 min.	2	120
2N3900†	NPN	18	250-500	2	120
2N3900A†	NPN	18	250-500	2	120
2N3901†	NPN	25	350-700	2	120

TO-98 PACKAGE (CONTINUED)

Type	Polarity	BV_{CEO} @ 10 mA Volts	hFE @ Ic Min.-Max.	mA	fT MHz
2N4256	NPN	40	100-500	2	120
2N4424	NPN	40	180-540	2	150
2N4425	NPN	40	180-540	2	150
2N5172	NPN	25	100-500	10	100
2N5174	NPN	75	40-600	10	120
2N5232†	NPN	50	250-500	2	150
2N5232A†	NPN	50	250-500	2	150
2N5249†	NPN	50	400-800	2	150
2N5249A†	NPN	50	400-800	2	150
2N5309†	NPN	50	60-120	10*	150
2N5310†	NPN	50	100-300	10*	150
2N5311†	NPN	50	250-500	10*	150
2N5354	PNP	25	40-120	50	200
2N5355	PNP	25	100-300	50	200
2N5356	PNP	25	250-500	50	200
2N5365	PNP	40	40-120	50	350
2N5366	PNP	40	100-300	50	350
2N5418	NPN	25	40-120	50	250
2N5419	NPN	25	100-300	50	250
2N5420	NPN	25	250-500	50	250
2N6076	PNP	25	100-500	10	300
D16G6	NPN	12	20 min.	8	1000
D29E1	PNP	25	60-200	2	150
D29E2	PNP	25	150-500	2	165
D29E4	PNP	40	60-120	2	120
D29E5	PNP	40	100-200	2	135
D29E6	PNP	40	150-300	2	150
D29E7	PNP	40	200-500	2	150
D29E9	PNP	60	60-120	2	120
D29E10	PNP	60	100-200	2	135
D33D21	NPN	25	60-200	2	150
D33D22	NPN	25	150-500	2	165
D33D24	NPN	40	60-120	2	120
D33D25	NPN	40	100-200	2	135
D33D26	NPN	40	150-300	2	150
D33D27	NPN	40	200-500	2	150
D33D29	NPN	60	60-120	2	120
D33D30	NPN	60	100-200	2	135
GES6000	NPN	25	100-300	10	150
GES6001†#	PNP	25	100-300	10	250
GES6002#	NPN	25	200-500	10	170
GES6003#	PNP	25	200-500	10	250
GES6004†#	NPN	40	100-300	10	150
GES6005†#	PNP	40	100-300	10	250
GES6006#	NPN	40	200-500	10	170
GES6007#	PNP	40	200-500	10	250
GES6010†#	NPN	40	100-300	10	125
GES6011†#	PNP	40	100-300	10	100
GES6012†#	NPN	40	200-500	10	150
GES6013†#	PNP	40	200-500	10	125
GES6014†#	NPN	60	100-300	10	125
GES6015†#	PNP	60	100-300	10	100
GES6218	NPN	300	20 min.	20	65
GES6219	NPN	350	20 min.	20	65
GES6220	NPN	200	20 min.	20	65
GES6221#	NPN	150	20 min.	20	65
GES6222#	NPN	60	75-200	2	100
GES6224	NPN	60	150-300	2	100
MPSA05	NPN	60	50 min.	100	100
MPSA06	NPN	80	50 min.	100	100
MPSA20	NPN	40	40-400	5	140
MPSA55	PNP	60	50 min.	100	100
MPSA56	PNP	80	50 min.	100	100
MPS3638#	PNP	25	30 min.	50	125
MPS3638A#	PNP	25	100 min.	50	175
MPS3702	PNP	25	60-300	50	150
MPS3703	PNP	30	30-150	50	150
MPS3704	NPN	30	100-300	50	100
MPS3705	NPN	30	50-150	50	100
MPS3706	NPN	20	30-600	50	100
MPS6516	PNP	40	50-100	2	225
MPS6517	PNP	40	90-180	2	225
MPS6518	PNP	40	150-300	2	350
MPS6519	PNP	25	250-500	2	340
MPS6530	NPN	40	25 min.	500	250
MPS6531	NPN	40	50 min.	500	250
MPS6532	NPN	30	30 min.	100	250
MPS6533	PNP	40	25 min.	500	350
MPS6534	PNP	40	50 min.	500	350
MPS6535	PNP	30	30 min.	100	350
MPS6565	NPN	45	40-160	10	225
MPS6566	NPN	45	100-400	10	225
D38H1	NPN	60	55 min.	100	80
D38H2	NPN	60	90 min.	100	80
D38H3	NPN	60	150 min.	100	80
D38H4	NPN	80	55 min.	100	80
D38H5	NPN	80	90 min.	100	80
D38H6	NPN	80	150 min.	100	80

TO-98 PACKAGE (CONT'D)

Type	Polarity	BV_{CEO} @ 10 mA Volts	hFE @ Ic Min.-Max.	mA	fT MHz
D38H7	NPN	100	55 min.	100	80
D38H8	NPN	100	90 min.	100	80
D38H9	NPN	100	150 min.	100	80
D38S1†	NPN	30	400-800	0.1	200
D38S2†	NPN	30	600-1200	0.1	200
D38S3†	NPN	30	1000-2000	0.1	200
D38S4†	NPN	30	1500-3000	0.1	200
D38S5†	NPN	45	400-800	0.1	200
D38S6†	NPN	45	600-1200	0.1	200
D38S7†	NPN	45	1000-2000	0.1	200
D38S8†	NPN	60	250-500	0.1	200
D38S9†	NPN	60	400-800	0.1	200
D38S10†	NPN	60	600-1200	0.1	200
D38W7†	NPN	80	150-300	0.1	75
D38W8†	NPN	80	250-500	0.1	75
D38W9†	NPN	80	400-800	0.1	75
D38W10†	NPN	80	600-1200	0.1	75
D39J1	PNP	60	50 min.	0.1	60
D39J2	PNP	60	80 min.	0.1	60
D39J3	PNP	60	150 min.	0.1	60
D39J4	PNP	80	50 min.	0.1	60
D39J5	PNP	80	80 min.	0.1	60
D39J6	PNP	80	150 min.	0.1	60
D39J7	PNP	100	50 min.	0.1	60
D39J8	PNP	100	80 min.	0.1	60
D39J9	PNP	100	150 min.	0.1	60

†Low-noise amplifier. #Switching type.

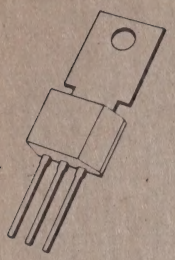
TO-92 PACKAGE

Type	Polarity	BV_{CEO} @ 10 mA Volts	hFE @ Ic Min.-Max.	mA	fT MHz
2N3903#	NPN	40	50-150	10	300
2N3904#	NPN	40	100-300	10	350
2N3905#	PNP	40	50-150	10	250
2N3906#	PNP	40	100-300	10	300
2N4123	NPN	30	50-150	2	300
2N4124	NPN	25	120-360	2	350
2N4125	PNP	30	50-150	2	250
2N4126	PNP	25	120-360	2	300
2N4400#	NPN	40	50-150	150	225
2N4401#	NPN	40	100-300	150	275
2N4402#	PNP	40	50-150	150	300
2N4403#	PNP	40	100-300	150	350
2N4409	NPN	50	60-400	10	100
2N4410	NPN	80	60-400	10	100
2N5088	NPN	30	300-900	0.1	75
2N5089	NPN	25	400-1200	0.1	75
2N5219	NPN	15	35-500	2	200
2N5220	NPN	15	30-600	50	125
2N5221	PNP	15	30-600	50	125
2N5223	NPN	20	50-800	2	200
2N5225	NPN	25	30-600	50	75
2N5226	PNP	25	30-600	50	100
2N5227	PNP	30	50-700	2	125
GES929†	NPN	50	60-120	0.01	100
GES930†	NPN	50	100-300	0.01	100
GES2221	NPN	30	40-120	150	275
GES2221A	NPN	40	40-120	150	275
GES2222	NPN	30	100-300	150	275
GES2222A	NPN	40	100-300	150	325
GES2906#	PNP	40	40-120	150	225
GES2907#	PNP	40	100-300	150	225
GES5368#	NPN	30	60-200	150	200
GES5369#	NPN	30	100-300	150	200
GES5370#	NPN	30	200-600	150	200
GES5371#	NPN	30	60-600	150	200
GES5372#	PNP	30	40-200	150	200
GES5373#	PNP	30	100-300	150	200
GES5374#	PNP	30	200-400	150	200
GES5375#	PNP	30	40-400	150	200
GES5810	NPN	25	60-200	2	125
GES5811	PNP	25	60-200	2	125
GES5812	NPN	25	150-500	2	150
GES5813	PNP	25	150-500	2	150
GES5814	NPN	40	60-160	2	125
GES5815	PNP	40	60-160	2	125
GES5816	NPN	40	100-200	2	150
GES5817	PNP	40	100-200	2	150
GES5818	NPN	40	150-300	2	150
GES5819	PNP	40	150-300	2	150
GES5820	NPN	60	60-160	2	125
GES5821	PNP	60	60-160	2	125
GES5822	NPN	60	100-200	2	150
GES5823	PNP	60	100-200	2	150
GES5824	NPN	40	60-120	2	100
GES5825	NPN	40	100-200	2	100
GES5826	NPN	40	150-300	2	100
GES5827	NPN	40	250-500	2	100
GES5828	NPN	40	400-800	2	100

*Microamperes. †Low-noise amplifier. #Switching type.

General Electric Product Selection Guide

SILICON POWER TRANSISTORS



Power Tab plastic encapsulated devices engineered to deliver excellent performance with maximum value. Can be supplied with formed leads to fit TO-5 or TO-66 configurations. Contact your nearest NEWARK distributor for information. Data and pricing on request.

D40D/D41D, D40E/D41E, D42C/D43C are complementary. D40N and D40P applications in CRT video output, regulators, inverters. D40C, D, E, K; D41D, E; D42C; D43C; applications as audio output, 3 watts to 20 watts. Other applications include regulators, drivers, inverters, motor controls, lamp controls and relay drivers.

NPN Darlington h_{FE} at $V_{CE} = 5$ V and $I_C = 200$ mA. $V_{CE(SAT)}$ at $I_C = 500$ mA and $I_B = 0.5$ mA. $f_T = 75$ MHz.

GE Type	hFE	Min. V_{CEO} V	IC Cont. A	IC Peak A	PT W
D40C1	10K-60K	30	0.5	1.0	6.25
D40C2	40K min.	30	0.5	1.0	6.25
D40C3	90K min.	30	0.5	1.0	6.25
D40C4	10K-60K	30	0.5	1.0	6.25
D40C5	40K min.	30	0.5	1.0	6.25
D40C7	10K-60K	30	0.5	1.0	6.25
D40C8	40K min.	30	0.5	1.0	6.25

NPN Darlington h_{FE} at $V_{CE} = 5$ V and $I_C = 200$ mA. $V_{CE(SAT)}$ at $I_C = 1.5$ amps and $I_B = 3$ mA. $f_T = 75$ MHz.

D40K1	10K min.	30	2.0	2.5	10
D40K2	10K min.	50	3.0	2.5	10

NPN h_{FE} at $V_{CE} = 2$ V and $I_C = 100$ mA. $V_{CE(SAT)}$ at $I_C = 500$ mA and $I_B = 50$ mA. $f_T = 200$ MHz.

GE Type	hFE	Min. V_{CEO} V	IC Cont. A	IC Peak A	PT W
D40D1	50-150	30	1.0	1.5	6.25
D40D2	120-360	30	1.0	1.5	6.25
D40D3	290 min.	30	1.0	1.5	6.25
D40D4	50-150	45	1.0	1.5	6.25
D40D5	120-360	45	1.0	1.5	6.25
D40D7	50-150	60	1.0	1.5	6.25
D40D8	120-360	60	1.0	1.5	6.25
D40D10	50-150	75	1.0	1.5	6.25
D40D11	120-360	75	1.0	1.5	6.25
D40D13	50-150	75	1.0	1.5	6.25
D40D14	120-360	75	1.0	1.5	6.25

NPN h_{FE} at $V_{CE} = 2$ V and $I_C = 100$ mA.

GE Type	hFE§	Min. V_{CEO} V	IC Cont. A	IC Peak A	PT W
D40E1	50 min.‡	30	2	.3	8
D40E5	50 min.‡	60	2	.3	8
D40E7	50 min.‡	80	2	.3	8

PNP h_{FE} at $V_{CE} = 2$ V and $I_C = 100$ mA. $V_{CE(SAT)}$ at $I_C = -500$ mA and $I_B = -50$ mA. $f_T = 150$ MHz.

GE Type	BFE	Min. V_{CEO} V	IC Cont. A	IC Peak A	PT W
D41D1	50-150	−30	−1.0	−1.5	6.25
D41D2	120-360	−30	−1.0	−1.5	6.25
D41D4	50-150	−45	−1.0	−1.5	6.25
D41D5	120-360	−45	−1.0	−1.5	6.25
D41D7	50-150	−60	−1.0	−1.5	6.25
D41D8	120-360	−60	−1.0	−1.5	6.25
D41D10	50-150	−75	−1.0	−1.5	6.25
D41D11	120-360	−75	−1.0	−1.5	6.25
D41D13	50-150	−75	−1.0	−1.5	6.25
D41D14	120-360	−75	−1.0	−1.5	6.25

NPN h_{FE} at $V_{CE} = 10$ V and $I_C = 80$ mA. $V_{CE(SAT)}$ at $I_C = 100$ mA and $I_B = 10$ mA. $f_T = 50$ MHz.

D40P1	40 min.#	120	0.5	1.0	6.25
D40P3	40 min.#	180	0.5	1.0	6.25
D40P5	40 min.#	225	0.5	1.0	6.25

PNP h_{FE} at $V_{CE} = 2$ V and $I_C = 100$ mA.

D41E1	50 min.‡	−30	2	.3	8
D41E5	50 min.‡	−60	2	.3	8
D41E7	50 min.‡	−80	2	.3	8

PNP Darlington H_{FE} at $V_{CD} = 5$ V, $I_C = 200$ mA. $V_{CE(SAT)}$ at $I_C = 1.5$A, $I_B = 3$ mA for D41K1, 2 and $V_{CE(SAT)}$ at $I_C = 1.0$A, $I_B = 2$mA for D41K3, 4. $f_T = 100$ MHz.

D41K1	10K min.	−30	−2	−3	10
D41K2	10K min.	−50	−2	−3	10
D41K3	10K min.	−30	−2	−3	10
D41K4	10K min.	−50	−2	−3	10

PT at 25°C tab temperature.
‡20 when measured at 2 mA collector current.
‡10 at V_{CE} −2 V and I_C −1 A.

NPN High Voltage $f_t = 45$ MHz (80 MHz for D40V1, D40V2, D40V3, D40V4, D40V5, D40V6) 50 MHz for D44Q1, D44Q3, D44Q5) Power tab package except for the following which have power pac; D44Q1, D44Q3, D44Q5, D44T1, D44T2, D44T3, D44T4, D44T5, D44T6, D44T7, D44T8.

GE Type	hFE Min.	hFE Max.	Min. V_{CEO} V	IC Cont. A	Pt W
D40V1	...	...	250	0.1	9.0
D40V2	...	...	250	0.1	9.0
D40V3	...	...	300	0.1	9.0
D40V4	...	...	300	0.1	9.0
D40V5	...	...	350	0.1	9.0
D40V6	...	...	350	0.1	9.0
D40P1	20	...	120	0.5	6.2
D40P3	20	...	180	0.5	6.2
D40P5	20	...	225	0.5	6.2
D42T1	30	90	250	2.0	15.0
D42T2	75	175	250	2.0	15.0
D42T3	30	90	300	2.0	15.0
D42T4	75	175	300	2.0	15.0
D42T5	30	...	250	2.0	15.0
D42T6	30	...	300	2.0	15.0
D42T7	150	300	250	2.0	15.0
D42T8	150	300	300	2.0	15.0
D44Q1	20	...	125	4.0	31.2
D44Q3	20	...	175	4.0	31.2
D44Q5	20	...	225	4.0	31.2
D44T1	30	90	250	2.0	31.2
D44T2	75	175	250	2.0	31.2
D44T3	30	90	300	2.0	31.2
D44T4	75	175	300	2.0	31.2
D44T5	30	...	250	2.0	31.2
D44T6	30	...	300	2.0	31.2
D44T7	150	300	250	2.0	31.2
D44T8	150	300	300	2.0	31.2

NPN h_{FE} at $V_{CE} = 1$ V and $I_C = 200$ mA. $V_{CE(SAT)}$ at $I_C = 1$ A and $I_B = 50$ mA. $f_T = 50$ MHz.

GE Type	hFE§	Min. V_{CEO} V	IC Cont. A	IC Peak A	PT W
D42C1	25 min.	30	3.0	5.0	12.5
D42C2	40-120	30	3.0	5.0	12.5
D42C3†	40-120	30	3.0	5.0	12.5
D42C4	25 min.	45	3.0	5.0	12.5
D42C5	40-120	45	3.0	5.0	12.5
D42C6†	40-120	45	3.0	5.0	12.5
D42C7	25 min.	60	3.0	5.0	12.5
D42C8	40-120	60	3.0	5.0	12.5
D42C9†	40-120	60	3.0	5.0	12.5
D42C10	25 min.	80	3.0	5.0	12.5
D42C11*	40-120	80	3.0	5.0	12.5
D42C12†	40-120	80	3.0	5.0	12.5

NPN h_{FE} at $V_{CE} = 10$ V and $I_C = 500$ mA. $V_{CE(SAT)}$ at $I_C = 500$ mA and $I_B = 50$ mA. P_T for D42R1, 2 and $V_{CE(SAT)}$ at $I_C = 300$ mA, $I_B = 30$ mA for D42R3, 4. $f_T = 55$ MHz.

D42T1	30 min.	250	1.0	2.0	15
D42T2	30 min.	300	1.0	2.0	15
D42T3	30 min.	250	1.0	2.0	15
D43T4	30 min.	300	1.0	2.0	15

PNP h_{FE} at $V_{CE} = -1$ V and $I_C = -200$ mA. $V_{CE(SAT)}$ at $I_C = -1$ A and $I_B = -50$ mA. $f_T = 40$ MHz.

GE Type	hFE§	Min. V_{CEO} V	IC Cont. A	IC Peak A	PT W
D43C1	25 min.	−30	−3.0	−5.0	12.5
D43C2	40-120	−30	−3.0	−5.0	12.5
D43C3†	40-120	−30	−3.0	−5.0	12.5
D43C4	25 min.	−45	−3.0	−5.0	12.5
D43C5	40-120	−45	−3.0	−5.0	12.5
D43C6†	40-120	−45	−3.0	−5.0	12.5
D43C7	25 min.	−60	−3.0	−5.0	12.5
D43C8	40-120	−60	−3.0	−5.0	12.5
D43C9†	40-120	−60	−3.0	−5.0	12.5
D43C10	25 min.	−80	−3.0	−5.0	12.5
D43C11*	40-120	−80	−3.0	−5.0	12.5
D43C12†	40-120	−80	−3.0	−5.0	12.5

NPN Power Darlington. Complementary—4 Amperes, red or green power tab packages.

GE Type	hFE Min.	V_{CEO} Min. V	IC Cont.	Pt W
D42D1	5000	40	4.0	12.5
D42D2	5000	40	4.0	12.5
D42D3	5000	60	4.0	12.5
D42D4	5000	60	4.0	12.5
D42D5	5000	80	4.0	12.5
D42D6	5000	80	4.0	12.5

PNP Power Darlington. Complementary—4 Amperes, red or green power tab packages.

GE Type	hFE Min.	V_{CEO} Min. V	IC Cont.	Pt W
D43D1	5000	−40	−4.0	12.5
D43D2	5000	−40	−4.0	12.5
D43D3	5000	−60	−4.0	12.5
D43D4	5000	−60	−4.0	12.5
D43D5	5000	−80	−4.0	12.5
D43D6	5000	−80	−4.0	12.5

*h_{FE}=20 min. at 2 V, 1 A; all others = 10 min. †h_{FE} = 20 min. when measured at $I_C = 2$ A.

§h_{FE}=20 min. at 1 V, 1 A on parts 2, 5, 8, 11; h_{FE}=10 min. at 1 V, 1 A on parts 1, 4, 7, 10. $V_{CE(SAT)}$ on parts 1, 4, 7, 10 is measured at 1 A, 100 mA.

General Electric Product Selection Guide

SILICON POWER PAC TRANSISTORS

NPN h_{FE} at V_{CE}=1 V and I_C=200 mA. $V_{CE(SAT)}$ at I_C=1A and I_B=50 mA. f_T=50 MHz.

GE Type	h_{FE}§	Min. V_{CEO} V	I_C Cont. A	I_C Peak A	P_T W
D44C1	25 min.	30	4.0	6.0	30.0
D44C2	40-120	30	4.0	6.0	30.0
D44C3#	40-120	30	4.0	6.0	30.0
D44C4	25 min.	45	4.0	6.0	30.0
D44C5	40-120	45	4.0	6.0	30.0
D44C6#	40-120	45	4.0	6.0	30.0
D44C7	25 min.	60	4.0	6.0	30.0
D44C8	40-120	60	4.0	6.0	30.0
D44C9#	40-120	60	4.0	6.0	30.0
D44C10	25 min.	80	4.0	6.0	30.0
D44C11*	40-120	80	4.0	6.0	30.0
D44C12#	40-120	80	4.0	6.0	30.0

NPN Complementary — 6 Amperes Power tab packages, red or green.

GE Type	h_{FE} Min.	V_{CEO} Min.	I_C Cont.	P_T W
D44D1	5000	40	6.0	30.0
D44D2	5000	40	6.0	30.0
D44D3	5000	60	6.0	30.0
D44D4	5000	60	6.0	30.0
D44D5	5000	80	6.0	30.0
D44D6	5000	80	6.0	30.0

PNP Darlington h_{FE} at I_C=5.0 A, V_{CE}= 5 V. $V_{CE(SAT)}$ at I_C=5.0 A. I_B=10mA.

GE Type	h_{FE}§	Min. V_{CEO} V	I_C Cont. A	I_C Peak A	PT W
D44E1	1000 min.	40	10	20	50
D44E2	1000 min.	60	10	20	50
D44E3	1000 min.	80	10	20	50

NPN h_{FE} at V_{CE}=10 V and I_C=2 amps. $V_{CE(SAT)}$ at I_C=2 amps and I_B=200 mA. f_T=50 MHz.

GE Type	h_{FE}§	Min. V_{CEO} V	I_C Cont. A	I_C Peak A	PT W
D44Q1	20 min.‡	125	4.0	8.0	31.25
D44Q3	20 min.‡	175	4.0	8.0	31.25
D44Q5	20 min.‡	225	4.0	8.0	31.25

NPN h_{FE} at V_{CE}=10 V and I_C=500 mA. $V_{CE(SAT)}$ at I_C=500 mA and I_B=50 mA. f_T=40 MHz.

GE Type	h_{FE}§	Min. V_{CEO} V	I_C Cont. A	I_C Peak A	PT W
D44R1	30-90	250	1.0	2.0	31.25
D44R2	75-175	250	1.0	2.0	31.25
D44R3	30-90	300	1.0	2.0	31.25
D44R4	75-175	300	1.0	2.0	31.25
D44R5	30 min.	250	1.0	2.0	31.25
D44R6	30 min.	300	1.0	2.0	31.25
D44R7	150-300	250	1.0	2.0	31.25
D44R8	150-300	300	1.0	2.0	31.25

NPN h_{FE} at V_{CE}=1 V and I_C=2 amps. $V_{CE(SAT)}$ at I_C=8 amps and I_B=0.4 A (0.8 A for D44H1, 4, 7, 10). F_T=50 MHz.

GE Type	h_{FE}§	Min. V_{CEO} V	I_C Cont. A	I_C Peak A	P_T W
D44H1	35 min.	30	10	20	50
D44H2	60 min.	30	10	20	50
D44H4	35 min.	45	10	20	50
D44H5	60 min.	45	10	20	50
D44H7	35 min.	60	10	20	50
D44H8	60 min.	60	10	20	50
D44H10	35 min.	80	10	20	50
D44H11	60 min.	80	10	20	50

PNP h_{FE} at V_{CE}= —1 and I_C=200 mA. $V_{CE(SAT)}$ at I_C= —1 A and I_B=50 mA. f_T=40 MHz.

GE Type	h_{FE}§	Min. V_{CEO} V	I_C Cont. A	I_C Peak A	PT W
D45C1	25 min.	—30	—4.0	—6.0	30.0
D45C2	40-120	—30	—4.0	—6.0	30.0
D45C3	40-120†	—30	—4.0	—6.0	30.0
D45C4	25 min.	—45	—4.0	—6.0	30.0
D45C5	40-120	—45	—4.0	—6.0	30.0
D45C6	40-120†	—45	—4.0	—6.0	30.0
D45C7	25 min.	—60	—4.0	—6.0	30.0
D45C8	40-120	—60	—4.0	—6.0	30.0
D45C9	40-120†	—60	—4.0	—6.0	30.0
D45C10	25 min.	—80	—4.0	—6.0	30.0
D45C11	40-120	—80	—4.0	—6.0	30.0
D45C12	40-120†	—80	—4.0	—6.0	30.0

th_{FE}=20 min. at —1 V, —2 A.

PNP Complementary — 6 Amperes Power tab packages, red or green.

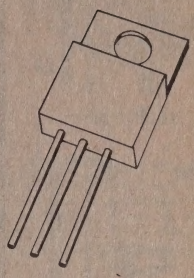
GE Type	h_{FE} Min.	V_{CEO} Min.	I_C Cont.	PT W
D45D1	5000	—40	—6.0	30.0
D45D2	5000	—40	—6.0	30.0
D45D3	5000	—60	—6.0	30.0
D45D4	5000	—60	—6.0	30.0
D45D5	5000	—80	—6.0	30.0
D45D6	5000	—80	—6.0	30.0

PNP Darlington h_{FE} at I_C= —5.0 A, V_{CE}= —5.0 V. $V_{CE(SAT)}$ at I_C=5.0 A, I_B= —10 mA.

GE Type	h_{FE}§	Min. V_{CEO} V	I_C Cont. A	I_C Peak A	P_T W
D45E1	1000 min.	—40	—10	—20	50
D45E2	1000 min.	—60	—10	—20	50
D45E3	1000 min.	—80	—10	—20	50

PNP h_{FE} at V_{CE}= 10 V and I_C=200 mA. $V_{CE(SAT)}$ at I_C= —8 A and I_B= —0.4 A (—0.8 A for D45H1, 4, 7, 10). f_T=40 MHz.

GE Type	h_{FE}§	Min. V_{CEO} V	I_C Cont. A	I_C Peak A	PT W
D45H1	35 min.	—30	—10	—20	50
D45H2	60 min.	—30	—10	—20	50
D45H4	35 min.	—45	—10	—20	50
D45H5	60 min.	—45	—10	—20	50
D45H7	35 min.	—60	—10	—20	50
D45H8	60 min.	—60	—10	—20	50
D45H10	35 min.	—80	—10	—20	50
D45H11	60 min.	—80	—10	—20	50



Power Pac plastic encapsulated devices engineered to deliver excellent performance with maximum value. Can be supplied with formed leads to fit TO-5 or TO-66 configurations. Contact your nearest NEWARK distributor for information. Data and pricing on request.

P_T at 25°C tab temperature.
are complementary.
D44C/D45C and D44H/D45H

*h_{FE}=20 min. at 2 V, 1 A, all others=10 min.
#h_{FE}=20 min. when measured at I_C=2 A.
‡h_{FE}=20 min. at 10 V, 2 A.
§h_{FE}=20 min. at 1 V, 1 A on parts 2, 5, 8, 11; h_{FE}=10 min. at 1 V, 1 A on parts 1, 4, 7, 10, 100. $V_{CE(SAT)}$ on parts 1, 4, 7, 10 is measured at 1 A, 100 mA.
*$V_{CE(SAT)}$ is measured at I_C= 300 mA and I_B=30 mA.

High Voltage Power Transistors

NPN FAST SWITCHING TRANSISTORS

GE Type	V_{CEO} V	Ic peak A	hfe Min.	Vce Max.	Pd W
D64TVS	300	30	12	1.5	175
D64TVS	400	30	6	5.0	175

NPN DARLINGTONS

GE5060	300	25	100	1.4	125
GE5061	350	25	40	1.5	125
GE5062	400	25	15	2.0	125

NPN FAST SWITCHING DARLINGTONS

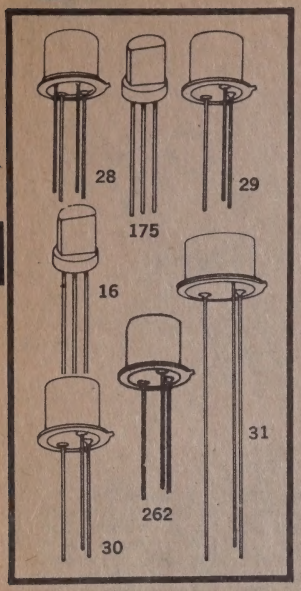
GE6060	300	25	100	1.4	125
GE6061	350	25	40	1.5	125
GE6062	400	25	15	2.0	125

MAKE NEWARK YOUR DEPENDABLE SOURCE

FOR ALL ELECTRONIC PARTS AND EQUIPMENT

General Electric Product Selection Guide

UNIJUNCTIONS AND SILICON SWITCHES



Use \ Device	Unijunctions: Conventional 2N489-94, 2N1671, 2N2160	Unijunctions: Conventional 2N2646 2N2647	Unijunctions: Complementary D5K1 D5K2	Unijunctions: Programmable 2N6027 2N6028	Triggers: SUS 2N4983-90	Triggers: SBS 2N4991-93	Triggers: SAS D13H
Trigger for SCR's — DC, Lo Cost	P	F	P	E	E	E	E
DC, Hi Perf.	F	F	F	E	F	F	F
DC, Volt Regulator	P	P	F	F	E	E	E
DC, Inverter	F	F	E	E	F	F	F
DC, Hi ΔI/ΔT	P	P	P	E[1]	P	P	P
AC, ϕ, Hi Perf.	F	F	E	E[1]	F	F	F
AC, ϕ, Hi f	F	F	F	E	P	P	P
AC, Lo RFI	P	P	F	F	E	E	E
AC, ϕ, Lo Cost	P	F	P	E	E	E	E
Timers — >1 hr.	F[1]	P	F[1]	E[1]	N	N	N
>1 min, Lo Cost	P	F	P	E	N	N	N
>1 min, Stable	F	P	E	P	N	N	N
<1 min, Lo Cost	P	F	P	E	F	F	F
<1 min, Stable	F	P	E	P	F	N	N
<10V	P	P	F	E	N	N	N
10V-25V	E	E	E	E	F	F	F
>25V	P	P	P	E	F	F	F
Oscillators — Stability	F	F	E	F	N	N	N
Cost	P	F	P	E	N	N	N
Adjust, Range	E	E	F	F[1]	N	N	N
Markets — Military	E	P	F	F[2]	P	P	P
Hi-Rel	E	P	E	F[2]	F	F	P
Economy	P	F	P	E	E	E	E

E = Excellent F = Fair P = Poor N = Not Applicable

SILICON CONTROL SWITCHES (SCS)

Four-terminal 28 package.

GE Type	Anode Blk. V	Cont. DC I_F mA	Peak Recur. I_F A*	Peak Cath. Gate Cur. mA	Dissipation mW	I_B at VAC V	I_B R_{GC}= 10K μA	Maximum V_{GC} I_{GC}= 20 μA V	Maximum V_{GA} I_{GA}= .1 μA V
3N81	65	200	1.0	500	400	65	20	5	65
3N82	100	200	1.0	500	400	100	20	5	100
3N83	70	50	0.1	50	200	70	20†	5	70
3N84	40	175	0.5	100	320	40	20†	5	40
3N85	100	175	0.5	100	320	100	20†	5	100
3N86	65	200	1.0	500	400	65	20	5	65

*At 100 μsec. †Measured at 125° C; all others at 150° C.

PROGRAMMABLE UNIJUNCTION—PUT 175

Passivated PNPN devices with anode, anode gate and cathode terminals. Recommended for SCR trigger, pulse and timing circuits. Gate-cathode forward voltage and gate-anode reverse voltage=40 V. Anode-cathode voltage= ±40 V.

GE Type	I_{GAO} Vs=40V nA	Max. Values at Vs=10V I_P μA	V_T V	I_V μA	I_F (CONT) mA	P_T W
2N6027	10	2	.2-1.6	50	150	300
2N6028	10	0.15	.2-.6	25	150	300

COMPLEMENTARY UNIJUNCTION (29)

Ideal for low frequency oscillators and timers. Same characteristics as standard unijunction except opposite polarity current and voltages are applied to it.

GE Type	R_{BO} kohms	Intrinsic Standoff Ratio	I_V Min. mA	I_P Max. μA	I_{FO} Max. nA	V_O Min. Volts	Freq. Stab.* %
D5K1	5.5-8.2	.58-.62	1	5	10	3.5	1.0
D5K2	5-15	.58-.62	1	15	10	2.0	2.0

*Frequency stability from 25° C,—55° C to +150° C.

SILICON BILATERAL SWITCHES (SBS)
6-10 VOLT BIDIRECTIONAL PLANAR TRIGGER DIODE

V_F at 200 mA=1.7 volts.

GE Type	Case	Max. I_F (CONT) mA	T_J —55° C to °C	V_S V	Max. I_S μA	I_B at 5 V μA
2N4991	16	175	+125	6-10	500	1.0
2N4992	16	200	+150	7.5-9	120	0.1
2N4993	262	200	+150	6-10	500	1.0

SILICON UNILATERAL SWITCHES (SUS)
6-10 VOLT PLANAR TRIGGER DIODE

V_{ACR}=30 volts maximum. V_F at 200 mA=1.5 volts.

GE Type	Case	Max. I_F (CONT) mA	T_J —55° C to °C	V_S V	Max. I_S μA	I_B at 5 V μA
2N4983	262	175	+125	6-10	500	1.0
2N4984	262	200	+150	7.5-9	150	0.1
2N4985	262	200	+150	7.5-8.2	300	0.01
2N4986	262	175	+125	7-9	200	0.1
2N4987	16	175	+125	6-10	500	1.0
2N4988	16	200	+150	7.5-9	150	0.1
2N4989	16	200	+150	7.5-8.2	300	.01
2N4990	16	175	+125	7-9	200	0.1

SILICON UNIJUNCTION TRANSISTORS

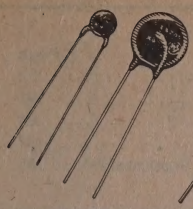
"N" type silicon bar mounted between two ohmic base contacts with a "P" type emitter near base two.
Package type 31 except 2N2646, 2N2647, DJ5-43, D5J-44 and 2N2840 package 30.

GE Type	R_{BBO} V_{BB}=3V I_E=0 kohms	Intrin. Standoff Ratio†	I_V Min. mA	I_P Max. Emitter μA	I_{EO} Max. μA	I_{EO} Max. V_{B2E}‡
2N489	4.7-6.8	.51-.62	8	12	2	60
2N489A*				12	2	60
2N489B				6	0.2	30
2N490	6.2-9.1	.51-.62	8	12	2	60
2N490A*				12	2	60
2N490B				6	0.2	30
2N490C				2	0.02	30
2N491	4.7-6.8	.56-.68	8	12	2	60
2N491A*				12	2	60
2N491B				6	0.2	30
2N492	6.2-9.1	.56-.68	8	12	2	60
2N492A*				12	2	60
2N492B				6	0.2	30
2N492C				2	0.02	30
2N493	4.7-6.8	.62-.75	8	12	2	60
2N493A*				12	2	60
2N493B				6	0.2	30
2N494	6.2-9.1	.62-.75	8	12	2	60
2N494A*				12	2	60
2N494B				6	0.2	30
2N494C				2	0.02	30
2N1671	4.7-9.1	.47-.62	8	25	12	30
2N1671A				25	12	30
2N1671B				6	0.2	30
2N1671C				2	0.02	30
2N2160	4.0-12.0	.47-.80	8	25	12	30
2N2646	4.7-9.1	.56-.75	4	5	12	30
2N2647	4.7-9.1	.68-.82	8	2	0.2	30
D5J-43	4.7-9.1	.68-.82	6	2	1	30
D5J-44	4.7-9.1	.68-.82	4	5	12	30
2N2840	4.7-9.1	.62	0.2	10	1	30

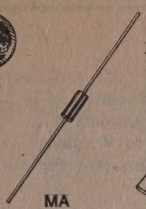
†Van=10 V. ‡T_J=25° C. *JAN type available.

General Electric Product Selection Guide

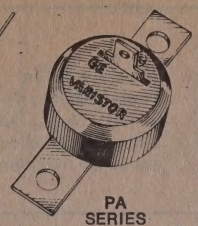
GE-MOV METAL OXIDE VARISTORS



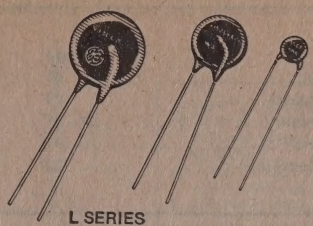
ZA SERIES



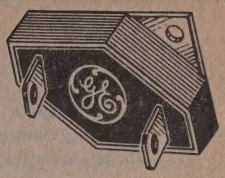
MA SERIES



PA SERIES



L SERIES



HE SERIES

3

Varistors are voltage dependent, symmetrical resistors which perform in a manner similar to back-to-back zener diodes in circuit protection but offer advantages in performance and economics. When exposed to high energy voltage transient, varistor impedance changes from a high standby value to a low conducting value thus clamping the voltage to a safe level. Dangerous energy of incoming high voltage pulse is absorbed by the varistor, thus protecting voltage sensitive circuit components. Eliminates follow-on currents, extends contact life and protects circuit insulation. Applications include component and system voltage transient protection in inductive and transformer switching circuits, regenerative loads, switching magnetic amplifiers; contact arc suppression-reduction of lightning effects. If nonsinusoidal wave input is present, peak voltage input values should be used to select model.

TYPE PA VARISTORS

Power Dissipation: Up to 15 watts at 70°C mounting-tab temperature. **Current:** Can handle up to 2000 amps. **Voltage Rating:** 130-575 volts rms and 170-780 VDC. **Energy Rating:** 10-80 joules. Meets NEMA creep and strike-terminal distances. Comes with quick disconnect terminals.

GE Type	Appl. Max. rms Volts	Max. Recur. Peak Volts	Appl. DC Volts	Max. Energy Joules
V130PA10A	130	184	170	10
V130PA20A	130	184	170	20
V130PA20C	130	184	170	20
V150PA10A	150	212	195	10
V150PA20A	150	212	195	20
V150PA20B	150	212	195	20
V150PA20C	150	212	195	20
V275PA10A	275	389	360	10
V275PA20A	275	389	360	20
V275PA40B	275	389	360	40
V275PA40C	275	389	360	40
V320PA40A	320	452	415	40
V320PA40B	320	452	415	40
V320PA40C	320	452	415	40
V420PA20A	420	595	540	20
V420PA40A	420	595	540	40
V420PA40B	420	595	540	40
V420PA40C	420	595	540	40
V460PA20A	460	650	600	20
V460PA40A	460	650	600	40
V460PA40B	460	650	600	40
V460PA40C	460	650	600	40
V480PA40A	480	679	625	40
V480PA80A	480	679	625	80
V480PA80B	480	679	625	80
V480PA80C	480	679	625	80
V510PA40A	510	721	655	40
V510PA80A	510	721	655	80
V510PA80B	510	721	655	80
V510PA80C	510	721	655	80
V550PA20A	550	778	720	20
V550PA40A	550	778	720	40
V550PA80A	550	778	720	80
V550PA80B	550	778	720	80
V575PA20A	575	813	750	20
V575PA40A	575	813	750	40
V575PA80B	575	813	750	80
V575PA80C	575	813	750	80

TYPE MA VARISTORS

Power Dissipation: 0.2 watts. **Current:** Can handle up to 20 amps.

GE Type	Appl. Max. rms Volts	Max. Recur. Peak Volts	Appl. DC Volts	Max. Energy Joules
V150MA1A	88	124	121	.10
V180MA1A	105	148	144	.15
V180MA3B	110	156	152	.30
V220MA2A	132	187	181	.20
V220MA4B	138	195	191	.40
V270MA2A	163	230	224	.20
V270MA4B	171	242	235	40

TYPE MA VARISTORS (cont.)

GE Type	Appl. Max. rms Volts	Max. Recur. Peak Volts	Appl. DC Volts	Max. Energy Joules
V330MA2A	188	266	257	.25
V330MA5B	200	283	274	.50
V390MA3A	234	331	322	30
V390MA6B	242	342	334	.60
V430MA3A	253	358	349	.35
V430MA7B	264	373	365	.70

TYPE L VARISTORS

Power Dissipation: Up to 1.3 watts at 85°C ambient temperature. **Current:** Can handle up to 2000 amps. **Voltage Rating:** 95-1000 volts rms and 130-675 VDC. **Energy Rating:** 7-160 joules.

GE Type	Appl. Max. rms Volts	Max. Recur. Peak Volts	Appl. DC Volts	Max. Energy Joules
V95LA7A	95	134	130	7
V95LA7B	95	134	130	7
V130LA1	130	184	175	1
V130LA2	130	184	175	2
V130LA10A	130	184	175	10
V130LA20A	130	184	175	20
V130LA20B	130	184	175	20
V150LA1	150	212	200	1
V150LA2	150	212	200	2
V150LA10A	150	212	200	10
V150LA20A	150	212	200	20
V150LA20B	150	212	200	20
V250LA2	250	354	330	2
V250LA4	250	354	330	4
V250LA15A	250	354	330	15
V250LA20A	250	354	330	20
V250LA40A	250	354	330	40
V250LA40B	250	354	330	40
V275LA2	275	389	369	2
V275LA4	275	389	369	4
V275LA15A	275	389	369	15
V275LA20A	275	389	369	20
V275LA40A	275	389	369	40
V275LA40B	275	389	369	40
V300LA2	300	424	405	2
V300LA4	300	424	405	4
V320LA15A	320	452	420	15
V320LA20A	320	452	420	20
V320LA40A	320	452	420	40
V320LA40B	320	452	420	40
V420LB20A	420	595	560	20
V420LB40B	420	595	560	40
V460LB20A	460	650	615	20
V460LB40A	460	650	615	40
V460LB40B	460	650	615	40
V480LB20A	480	679	640	20
V480LB40A	480	679	640	40
V480LB80A	480	679	640	80
V480LB80B	480	679	640	80
V510LB20A	510	721	675	20
V510LB40A	510	721	675	40
V510LB80A	510	721	675	80
V510LB80B	510	721	675	80
V550LB20A	550	778	...	20

TYPE L VARISTORS (cont.)

GE Type	Appl. Max. rms Volts	Max. Recur. Peak Volts	Appl. DC Volts	Max. Energy Joules
V550LB40A	550	778	...	40
V550LB80A	550	778	...	80
V550LB80B	550	778	...	80
V575LB20A	575	813	...	20
V575LB40A	575	813	...	40
V575LB80A	575	813	...	80
V575LB80B	575	813	...	80
V1000LB80A	1000	1414	...	80
V1000LB160A	1000	1414	...	160
V1000LB160B	1000	1414	...	160

TYPE ZA VARISTORS

Power Dissipation: Up to .55 watts. **Current:** Can handle up to 300 amps.

GE Type	Appl. Max. rms Volts	Max Recur. Peak Volts	App. DC Volts	Max. Energy Joules
V22ZA1	12	17	16	.6
V22ZA3	12	17	16	3.0
V24ZA1	15	21	19	.8
V24ZA4	15	21	19	4.0
V27ZA4	15	21	20	4.0
V33ZA1	20	28	26	1.0
V33ZA5	20	28	26	5.0
V39ZA1	25	35	31	1.2
V39ZA6	25	35	31	6.0
V47ZA1	30	42	38	1.4
V47ZA7	30	42	38	7.0
V56ZA2	35	49	45	1.7
V56ZA8	35	49	45	8.0
V68ZA2	40	57	56	2.0
V68ZA10	40	57	56	10.0
V82ZA2	50	71	66	2.5
V82ZA12	50	71	66	12.0
V100ZA3	60	85	81	3.0
V100ZA15	60	85	81	15.0
V120ZA1	70	99	97	1.0
V120ZA6	75	106	102	6.0
V150ZA1	85	120	119	1.2
V150ZA8	95	134	127	8.0
V180ZA1	105	149	146	1.5
V180ZA10	115	163	153	10.0

TYPE HE VARISTORS

Avg. Power Dissipation: up to 1.2 watts Voltages up to 660 volts, currents up to 25000 amps and energy ratings up to 600 joules. (ratings at temp. of −40°C to +80°C)

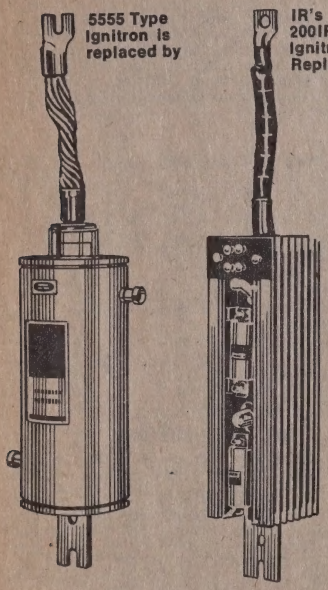
V130HE150	130	184	175	150
V150HE150	150	212	200	150
V250HE250	250	354	330	250
V275HE250	275	389	369	250
V320HE300	320	452	420	300
V420HE400	420	595	560	400
V480HE450	480	679	640	450
V510HE500	510	721	675	500
V575HE550	575	813	730	550
V660HE600	660	933	850	600

International Rectifier Product Guide

Index

		Page			Page
I.	Semiconductor Fuses	88	VI.	Silicon Rectifiers	93
II.	Zener Voltage Regulators	89	VII.	Power Schottky Diodes	93
III.	Silicon Power Transistors	90, 91*	VIII.	Molded Circuit Assemblies	94
IV.	Monolithic Darlingtons	91	IX.	Z-Mov Metal-Oxide Varistors	94
V.	Silicon Controlled Rectifiers	92	X.	Selenium Rectifiers (Transient Suppressors)	95

3



Solid State Ignitron Replacement 2001R70

REPLACES IGNITRON TYPES:

FG2388	5555	AX5555/653B	GL5555/FG238B
WL653B	GL5555	WL5555/653B	NL5555

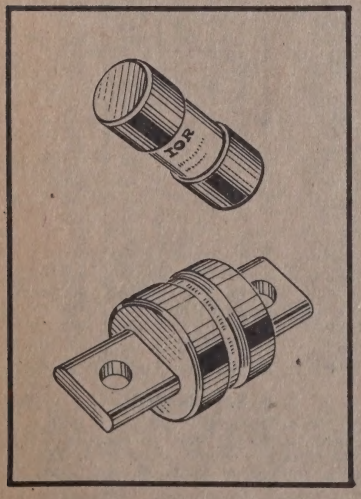
FEATURES

- Low forward drop (approx. 1.0 Volt)
- Low losses — improved efficiency
- High overload capacity
- Air cooled — no water
- No igniter firing circuit
- Coordinated fusing for each diode
- Transient voltage suppression
- Mechanically and electronically interchangeable with the ignitron it replaces
- High reliability-redundant diode

BENEFITS

- Higher dc output voltage
- Lower operating costs
- No arc-backs
- Water system maintenance eliminated
- Subsequent ignitron replacements unnecessary
- Reduced maintenance costs
- Saves production down time
- Characteristics unchanged with time

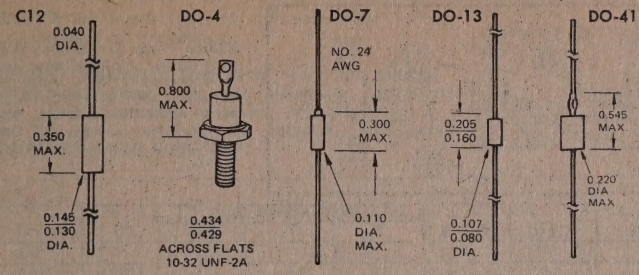
Semi Conductor Fuses



International Rectifier's fast-acting semiconductor protective fuses employ a high-grade alumina ceramic body to prevent charring and arcing under operating conditions. All-welded construction rather than soldering is used to prevent internal fatigue from changing fuse parameters. These quality fast-acting fuses are competively priced.

Max. V_{RMS} (V)	130	250	500	600	600	700
Max. Arc Voltage (V)	220	410	850	1,050	1,050	1,200
Nominal RMS Current (A)	PART NUMBERS					
5	SF13X5	SF25X5	—	SF60C5	SF60X5	—
10	SF13X10	SF25X10	—	SF60C10	SF60X10	SF70P10
15	SF13X15	SF25X15	—	SF60C15	SF60X15	SF70P15
20	SF13X20	SF25X20	—	SF60C20	SF60X20	SF70P20
25	SF13X25	SF25X25	—	SF60C25	SF60X25	SF70P25
30	SF13X30	SF25X30	—	SF60C30	SF60X30	SF70P30
35	SF13X35	—	SF50P35	SF60C35	SF60X35	SF70P35
40	SF13X40	SF25X40	SF50P40	SF60C40	SF60X40	SF70P40
45	—	—	SF50P45	SF60C45	—	—
50	SF13X50	SF25X50	SF50P50	SF60C50	SF60X50	SF70P50
60	SF13X60	SF25X60	SF50P60	SF60C60	SF60X60	SF70P60
70	SF13X70	SF25X70	SF50P70	SF60C70	SF60X70	SF70P70
80	SF13X80	SF25X80	SF50P80	SF60C80	SF60X80	SF70P80
90	—	—	SF50P90	SF60C90	SF60X90	SF70P90
100	SF13X100	SF25X100	SF50P100	SF60C100	SF60X100	SF70P100
125	SF13X125	SF25X125	SF50P125	SF60C125	SF60X125	SF70P125
150	SF13X150	SF25X150	SF50P150	SF60C150	SF60X150	SF70P150
175	—	SF25X175	SF50P175	SF60C175	SF60X175	SF70P175
200	SF13X200	SF25X200	SF50P200	SF60C200	SF60X200	SF70P200
225	—	SF25X225	—	SF60C225	—	—
250	SF13X250	SF25X250	SF50P250	SF60C250	SF60X250	SF70P250
300	SF13X300	SF25X300	SF50P300	SF60C300	SF60X300	SF70P300
350	SF13X350	SF25X350	SF50P350	SF60C350	SF60X350	—
400	SF13X400	SF25X400	SF50P400	SF60C400	SF60X400	SF70P400
450	—	SF25X450	SF50P450	SF60C450	SF60X450	—
500	SF13X500	SF25X500	SF50P500	SF60C500	SF60X500	SF70P500
550	—	—	SF50P550	—	—	—
600	SF13X600	SF25X600	SF50P600	SF60C600	SF60X600	SF70P600
700	—	—	SF50P700	SF60C700	—	SF70P700
800	SF13X800	—	SF50P800	SF60C800	—	SF70P800

ZENER VOLTAGE REGULATORS (Cont.)



① Add "A" for 5% tolerance.
② Add "A" for 10%, "B" for 5% tolerance.
③ Polarity—Anode-to-stud; add "R" for cathode-to-stud.
④ Polarity—See ③ except 1N3993-1N4000, cathode-to-stud only.
† JAN types available.

Power Rating	400mW		400mW		1W		1W		5W		10W		10W		10W	
Max Op (°C)	175°		175°		175°		200°		200°		175°		175°		175°	
Tolerance (%)	5%		5%		5, 10, 20%		5%		5, 10, 20%		5, 10%		5, 10, 20%		5, 10%	
Notes	①†		②		②†		①		③		① ④ †		① ③		② ③ †	
Case Style	DO-7		DO-7		DO-13		DO-41		C-12		DO-4		DO-4		DO-4	
Vz	Part No.	Izt (mA)	Part No.	Izt (mA)	Part No.	Izt (mA)	Part No.	Izt (mA)	Part No.	Izt (mA)	Part No.	Izt (mA)	Part No.	Izt (mA)	Part No.	Izt (mA)
3.3	1N746A	20	—	—	—	—	1N4728	76	1N5333	380	—	—	—	—	—	—
3.6	1N747A	20	—	—	—	—	1N4729	68	1N5334	350	—	—	—	—	—	—
3.9	1N748A	20	—	—	—	—	1N4730	64	1N5335	320	—	—	—	—	—	—
4.3	1N748A	20	—	—	—	—	1N4731	58	1N5336	290	—	—	—	—	—	—
4.7	1N750A	20	—	—	—	—	1N4732	53	1N5337	260	1N3995	530	—	—	—	—
5.1	1N751A	20	—	—	—	—	1N4733	49	1N5338	240	1N3996	486	—	—	—	—
5.6	1N752A	20	—	—	—	—	1N4734	45	1N5339	220	1N3997	445	—	—	—	—
(6.0)	—	—	—	—	—	—	—	—	1N5340	200	—	—	—	—	—	—
6.2	1N753A	20	—	—	—	—	1N4735	41	1N5341	200	1N3998	405	—	—	—	—
6.8	1N754A	20	1N957B	18.5	1N3016	37	1N4736	37	1N5342	175	1N3999	370	1N1805	1000	1N2970	370
7.5	1N755A	20	1N958B	16.5	1N3017	34	1N4737	34	1N5343	175	1N4000	335	1N1806	1000	1N2971	335
8.2	1N756A	20	1N959B	15.0	1N3018	31	1N4738	31	1N5344	150	—	—	1N1807	1000	1N2972	305
(8.7)	—	—	—	—	—	—	—	—	1N5345	150	—	—	—	—	—	—
9.1	1N757A	20	1N960B	14.0	1N3019	28	1N4739	28	1N5346	150	—	—	1N1808	500	1N2973	275
10	1N758A	20	1N961B	12.5	1N3020	25	1N4740	25	1N5347	125	1N2498	500	1N1351	500	1N2974	250
11	—	—	1N962B	11.5	1N3021	23	1N4741	23	1N5348	125	1N2499	500	1N1352	500	1N2975	230
12	1N759A	20	1N963B	10.5	1N3022	21	1N4742	21	1N5349	100	1N2500	500	1N1353	500	1N2976	210
13	—	—	1N964B	9.5	1N3023	19	1N4743	19	1N5350	100	1N1816	500	1N1354	500	1N2977	190
(14)	—	—	—	—	—	—	—	—	1N5351	100	—	—	—	—	1N2978	180
15	—	—	1N965B	8.5	1N3024	17	1N4744	17	1N5352	75	1N1817	500	1N1355	500	1N2979	170
16	—	—	1N966B	7.8	1N3025	15.5	1N4745	15.5	1N5353	75	1N1818	500	1N1356	500	1N2980	155
(17)	—	—	—	—	—	—	—	—	1N5354	70	—	—	—	—	1N2981	145
18	—	—	1N967B	7.0	1N3026	14.0	1N4746	14.0	1N5355	65	1N1819	500	1N1357	150	1N2982	140
(19)	—	—	—	—	—	—	—	—	1N5356	65	—	—	—	—	1N2983	130
20	—	—	1N968B	6.2	1N3027	12.5	1N4747	12.5	1N5357	65	1N1820	250	1N1358	150	1N2984	125
22	—	—	1N969B	5.6	1N3028	11.5	1N4748	11.5	1N5358	50	1N1821	250	1N1359	150	1N2985	115
24	—	—	1N970B	5.2	1N3029	10.5	1N4749	10.5	1N5359	50	1N1822	250	1N1360	150	1N2986	105
(25)	—	—	—	—	—	—	—	—	1N5360	50	—	—	—	—	1N2987	100
27	—	—	1N971B	4.6	1N3030	9.5	1N4750	9.5	1N5361	50	1N1823	250	1N1361	150	1N2988	95
(28)	—	—	—	—	—	—	—	—	1N5362	50	—	—	—	—	—	—
30	—	—	1N972B	4.2	1N3031	8.5	1N4751	8.5	1N5363	40	1N1824	250	1N1362	150	1N2989	85
33	—	—	1N973B	3.8	1N3032	7.5	1N4752	7.5	1N5364	40	1N1825	150	1N1363	150	1N2990	85
36	—	—	1N974B	3.4	1N3033	7.0	1N4753	7.0	1N5365	30	1N1826	150	1N1364	150	1N2991	70
39	—	—	1N975B	3.2	1N3034	6.5	1N4754	6.5	1N5366	30	1N1827	150	1N1365	150	1N2992	65
43	—	—	1N976B	3.0	1N3035	6.0	1N4755	6.0	1N5367	30	1N1828	150	1N1366	150	1N2993	60
47	—	—	1N977B	2.7	1N3036	5.5	1N4756	5.5	1N5368	25	1N1829	150	1N1367	150	1N2995	55
51	—	—	1N978B	2.5	1N3037	5.0	1N4757	5.0	1N5369	25	1N1830	150	1N1368	150	1N2997	50
56	—	—	1N979B	2.2	1N3038	4.5	1N4758	4.5	1N5370	20	1N1831	150	1N1369	150	1N2999	45
(60)	—	—	—	—	—	—	—	—	1N5371	20	—	—	—	—	—	—
62	—	—	1N980B	2.0	1N3039	4.0	1N4759	4.0	1N5372	20	1N1832	50	1N1370	50	1N3000	40
68	—	—	1N981B	1.8	1N3040	3.7	1N4760	3.7	1N5373	20	1N1833	50	1N1371	50	1N3001	37
75	—	—	1N982B	1.7	1N3041	3.3	1N4761	3.3	1N5374	20	1N1834	50	1N1372	50	1N3002	33
82	—	—	1N983B	1.5	1N3042	3.0	1N4762	3.0	1N5375	15	—	—	—	—	—	—
(87)	—	—	—	—	—	—	—	—	1N5376	15	—	—	—	—	—	—
91	—	—	1N984B	1.4	1N3043	2.8	1N4763	2.8	1N5377	15	1N1836	50	1N1374	50	1N3004	28
100	—	—	1N985B	1.3	1N3044	2.5	1N4764	2.5	1N5378	12	—	—	1N1375	50	1N3005	25

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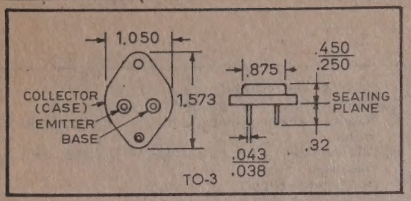
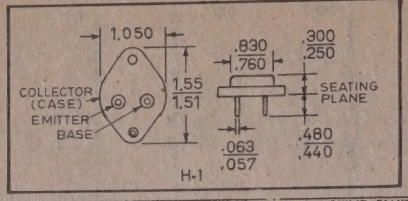
International Rectifier Product Guide

SILICON POWER TRANSISTORS



TO-3



H-1

Silicon Power Transistors offer high power, high voltage, and high current ratings. Applications include inverters, choppers, deflection circuits, etc. In addition there are fast switching power transistor types.

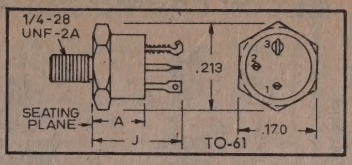
I_C cont.	V_{CEO} Volts	NPN	PNP	H_{FE}	@ I_C	& V_{CE}	RESISTIVE SWITCHING T_S	RESISTIVE SWITCHING T_f	RESISTIVE SWITCHING @ I_C	PD	Case
1.0	600	IR701	.....	20	0.15	5.0	.....	.....	.....	50	TO-3
3.0	250	2N5838	.....	48	3.0	2.0	3.0	0.4	3.0	100	TO-3
	275	2N5839	.....	10	2.0	3.0	1.75	0.35	2.0	100	TO-3
	350	2N5840	.....	10	2.0	3.0	1.75	0.35	2.0	100	TO-3
	600	IR709	.....	2.5	2.0	3.0	.....	.....	.....	50	TO-3
	600	IR708	.....	4.0	1.0	2.0	.....	.....	.....	50	TO-3
	600	IR710	.....	7.0	1.0	5.0	.....	.....	.....	50	TO-3
	700	IR801	.....	20	0.2	5.0	.....	.....	.....	100	TO-3
	800	IR721	.....	20	0.15	5.0	.....	.....	.....	50	TO-3
3.5	325	2N3902	.....	30	1.0	5.0	.....	.....	.....	100	TO-3
	400	2N5157	.....	30	1.0	5.0	0.8	1.7	1.0	100	TO-3
5.0	200	IR410	.....	30	1.0	5.0	0.6	0.15	1.0	100	TO-3
	225	2N5804	.....	10	5.0	4.0	3.5	2.0	5.0	110	TO-3
	300	IR401	.....	20	0.5	5.0	0.6	0.2	1.0	100	TO-3
	300	2N6542	.....	12	1.5	2.0	4.0	0.8	3.0	110	TO-3
	300	2N5805	.....	10	5.0	4.0	3.5	2.0	5.0	110	TO-3
	300	IR2700	.....	5.0	4.0	5.0	1.8	0.8	4.0	125	TO-3
	325	2N5241	.....	15	2.5	5.0	0.8	1.7	2.5	125	TO-3
	325	IR413	.....	20	0.5	5.0	0.6	0.2	1.0	100	TO-3
	350	IR2701	.....	5.0	4.0	5.0	1.8	0.8	4.0	125	TO-3
	400	2N6543	.....	7.0	1.5	2.0	4.0	0.8	3.0	100	TO-3
6.0	100	2N5758	2N6226	25	3.0	2.0	.....	.....	.....	150	TO-3
	120	2N5759	2N6227	20	3.0	2.0	.....	.....	.....	150	TO-3
	140	2N5760	2N6228	15	3.0	2.0	.....	.....	.....	150	TO-3
7.0	300	IR430	.....	15	2.5	5.0	0.6	0.2	1.0	125	TO-3
	300	IR411	.....	30	1.0	5.0	0.6	0.15	1.0	100	TO-3
	325	IR403	.....	4.4	3.5	1.1	0.6	0.2	1.0	125	TO-3
	325	IR402	.....	5.0	3.0	2.0	0.6	0.2	1.0	125	TO-3
	325	IR409	.....	15	1.0	5.0	0.6	0.4	1.0	125	TO-3
	325	IR431	.....	15	2.5	5.0	0.6	0.4	1.0	125	TO-3
	325	IR423	.....	30	1.0	5.0	0.6	0.15	1.0	125	TO-3
	350	IR424	.....	30	1.0	5.0	0.6	0.15	1.0	125	TO-3
	400	IR425	.....	30	1.0	5.0	0.6	0.15	1.0	125	TO-3
8.0	250	2N6306	.....	4.0	8.0	5.0	1.6	0.4	3.0	125	TO-3
	300	2N6307	.....	4.0	8.0	5.0	1.6	0.4	3.0	125	TO-3
	300	2N6544	.....	12	2.5	3.0	4.0	1.0	5.0	125	TO-3
	350	2N6308	.....	4.0	8.0	5.0	1.6	0.4	3.0	125	TO-3
	400	2N6545	.....	7.0	2.5	3.0	4.0	1.0	5.0	125	TO-3
10	60	2N5877	2N5875	4.0	10	4.0	1.0	0.8	4.0	150	TO-3
	60	2N3713	2N3789	5.0	10	4.0	1.0	0.8	5.0	150	TO-3
	60	2N3715	2N3791	5.0	10	4.0	1.0	0.8	5.0	150	TO-3
	80	2N5878	2N5876	4.0	10	4.0	1.0	0.8	4.0	150	TO-3
	80	2N3714	2N3790	5.0	10	4.0	1.0	0.8	5.0	150	TO-3
	80	2N3716	2N3792	5.0	10	4.0	1.0	0.8	5.0	150	TO-3
	100	.....	2N6248	5.0	10	4.0	1.0	0.8	4.0	125	TO-3
	100	2N5632	2N6229	5.0	10	2.0	.....	.....	.....	150	TO-3
	120	2N5633	2N6230	5.0	10	2.0	.....	.....	.....	150	TO-3
	140	2N5634	2N6231	5.0	10	2.0	.....	.....	.....	150	TO-3
	200	2N6249	.....	10	10	3.0	3.5	1.0	10	175	TO-3
	250	2N6573	.....	5.0	10	3.0	2.5	0.7	7.0	125	TO-3
	275	2N6250	.....	8.0	10	3.0	3.5	1.0	10	175	TO-3
	275	2N6574	.....	5.0	10	3.0	2.5	0.7	7.0	125	TO-3
	300	2N6575	.....	5.0	10	3.0	2.5	0.7	7.0	125	TO-3
	300	2N6561	.....	5.0	20	5.0	1.2	0.5	10.0	125	TO-3
	300	2N6563	.....	5.0	20	5.0	1.2	0.5	10.0	100	TO-61
	350	2N6251	.....	6.0	10	3.0	3.5	1.0	10	175	TO-3
	350	2N6582	.....	7.0	7.0	3.0	1.2	0.25	7.0	125	TO-3
	400	2N6583	.....	7.0	7.0	3.0	1.2	0.25	7.0	125	TO-3
	450	2N6584	.....	7.0	7.0	3.0	1.2	0.25	7.0	125	TO-3
	450	2N6560	.....	5.0	15	5.0	2.5	0.5	5.0	125	TO-3
	450	2N6562	.....	5.0	15	5.0	2.5	0.5	5.0	125	TO-61
15	40	2N6470	2N6469	5.0	15	4.0	.....	.....	.....	125	TO-3
	60	2N5881	2N5879	4.0	15	4.0	.....	.....	.....	115	TO-3
	60	2N3055	.....	5.0	10	4.0	1.0	0.8	6.0	160	TO-3
	60	2N6471	2N6246	5.0	15	4.0	.....	.....	.....	175	TO-3
	80	2N5882	2N5880	4.0	15	4.0	1.0	0.8	6.0	160	TO-3
	80	2N6472	2N6347	5.0	15	4.0	.....	.....	.....	125	TO-3
	300	2N6546	.....	12	5.0	2.0	4.0	0.7	10	175	TO-3
	400	2N6547	.....	6.0	5.0	2.0	4.0	0.7	10	175	TO-3
16	100	2N5629	2N6029	4.0	16	2.0	.....	.....	.....	200	TO-3
	120	2N5630	2N6030	4.0	16	2.0	.....	.....	.....	200	TO-3
	140	2N5631	2N6031	4.0	16	4.0	.....	.....	.....	200	TO-3
	75	2N5039	.....	20	10	5.0	1.5	0.5	10	140	TO-3
	80	2N5303	2N5745	5.0	20	2.0	2.0	1.0	10	200	TO-3
	90	2N5038	.....	20	12	5.0	2.0	1.8	10	200	TO-3
25	60	2N5885	2N5883	4.0	25	4.0	1.0	0.8	10	200	TO-3
	80	2N5886	2N5884	4.0	25	4.0	1.0	0.8	10	200	TO-3

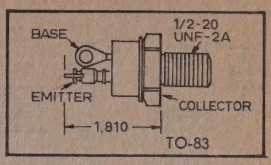
International Rectifier Product Guide

SILICON POWER TRANSISTORS

Silicon Power Transistors offer high power, high voltage, and high current ratings.

Monolithic Darlington Transistors offer high power, high voltage, high current and high gain. Applications include inverters, choppers, switching regulators, ignition systems, etc. In addition, there are fast-switching Darlingtons.





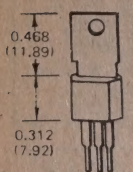
I_C Cont.	V_{CEO}	NPN	PNP	H_{FE}	@ I_C	& V_{CE}	RESISTIVE SWITCHING t_s	t_f	@ I_C	PD	CASE
25	100	2N6338	.....	12	25	2.0	1.0	0.25	10	200	TO-3
	120	2N6339	.....	12	25	2.0	1.0	0.25	10	200	TO-3
	140	2N6340	.....	12	25	2.0	1.0	0.25	10	200	TO-3
	150	2N6341	.....	12	25	2.0	1.0	0.25	10	200	TO-3
30	40	IR3771	.....	5.0	30	4.0	1.0	0.8	10	200	TO-3
	40	2N5301	2N4398	5.0	30	3.0	2.0	1.0	10	200	TO-3
	80	2N5302	2N4399	5.0	30	3.0	2.0	1.0	10	200	TO-3
	90	IR802	IR4502	10	15	2.0	.....	.....	.....	200	TO-3
40	120	2N6033	.....	10	40	2.0	1.5	0.5	40	140	H-1
50	60	2N5685	2N5683	5.0	50	5.0	.....	.....	.....	250	H-1
	80	2N5686	2N5684	5.0	50	5.0	.....	.....	.....	250	H-1
	90	2N6032	.....	10	50	2.6	1.5	0.5	50	140	H-1
	100	2N6274	.....	10	50	4.0	0.8	0.25	20	300	H-1
	120	2N6275	.....	10	50	4.0	0.8	0.25	20	300	H-1
	125	BUX20	.....	10	40	4.0	1.2	0.3	40	250	H-1
	140	2N6276	.....	10	50	4.0	0.8	0.25	20	300	H-1
	150	2N6277	.....	10	50	4.0	0.8	0.25	20	300	H-1
100	120	HPT1012	.....	10	100	5.0	2.5	2.5	100	350	TO-83
120	100	HPT1210	.....	10	120	5.0	2.5	2.0	100	350	TO-83
	120	HPT1212	.....	10	120	5.0	2.5	2.0	100	350	TO-83

MONOLITHIC DARLINGTONS

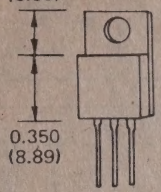
8.0	60	IR1000	IR900	750	4.0	3.0	.....	.....	.....	90	TO-3
	60	2N6055	2N6053	750	4.0	3.0	.....	.....	.....	100	TO-3
	80	IR1001	IR901	750	4.0	3.0	.....	.....	.....	90	TO-3
	80	2N6056	2N6054	750	4.0	3.0	.....	.....	.....	100	TO-3
10	40	2N6383	.....	20 K min	5.0	3.0	.....	.....	.....	100	TO-3
	60	IR640	IR645	500	10	4.0	1.0	4.0	10	175	TO-3
	60	2N6384	.....	1000	5.0	3.0	.....	.....	.....	100	TO-3
	60	IR3000	IR2500	1000	5.0	3.0	.....	.....	.....	150	TO-3
	80	IR1010	.....	200	10	5.0	.....	.....	.....	100	TO-3
	80	IR1020	.....	500	10	5.0	.....	.....	.....	100	TO-3
	80	IR641	IR646	500	10	4.0	1.0	1.0	10	175	TO-3
	80	IR3001	IR2501	5000	5.0	3.0	.....	.....	.....	150	TO-3
	100	IR642	IR647	500	10	4.0	1.0	4.0	10	175	TO-3
	350	IR5251	.....	10	10	5.0	10	2.0	5.0	100	TO-3
	350	IR6251	.....	100	5.0	5.0	2.5	1.0	5.0	100	TO-3
	400	IR5252	.....	10	10	5.0	10	2.0	5.0	100	TO-3
	400	IR6252	.....	100	5.0	5.0	2.5	1.0	5.0	100	TO-3
	450	IR5253	.....	10	10	5.0	10	2.0	5.0	100	TO-3
	450	IR6253	.....	100	5.0	5.0	2.5	1.0	5.0	100	TO-3
12	60	2N6057	2N6050	750	6.0	3.0	.....	.....	.....	150	TO-3
	80	2N6058	2N6051	750	6.0	3.0	.....	.....	.....	150	TO-3
	100	2N6059	2N6052	750	6.0	3.0	.....	.....	.....	150	TO-3
15	300	IR4039	.....	5.0	15	5.0	4.0	2.6	3.0	100	TO-3
	300	IR4041	.....	8.0	15	5.0	4.0	2.6	3.0	100	TO-3
	300	IR5000	.....	15	15	5.0	14	3.0	10	125	TO-3
	300	IR6000	.....	60	10	5.0	2.5	1.0	10	125	TO-3
	300	IR7000	.....	60	10	5.0	2.5	1.0	10	125	TO-61
	325	IR4040	.....	8.0	15	5.0	3.0	1.8	3.0	125	TO-3
	325	IR4045	.....	15	15	5.0	3.0	1.8	3.0	125	TO-3
	350	IR4054	.....	5.0	15	5.0	3.0	1.8	3.0	125	TO-3
	350	IR4061	.....	8.0	15	5.0	4.0	2.6	3.0	100	TO-3
	350	IR4050	.....	8.0	15	5.0	3.0	1.8	3.0	125	TO-3
	350	IR5001	.....	15	15	5.0	.....	.....	.....	125	TO-3
	350	IR4055	.....	15	15	5.0	3.0	1.8	3.0	125	TO-3
	350	IR6001	.....	60	10	5.0	2.5	1.0	10	125	TO-3
	350	IR7001	.....	60	10	5.0	2.5	1.0	10	125	TO-61
	400	IR4060	.....	8.0	15	5.0	3.0	1.8	3.0	125	TO-3
	400	IR4065	.....	15	15	5.0	3.0	1.8	3.0	125	TO-3
	400	IR5002	.....	15	15	5.0	14	3.0	10	125	TO-3
	400	IR6002	.....	60	10	5.0	2.5	1.0	10	125	TO-3
	400	IR7002	.....	60	10	5.0	2.5	1.0	10	125	TO-61
	500	IR5063	.....	8.0	20	5.0	.....	.....	.....	125	TO-3
	600	IR5064	.....	8.0	15	5.0	.....	.....	.....	125	TO-3
	750	IR5065	.....	4.0	15	5.0	.....	.....	.....	125	TO-3
	900	IR5066	.....	5.0	12	5.0	.....	.....	.....	125	TO-3
20	60	2N6282	2N6285	750	10	3.0	.....	.....	.....	160	TO-3
	80	2N6283	2N6286	750	10	3.0	.....	.....	.....	160	TO-3
	100	2N6284	2N6287	750	10	3.0	.....	.....	.....	160	TO-3
	300	IR6060	.....	40	15	5.0	8.0	3.5	15	125	TO-3
	300	IR5060	.....	40	15	5.0	2.5	1.0	10	125	TO-3
	350	IR6061	.....	40	15	5.0	8.0	3.5	15	125	TO-3
	350	IR5061	.....	40	15	5.0	2.5	1.0	10	125	TO-3
	400	IR6062	.....	40	15	5.0	8.0	3.5	15	125	TO-3
	400	IR5062	.....	40	15	5.0	2.5	1.0	10	125	TO-3

International Rectifier Product Guide

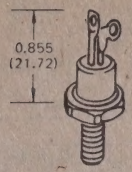
SILICON CONTROLLED RECTIFIERS



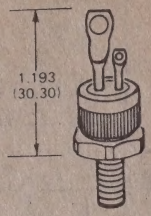
A-2



TO-220AB



TO-64



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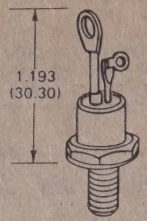

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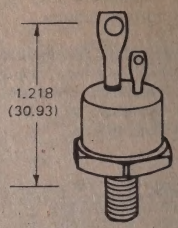
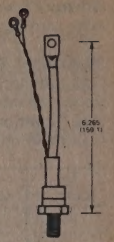


TO-65

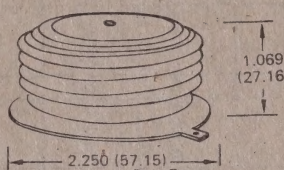


TO-94 (A-11)

Pole Faces
0.752 (19.10) DIA.

TO-200AB

TO-93



TO-200AC

International Rectifier offers a broad and growing range of SCR types and ratings to serve SCR users, with new series of SCRs being added to this section for low, medium, high power and inverter applications.

POWER TRIACS are a series of high current triacs with the capability of AC or DC control.

COMPANION SERIES are listed in the tables. They differ from the basic series in case style and/or turn-off time.

IT(RMS) (A)	4.0	8.0	25	35	80	80	110	110
IT(AV) (A) @ Max. T_C = (°C)	2.55@30°	5.1@85°	16@65°	22@85°	5 0@75L	50@87°	70@12L	70@80°
Max. I_{GT} @ 25°C (mA)	0.2	25	40	40	200	110	70	150
dv/dt (V/μs), typical	8	50 (min.)	20	20	200	25	20	200
I_{TSM} (A)	25	80	150	350	1,200	1,200	1,200	1,600
Notes	①②	...	†	...	@	...	@	@
Case Style	A-2	TO-220AB	TO-48	A-8B	A-11	TO-65	A-13	A-11
15 Volts	IR106Q1	...	...	...	...	...	...	...
25	...	...	2N681	...	...	...	...	...
30	IR106Y1	...	...	...	...	...	...	...
50	IR106F1	IR122F	2N682	22RA5	...	50RCS5	...	...
100	IR106A1	IR122A	2N683	22RA10	...	50RCS10	71RC10A	...
150	...	...	2N684	...	...	...	...	...
200	IR106B1	IR122B	2N685	22RA20	...	50RCS20	71RC20A	...
250	...	...	2N686	...	...	...	...	...
300	IR106C1	IR122C	2N687	22RA30	...	50RCS30	71RC30A	...
400	IR1060D1	IR122D	2N688	22RA40	...	50RCS40	71RC40A	...
500	...	...	2N689	22RA50	36RA50	50RCS50	71RC50A	71RA50
600	...	...	2N690	22RA60	36RA60	40RCS60	71RC60A	71RA60
700	...	...	2N691	22RA70	...	50RCS70	...	...
800	...	...	2N692	22RA80	36RA80	50RCS80	71RC8A	71RA80
900	...	...	...	...	...	50RCS90	...	...
1000	...	...	...	...	36RA100	50RCS100	...	71RA100
1100	...	...	...	...	36RA110	50RCS120	...	71RA110
1200	...	...	...	...	36RA120	...	...	71RA120
1300	...	...	...	...	36RA130	...	...	71RA130
1400	...	...	...	...	36RA140	...	...	71RA140
1500	...	...	...	...	36RA150	...	...	71RA150
1600	...	...	...	...	36RA160	...	...	71RA160

IT (RMS) (A)	180	235	275	400	470	740
IT (AV) @ Max. T_C = (°C)	115 @ 85°	150 @ 85°	175 @ 85°	250 @ 70°	300 @ 75°	470 @ 67°
I_{GT} @ 25°C (mA)	150	150	200	150	150	150
dv/dt (V/μs), min	200	200	200	200	100	100
I_{DM} (A)	1,600	4,250	3,300	4,250	8,000	7,000
Companion Series	...	...	...	...	...	...
Notes	...	...	...	...	...	...
Case Style	TO-200AB	TO-93	TO-200AB	TO-200AB	TO-118	TO-200AC
100 Volts	115PA10	...	...	...	300RA10	...
200 Volts	115PA20	...	...	...	300RA20	...
300 Volts	115PA30	...	...	...	300RA30	...
400 Volts	115PA40	...	...	...	300RA40	...
500 Volts	115PA50	151RA50	175PA50	250PA50	300RA50	470PB50
600 Volts	115PA60	151RA60	175PA60	250PA60	300RA60	470PB60
800 Volts	115PA80	151RA80	175PA80	250PA80	300RA80	470PB80
1000 Volts	115PA100	151RA100	175PA100	250PA100	300RA100	470PB100
1100 Volts	...	151RA110	175PA110	250PA110	300RA110	470PB110
1200 Volts	115PA120	151RA120	175PA120	250PA120	300RA120	470PB120
1300 Volts	115PA130	151RA130	175PA130	250PA130	300RA130	470PB130
1400 Volts	115PA140	151RA140	175PA140	250PA140	300RA140	470PB140
1500 Volts	115PA150	151RA150	175PA150	250PA150	300RA150	470PB150
1600 Volts	115PA160	151RA160	175PA160	250PA160	300RA160	470PB160
1700 Volts	...	...	...	...	300RA170	470PB170

NOTES:
① Current drawn by 1,000Ω shunt resistor not included in max. I_{GT} rating.
② Other bent and modified pin and tab configurations readily available.
⑧ Companion series uses flag terminal case A-14.

POWER TRIACS

IT(RMS) (A)	60	100
IT(AV) (A) @ Max. T_C = (°C)	85°	75°
I_{GT} @ 25°C (mA)	500	500
dv/dt (V/μs), min.	50	50
I_{TSM} (A)	700	900
Companion Series	61AC	101AC
Notes	④⑥	⑥
Case Style	A-11	TO-94
400 Volts	60AC40	100AC40
600 Volts	60AC60	100AC60
800 Volts	60AC80	100AC80
1000 Volts	60AC100	100AC100
1200 Volts	—	—

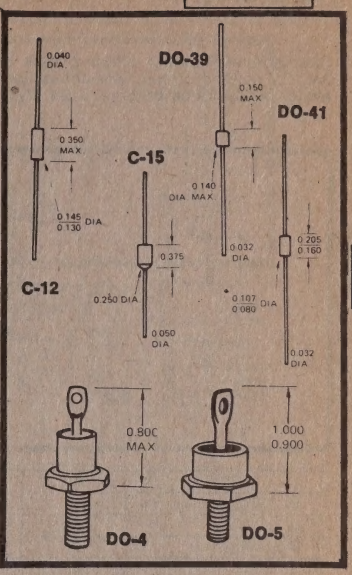
NOTES:
④ Companion series uses flag terminal case A-12.
⑤ Companion series has sensitive 200 mA GT.
⑥ IR'S exclusive power logic triacs. AC or DC control available, depending on gate polarity.
† JAN Types Available.

International Rectifier Product Guide

IOR

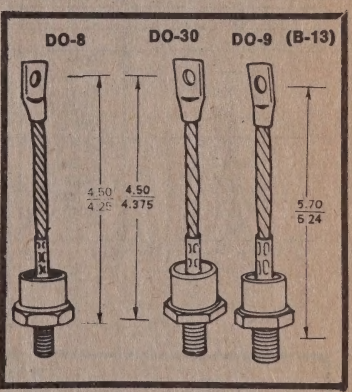
SILICON RECTIFIERS

IR has been a major producer of low-current, low-voltage silicon rectifier diodes for many years. Through continuous improvements in engineering and manufacturing techniques, IR is now producing standard rectifiers with current handling capacities from 400 mA to 3000 amps in a wide array of lead-mounted, stud-mounted, and Hockey-Puk packages.

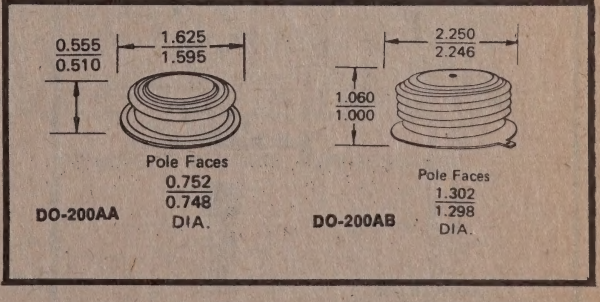


$I_{F(AV)}$ (A) @ Max. TC (°C)	1 @ 75°	1 @ 75°	1.5 @ 40°	2 @ 100°	3 @ 125°	6 @ 95°	12 @ 150°	12 @ 150°
I_{FSM} (A)	30	50	50	50	150	400	200	240
Notes	①	①		②③	②	⑦	⑤	⑤†
Case Style	DO-41	DO-39	DO-39	DO-39	C-12	C-15	DO-4	DO-4
PRV	PART NUMBERS							
50 Volts	1N4001	10D05	1N4816	20D05	—	60S05	1N1199	1N1199A
100 Volts	1N4002	10D1	1N4817	20D1	30S1	60S1	1N1200	1N1200A
150 Volts	—	—	—	—	—	—	1N1201	1N1201A
200 Volts	1N4003	10D2	1N4818	20D2	30S2	60S2	1N1202	1N1202A
300 Volts	—	10D3	1N4819	20D3	30S3	60S3	1N1203	1N1203A
400 Volts	1N4004	10D4	1N4820	20D4	30S4	60S4	1N1204	1N1204A
500 Volts	—	10D5	1N4821	20D5	30S5	60S5	1N1205	1N1205A
600 Volts	1N4005	10D6	1N4822	20D6	30S6	60S6	1N1206	1N1206A
700 Volts	—	—	1N5052	—	—	—	1N3670	1N3670A
800 Volts	1N4006	10D8	1N5053	20D8	30S8	60S8	1N3671	1N3671A
900 Volts	1N4007	10D10	1N5054	20D10	—	—	1N3672	1N3672A
1000 Volts	—	—	—	—	30S10	60S10	1N3673	1N3673A

$I_{F(AV)}$ (A) @ Max. TC (°C)	35 @ 140°	40 @ 140°	60 @ 115°	70 @ 125°	100 @ 140°	150 @ 150°	150 @ 150°	250 @ 135°	275 @ 120°	300 @ 120°
I_{FSM} (A)	500	500	700	1,200	1,600	3,000	3,000	4,500	5,000	5,000
Notes	⑤	⑤	⑥	⑤	⑤	⑤	⑤	⑦	⑤	⑤
Case Style	DO-5	DO-5	DO-5	DO-5	DO-8	DO-30	DO-30	B-13	B-13	B-13
PRV	PART NUMBERS									
50 Volts	1N1183	40HF5	1N2128	—	—	1N3111	—	1N2054	1N4044	—
100 Volts	1N1184	40HF10	1N2129	70H10A	1N3288	1N3085	150L10A	1N2055	1N4045	300U10A
150 Volts	1N1185	40HF15	1N2130	70H15A	—	—	150L15A	1N2056	1N4046	300U15A
200 Volts	1N1186	40HF20	1N2131	70H20A	1N3289	1N3086	150L20A	1N2057	1N4047	300U20A
250 Volts	—	—	1N2132	70H25A	—	—	150L25A	1N2058	1N4048	300U25A
300 Volts	1N1187	40HF30	1N2133	70H30A	1N3290	1N3087	150L30A	1N2059	1N4049	300U30A
350 Volts	—	—	1N2134	—	—	—	—	1N2060	—	—
400 Volts	1N1188	40HF40	1N2135	70H40A	1N3291	1N3088	150L40A	1N2061	1N4050	300U40A
450 Volts	—	—	1N2136	—	—	—	—	1N2062	—	—
500 Volts	1N1189	40HF50	1N2137	70H50A	1N3292	1N3089	150L50A	1N2063	1N4051	300U50A
600 Volts	1N1190	40HF60	1N2138	70H60A	1N3293	1N3090	150L60A	1N2064	1N4052	300U60A
700 Volts	1N3765	40HF70	—	70H70A	—	—	150L70A	1N2065	1N4053	300U70A
800 Volts	1N3766	40HF80	—	70H80A	1N3294	1N3091	150L80A	1N2066	1N4054	300U80A
900 Volts	1N3767	40HF90	—	70H90A	—	—	150L90A	1N2067	1N4055	300U90A
1000 Volts	1N3768	40HF100	—	70H100A	1N3295	1N3092	150L100A	1N2068	1N4056	300U100A
1200 Volts	—	—	—	70H120	1N3296	1N5162	150L120	—	—	300U120



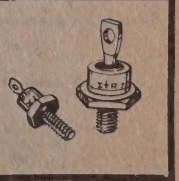
$I_{F(AV)}$ (A) @ Max. Tc (°C)	470 @ 105°	800 @ 105°
I_{FSM} (A)	6,250	8,000
Notes	—	—
Case Style	DO-200AA	DO-200AA
PRV	PART NUMBERS	
1200 Volts	471PDA120	801PDB120
1400 Volts	471PDA140	801PDB140
1600 Volts	471PDA160	801PDB160
1800 Volts	471PDA180	801PDB180
2000 Volts	471PDA200	801PDB200
2100 Volts	—	801PDB210
2200 Volts	—	801PDB220
2300 Volts	—	801PDB230
2400 Volts	—	801PDB240



30 & 70 Amp Power Schottky Diodes

PART NUMBER	I_F (ave.) A 180 Rect.	I_{FSM} A	V_{RWM} max. Repetitive peak working voltage	I_R—Reverse Leakage @ 125 C MA TJ
30FQ030	30	600	30	25
30FQ045	30	600	45	25
75HQ030	75	1000	30	50
75HQ045	75	1000	45	50

175C Operating Junc. Temp. 30FQ-25ma Max. Reverse leakage @ 125°C & 45V PRV Avalanche 75-HQ-50mA Max. Reverse leakage @ 125°C & 45V PRV.



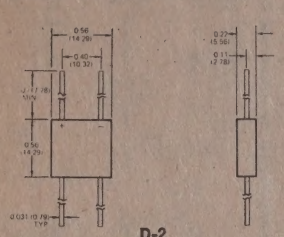
① Ambient temperature.
② Lead temperature, measured ⅜-inch from body.
③ 20A Series also available.
⑤ Cathode-to-Stud. For anode-to-stud, add "R" to base number.
⑦ Note that thermal resistance is lower and operating temperatures higher on "Reverse Polarity" devices.
† JAN types available.

International Rectifier Product Guide

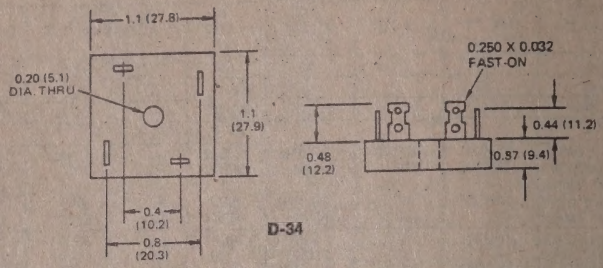
MOLDED POWER CIRCUIT ASSEMBLIES

International Rectifier offers a wide range of compact, easy to handle, molded circuit assemblies. Listed here are two types of single phase diode bridges. Case style D-2 has wire leads, case style D-17A has terminals, an aluminum base for better heat conduction and a mounting hole.

SINGLE PHASE DIODE BRIDGES



D-2

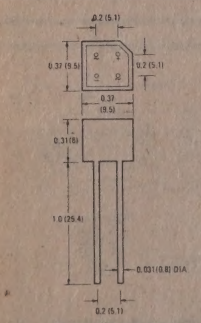


D-34

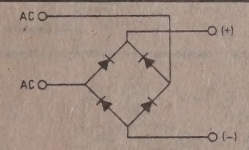
SERIES	18DB	22DB	75JB	100JB	150JB	250JB	300JB	400JB	500JB
Idc (A) Output Current	1.8	2.2	7.5	10	15	25	30	40	50
@ T_C (°C)	50①	50①	75	75	75	75	75	75	75
I_{FSM} (surge) (A)	50	50	75	100	150	300	350	500	600
Circuit	B	B	B	B	B	B	B	B	B
Case Style	D-2	D-2	D-17A	D-17A	D-17A	D-17A	D-17A	D-17A	D-17A
V_{RRM}	PART NUMBERS								
50	18DB05A	22DB05A	75JB05L	100JB05L	150JB05L	250JB05L	300JB05L	400JB05L	500JB05L
100	18DB1A	22DB1A	75JB1L	100JB1L	150JB1L	250JB1L	300JB1L	400JB1L	500JB1L
200	18DB2A	22DB2A	75JB2L	100JB2L	150JB2L	250JB2L	300JB2L	400JB2L	500JB2L
300	18DB3A	22DB3A	75JB3L	100JB3L	150JB3L	250JB3L	300JB3L	400JB3L	500JB3L
400	18DB4A	22DB4A	75JB4L	100JB4L	150JB4L	250JB4L	300JB4L	400JB4L	500JB4L
500	18DB5A	22DB5A	75JB5L	100JB5L	150JB5L	250JB5L	300JB5L	400JB5L	500JB5L
600	18DB6A	22DB6A	75JB6L	100JB6L	150JB6L	250JB6L	300JB6L	400JB6L	500JB6L
700	18DB7A	22DB7A	—	—	—	—	—	—	—
800	18DB8A	22DB8A	75JB8L	100JB8L	150JB8L	250JB8L	300JB8L	—	—
1000	18DB10A	22DB10A	—	—	—	—	—	—	—
1200	—	—	75JB12L	100JB12L	150JB12L	250JB12L	300JB12L	—	—

① Ambient Temperature (T_A)

1KAB SERIES



Case Style D38
Dimensions: inches (mm)

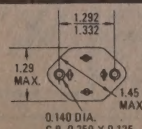


Circuit B
Single Phase
Rectifier Bridge

- **Easy Assembly, Installation, Inventory**
- **High Surge Rating**
- **Compact**

SPECIFICATIONS. Max. DC output current: 1.2A, resistive or inductive load; 1.0A, capacitive load. Max. peak one cycle, non-repetitive surge current: 50A, 50Hz. half cycle: 52.5A, 60Hz. half cycle. Max. I^2t: 12.5 A^2s for 10 ms: 11.5 A^2s for 8.3 ms. Operating frequency range: 40-2000Hz. Max. Oper. and Storage Temp. Range: —40 to 150°C. Weight: 0.1 oz. (3 gms.).

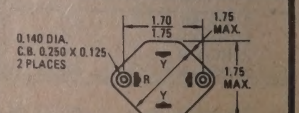
Type	Max. Load Cap. (μF)	Min. Source Resist. (Ω)	V_{RRM} V_{RSM}	V_{RMS} (Recommended)
1KAB10	5000	0.5	100	40
1KAB20	3300	0.8	200	80
1KAB40	1600	1.5	400	125
1KAB60	1200	2.6	600	250
1KAB80	800	3.0	800	380
1KAB100	600	5.0	1000	500



60FB
Case D14

IR EXACT REPLACEMENT SERIES

Type	Volts	Type	Volts
60FB05L	50	250MDA-05R	50
60FB1L	100	250MDA1R	100
60FB2L	200	250MDA2R	200
60FB3L	300	250MDA3R	300
60FB4L	400	250MDA4R	400
60FB6L	600	250MDA6R	600



250MDA
Case D35

International Rectifier Product Guide

SELENIUM RECTIFIERS

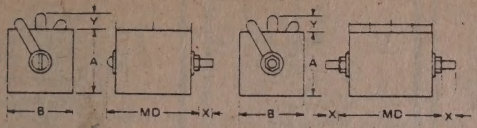


Fig. 3

Fig. 4

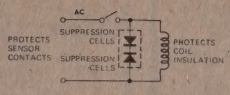


Fig. 13

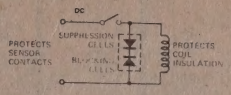


Fig. 14

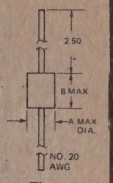


Fig. 15

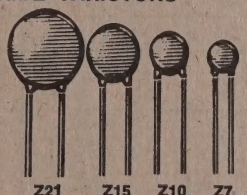
3

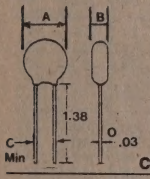
STANDARD STACKS

Output DC Volts	Output DC Amp	AC Volts	IR Part No.	Fig.	Dimensions (Inches) A	B	MD	X	Y	Stud
0	0.5	36	J14C04	3	1.0	1.0	1.12	.38	.44	8-32
	1.5	36	J14C1	3	1.5	1.5	1.12	.38	.44	8-32
to	5.0	36	J14C5	3	3.0	3.0	1.12	.75	.63	⅜-16
	10.0	36	J14C8	3	4.0	4.0	1.88	.75	1.12	⅜-16
14	20.0	36	J14C17	3	6.0	5.0	1.12	.75	1.25	⅜-16
0	0.5	36	J29B04	4	1.0	1.0	1.5	.38	.44	8-32
	1.5	36	J29B1	4	1.5	1.5	1.5	.38	.44	8-32
to	5.0	36	J29B5	4	3.0	3.0	2.63	.75	.63	⅜-16
	10.0	36	J29B8	4	4.0	4.0	2.63	.75	1.12	⅜-16
29	20.0	36	J29B17	4	6.0	5.0	3.25	.75	1.25	⅜-16
0	0.5	72	J58B04	4	1.0	1.0	2.25	.38	.44	8-32
	1.5	72	J58B1	4	1.5	1.5	2.25	.38	.44	8-32
to	5.0	72	J58B5	4	3.0	3.0	4.19	.75	.63	⅜-16
	10.0	72	J58B8	4	4.0	4.0	4.19	.75	1.12	⅜-16
58	20.0	72	J58B17	4	6.0	5.0	5.63	.75	1.25	⅜-16
0	0.5	144	J116B04	4	1.0	1.0	3.81	.38	.44	8-32
	1.5	144	J116B1	4	1.5	1.5	3.81	.38	.44	8-32
to	5.0	144	J116B5	4	3.0	3.0	7.19	.75	.63	⅜-16
	10.0	144	J116B8	4	4.0	4.0	7.19	.75	1.12	⅜-16
116	20.0	144	J116B17	4	6.0	5.0	10.25	.75	1.25	⅜-16
0	0.5	180	J135B04	4	1.0	1.0	4.56	.38	.44	8-32
	1.5	180	J138B1	4	1.5	1.5	4.56	.38	.44	8-32
to	5.0	180	J135B5	4	3.0	3.0	8.69	.75	.63	⅜-16
	10.0	180	J135B8	4	4.0	4.0	8.69	.75	1.12	⅜-16
135	20.0	180	J135B17	4	6.0	5.0	12.56	.75	1.25	⅜-16

Z-MOV METAL OXIDE VARISTORS

Zenamic voltage suppressors have a non-linear current-voltage characteristic which sustains a constant voltage over a wide current range. High surge current capability. Excellent voltage clamping. Instantaneous response. Low idling current. Symmetrical characteristic—use on AC or DC.


Z21 Z15 Z10 Z7



DIMENSIONS IN INCHES

DIM. TYPES	Z7	Z10	Z15	Z21
A	.39	.51	.71	.75
B	.31	.31	.31	.35
C	.23	.29	.29	.39

Clamping Voltages to 1000 Volts.

Type Number	Description Joules Rating (J)	Clamping Voltage (V)
Z7L680	2	68
Z7L221	2	220
Z7L271	2	270
Z7L441	2	440
Z7L471	4	470
Z10L151	5	150
Z10L221	7	220
Z10L271	7	270
Z10L471	10	470
Z15L221	10	220
Z15L411	14	410
Z15L471	14	470
Z15L681	14	680
Z15L751	21	750
Z15L821	21	820
Z15L102	21	1000
Z21L221	14	220
Z21L271	14	270
Z21L441	14	440
Z21L471	21	470
Z21L681	27	680
Z21L821	28	820
Z21L102	28	1000

CONTACT PROTECTORS

AC TYPE (See Fig. 13)

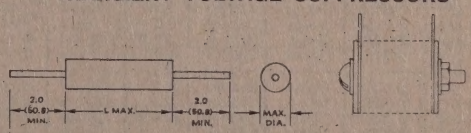
Working Volts (VAC) Max.	Max. Coil Current (Amp)	IR Part No.	Dimension Fig. 15 A (Max.)	B (Max.)	Working Volts (VAC) Max.	Max. Coil Current (Amp)	IR Part No.	Dimension Fig. 15 A (Max.)	B (Max.)
26	.20	S1V1T	1.2	.38	104	.60	S4Z4T	1.38	.58
52	.20	S2V2T	1.2	.38	130	.60	S5Z5T	1.38	.58
78	.20	S3V3T	1.2	.38	156	.60	S6Z6T	1.62	.58
104	.20	S4V4T	1.2	.38					
130	.20	S5V5T	1.2	.38	26	.90	S1X1P	1.060	.620
156	.20	S6V6T	1.43	.38	52	.90	S2X2P	1.060	.620
					78	.90	S3X3P	1.060	.620
26	.40	S1Y1J	.50	.62	104	.90	S4X4P	1.060	.620
52	.40	S2Y2J	.50	.62	130	.90	S5X5P	1.060	.620
78	.40	S3Y3J	.50	.62	156	.90	S6X6P	1.060	.990
104	.40	S4Y4J	.50	.62					
130	.40	S5Y5J	.50	.62	26	1.2	S1W1P	1.380	.620
156	.40	S6Y6J	.50	.44	52	1.2	S2W2P	1.380	.620
					78	1.2	S3W3P	1.380	.620
26	.60	S1Z1T	1.38	.58	104	1.2	S4W4P	1.380	.620
52	.60	S2Z2T	1.38	.58	130	1.2	S5W5P	1.380	.620
78	.60	S3Z3T	1.38	.58	156	1.2	S6W6P	1.380	.990

DC TYPE (See Fig. 14)

Working Volts (VDC) Min.	Max.	Max. Coil Current (Amp)	IR Part No. ◆	Dimension Fig. 15 A Max.)	B (Max.)	Working Volts (VDC) Min.	Max.	Max. Coil Current (Amp	IR Part No. ◆	Dimension Fig. 15 A (Max.)	B (Max.)
15	22	.25	S1V1T	1.2	.38	67	88	.90	S4Z4T	1.38	.58
23	44	.25	S2V2T	1.2	.38	89	110	.90	S5Z5T	1.38	.58
45	66	.25	S3V3T	1.2	.38	111	132	.90	S6Z6T	1.38	.58
67	88	.25	S4V4T	1.2	.38	133	154	.90	S7Z7T	1.38	.58
89	110	.25	S5V5T	1.2	.38						
111	132	.25	S6V6T	1.2	.38	15	22	1.4	S1X1P	1.060	.620
133	154	.25	S7V7T	1.2	.38	23	44	1.4	S2X1P	1.060	.620
						45	66	1.4	S3X2P	1.060	.620
15	22	.60	S1Y1P	.50	.62	67	88	1.4	S4X2P	1.060	.620
23	44	.60	S2Y1P	.50	.62	89	110	1.4	S5X2P	1.060	.620
45	66	.60	S3Y3P	.50	.62	111	132	1.4	S6X2P	1.060	.620
67	88	.60	S4Y4P	.50	.62	133	154	1.4	S7X2P	1.060	.620
89	110	.60	S5Y5P	.50	.62						
111	132	.60	S6Y6P	.50	.62	15	22	2.0	S1W1P	1.380	.620
133	154	.60	S7Y7P	.50	.99	23	44	2.0	S2W1P	1.380	.620
						45	66	2.0	S3W2P	1.380	.620
15	22	.90	S1Z1T	1.38	.58	67	88	2.0	S4W2P	1.380	.620
23	44	.90	S2Z1T	1.38	.58	89	110	2.0	S5W2P	1.380	.620
45	66	.90	S3Z3T	1.38	.58	111	132	2.0	S6W2P	1.380	.620
						133	154	2.0	S7W2P	1.380	.620

◆The terminal marked in red, or the end with polarity marking, should be connected to the positive side of circuit.

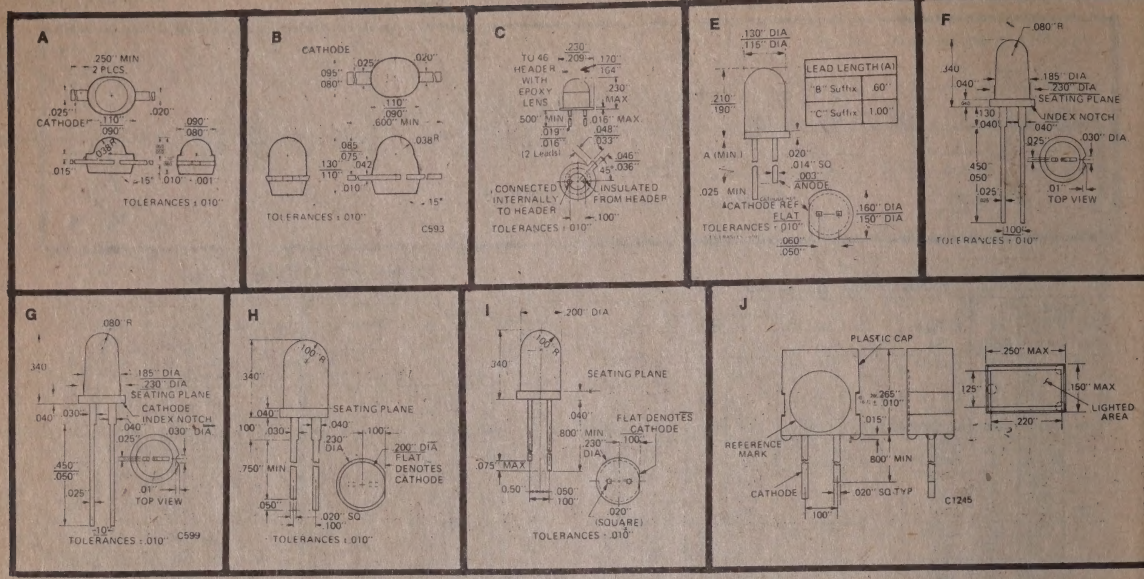
"KLIP SELS" TRANSIENT VOLTAGE SUPPRESSORS



Device Rating Volts (VRRM)	Vtr (VRSM)	Max. Oper. VRMS	For Individual Rectifier Rated Thru 3 Amp	15 Amp	60 Amp	250 Amp
100	150	60	KV2DTM	KZ2DTM	—	—
100	150	52	KV2DTF	KZ2DTF	KSA2DAF	KSL2DAF
150	250	90	KV3DTM	KZ3DTM	—	—
150	250	78	KV3DTF	KZ3DTF	KSA3DAF	KSL3DAF
300	360	120	KV4DTM	KZ4DTM	—	—
300	360	150	KV5DTM	KZ5DTM	—	—
300	360	130	KV5DTF	KZ5DTF	KSA5DAF	KSL5DAF
500	650	234	KV9DTF	KZ9DTF	KSA9DBF	KSL9DBF
600	650	240	KV8DTM	KZ8DTM	—	—
600	800	260	KV10DTF	KZ10DTF	KSA10DBF	KSL10DBF
800	1000	364	KV14DTF	KZ14DTF	KSA14DBF	KSL14DBF
1000	1200	442	KV17DTF	KZ17DTF	KSA17DBF	KSL17DBF
1200	1600	520	KV18DTM	KZ18DTM	—	—
1200	1600	520	KV20DTF	KZ20DTF	KSA20DBF	KSL20DBF

Monsanto

Discrete LED Lamps



Monsanto offers a broad line of discrete light emitting diode products to provide a wide selection of off-the-shelf products to meet a customer's particular requirements.

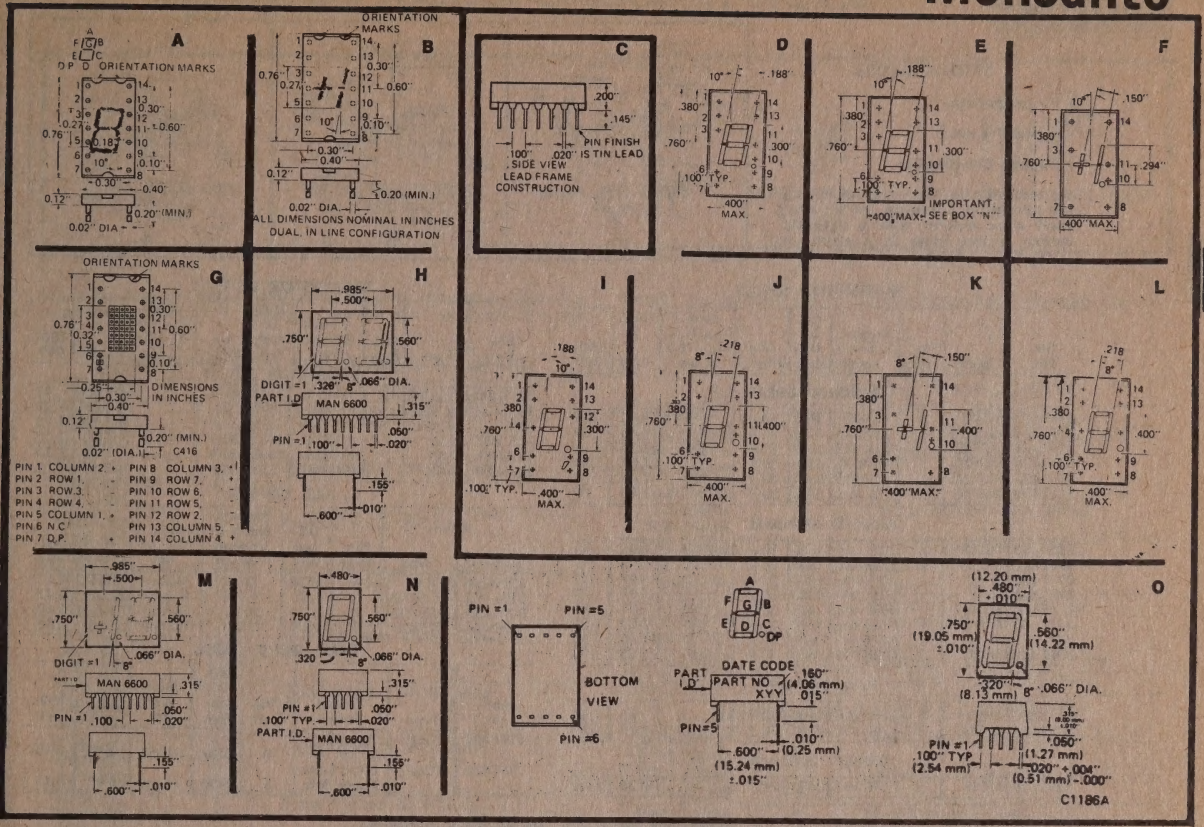
A broad selection of packages, lens effects, color power, and brightness is available. Product lines are continually being updated to provide modern, functional devices for customer use. New types added to stock as they are introduced.

Stock No.	Model No.	Viewed Color	Source Wave-Length	Forward Voltage	Brightness No. and Units	Test @ Curr. (IF)	Reverse Current	Max. Forward* Current @ 25°C	Max. Power	Package Key	1-99	100-999	1000	5000
32F1447	MV10B	Red	(660) nm	1.65 V	0.8 mcd	10 mA	50 nA	70 mA	175 mW	C	.98	.78	.65	.61
32F1448	MV50	Red	(660) nm	1.65 V	1.4 mcd	20 mA	5.0 nA	40 mA	80 mW	A	.25	.17	.15	.15
32F1467	MV52	Green	(565) nm	2.2 V	1.5 mcd	20 mA	100 μA max.	35 mA	105 mW	A	.50	.40	.30	.28
32F1472	MV53	Yellow	(589) nm	2.1 V	1.5 mcd	20 mA	100 μA max.	35 mA	105 mW	A	.50	.40	.30	.28
32F1476	MV54	Red	(660) nm	1.65 V	1.0 mcd	20 mA	5.0 nA	40 mA	80 mW	A	.25	.17	.15	.15
32F1478	MV55	Red	(660) nm	1.6 V	0.5 mcd	3 mA	150 nA	4 mA	6 mW	B	.38	.25	.23	.22
32F1449	MV5020	Red	(660) nm	1.65 V	2.0 mcd	20 mA	15 nA	100 mA	180 mW	G	.52	.41	.36	.34
32F1450	MV5021	Red	(660) nm	1.65 V	1.6 mcd	20 mA	15 nA	100 mA	180 mW	G	.52	.41	.36	.34
32F1451	MV5022	Red	(660) nm	1.65 V	1.6 mcd	20 mA	15 nA	100 mA	180 mW	G	.52	.41	.36	.34
32F1452	MV5023	Red	(660) nm	1.65 V	1.6 mcd	20 mA	15 nA	100 mA	180 mW	G	.45	.35	.32	.29
32F1453	MV5024	Red	(660) nm	1.65 V	3.0 mcd	20 mA	15 nA	100 mA	180 mW	G	.45	.35	.32	.29
32F1454	MV5025	Red	(660) nm	1.65 V	0.4 mcd	20 mA	15 nA	100 mA	180 mW	G	.45	.35	.32	.29
32F1455	MV5026	Red	(660) nm	1.65 V	0.6 mcd	20 mA	15 nA	100 mA	180 mW	G	.45	.35	.32	.29
32F1456	MV5050	Red	(660) nm	1.7 V	2.0 mcd	20 mA	20 nA	100 mA	180 mW	I	.41	.31	.26	.22
32F1457	MV5053	Red	(660) nm	1.7 V	1.6 mcd	20 mA	5 nA	100 mA	180 mW	I	.28	.22	.18	.17
32F1458	MV5054-1	Red	(660) nm	1.8 V	2.0 mcd	10 mA	100 nA	100 mA	180 mW	H	.28	.22	.18	.17
32F1459	MV5054-2	Red	(660) nm	1.8 V	3.0 mcd	10 mA	100 nA	100 mA	180 mW	H	.30	.24	.20	.19
32F1460	MV5054-3	Red	(660) nm	1.8 V	4.0 mcd	10 mA	100 nA	100 mA	180 mW	H	1.04	.78	.65	.58
32F1461	MV5055	Red	(660) nm	1.7 V	0.6 mcd	20 mA	5 nA	100 mA	180 mW	I	.28	.22	.18	.17
32F1462	MV5075B	Red	(660) nm	1.68 V	1.5 mcd	20 mA	15 nA	50 mA	100 mW	E	.25	.20	.17	.16
32F1464	MV5152	Orange	(635) nm	2.0 V	40 mcd	20 mA	20 nA	35 mA	105 mW	I	.62	.48	.40	.35
32F1465	MV5153	Orange	(635) nm	2.0 V	9.0 mcd	20 mA	20 nA	35 mA	105 mW	I	.62	.48	.40	.35
32F1466	MV5154	Orange	(635) nm	2.0 V	10.0 mcd	20 mA	20 nA	35 mA	105 mW	I	.62	.48	.40	.35
32F1468	MV5252	Green	(565) nm	2.2 V	11.0 mcd	20 mA	20 nA	35 mA	105 mW	I	.62	.48	.40	.35
32F1469	MV5253	Green	(565) nm	2.2 V	3.5 mcd	20 mA	20 nA	35 mA	105 mW	I	.62	.48	.40	.35
32F1470	MV5254	Green	(565) nm	2.2 V	3.0 mcd	20 mA	20 nA	35 mA	105 mW	I	.62	.48	.40	.35
32F1473	MV5352	Yellow	(585) nm	2.1 V	40.0 mcd	20 mA	20 nA	35 mA	105 mW	I	.62	.48	.40	.35
32F1474	MV5353	Yellow	(585) nm	2.1 V	8.0 mcd	20 mA	20 nA	35 mA	105 mW	I	.62	.48	.40	.35
32F1475	MV5354	Yellow	(585) nm	2.1 V	10.0 mcd	20 mA	20 nA	35 mA	105 mW	I	.62	.48	.40	.35
32F1479	MV5752	Hi. Eff. Red	(635) nm	2.0 V	40.0 mcd	20 mA	20 nA	35 mA	105 mW	I	.62	.48	.40	.35
32F1480	MV5753	Hi. Eff. Red	(635) nm	2.0 V	9.0 mcd	20 mA	20 nA	35 mA	105 mW	I	.36	.28	.23	.21
32F1481	MV5754	Hi. Eff. Red	(635) nm	2.0 V	10.0 mcd	20 mA	20 nA	35 mA	105 mW	I	.36	.28	.23	.21
32F1471	MV5274B	Green	(565) nm	2.2 V	1.8 mcd	20 mA	20 nA	35 mA	105 mW	E	.60	.45	.38	.33
32F1463	MV5094	Red/Red	(Note a)	1.6 V	0.8 mcd	20 mA	15 nA	70 mA	140 mW	F	1.80	1.20	1.10	1.00
32F1477	MV5491	Red/Green (Note b)												
		Red Diode		1.65 V	1.5 mcd	20 mA	15 nA	70 mA	200 mW	F				
		Green Diode		3.0 V	0.5 mcd	20 mA	100 μA max.	35 mA	200 mW	F	3.00	2.45	2.15	
32F1482	MV53124	Yellow	(585) nm	2.0 V	4.0 mcd	20 mA	20 nA	35 mA	105 mW	J	.75	.60	.50	.45
32F1483	MV57124	Red	(635) nm	2.0 V	4.0 mcd	20 mA	20 nA	35 mA	105 mW	J	.75	.60	.50	.45

(a) The MV5094 contains two red diodes connected inversely parallel. Therefore the unit operates on either polarity DC current or AC current. Wavelength is 660 nm. For this unit, I^2T (0.1% duty cycle . . . 2.5×10^{-4} amps² sec).

(b) The MV5491 contains one red and one green diode inversely parallel. Therefore the unit emits green light (570 nm) with one DC polarity and red light (660nm) with the opposite DC polarity.

All specifications are typical unless otherwise specified.



Stock No.	Model No.	Digit Height	Color	Peak Wave-Length(per)	Brightness	Volts-Max. (Vp/Sep.)	Product Features	Pkg.	1-24	25-99	100-499
32F1510	MAN2815	.100 in.	Clear	660 nm	110 µcd	2.0 V	Alpha-Numeric	D†	48.10	43.50	39.00
									1-99	100-999	1000-up
32F1400	MAN1A	.270 in.	Red	660 nm	100 ft.-L	4.0 V	Low Brightness 7 Segment	A	9.90	9.10	8.25
32F1401	MAN10A	.270 in.	Red	660 nm	100 ft.-L	4.0 V	High Brightness Low Current	A	9.90	9.10	8.25
32F1402	MAN2A	.320 in.	Red	650 nm	125 µcd	2.0 V	35 Diode Alpha-Numeric	G	6.00	5.07	4.22
32F1403	MAN3610A	.300 in.	Orange	630 nm	510 µcd	2.5 V	Common Anode; RHDP	C	2.87	2.22	1.85
32F1404	MAN3620A	.300 in.	Orange	630 nm	510 µcd	2.5 V	Common Anode; LHDP	D	2.87	2.22	1.85
32F1405	MAN3630A	.294 in.	Orange	630 nm	510 µcd	2.5 V	Common Anode; RHDP Overflow (±1)	E	2.87	2.22	1.85
32F1406	MAN3604A	.300 in.	Orange	630 nm	510 µcd	2.5 V	Common Cathode; RHDP	F	2.87	2.22	1.85
32F1409	MAN51A	.380 in.	Green	565 nm	125 µcd	3.5 V	Common Anode; RHDP	C	3.10	2.40	2.00
32F1410	MAN52A	.300 in.	Green	565 nm	125 µcd	3.5 V	Common Anode; LHDP	D	3.10	2.40	2.00
32F1411	MAN54A	.300 in.	Green	565 nm	125 µcd	3.5 V	Common Cathode; RHDP	F	3.10	2.40	2.00
32F1417	MAN71A	.300 in.	Red	650 nm	125 µcd	2.0 V	Common Anode; RHDP	C	2.01	1.55	1.29
32F1418	MAN72A	.300 in.	Red	650 nm	125 µcd	2.0 V	Common Anode; LHDP	D	2.01	1.55	1.29
32F1419	MAN73A	.294 in.	Red	650 nm	125 µcd	2.0 V	Common Anode; RHDP Overflow (±1)	E	2.01	1.55	1.29
32F1420	MAN74A	.300 in.	Red.	650 nm	125 µcd	2.0 V	Common Cathode; RHDP	F	2.01	1.55	1.29
32F1421	MAN82A	.300 in.	Yellow	590 nm	320 µcd	3.5 V	Common Anode; LHDP	D	3.10	2.40	2.00
32F1422	MAN84A	.300 in.	Yellow	590 nm	320 µcd	3.5 V	Common Cathode; RHDP	F	3.10	2.40	2.00
32F1407	MAN4610A	.400 in.	Orange	630 nm	510 µcd	2.5 V	Common Anode; RHDP	H	3.05	2.40	2.00
32F1408	MAN4640A	.400 in.	Orange	630 nm	510 µcd	2.5 V	Common Cathode; RHDP	J	3.05	2.40	2.00
32F1412	MAN6610	.560 in.	Orange	630 nm	510 µcd	2.5 V	2 Digit; Common Anode; RHDP	K	3.45	3.15	2.65
32F1413	MAN6630	.560 in.	Orange	630 nm	510 µcd	2.5 V	1½ Digit; Common Anode; Overflow (±1.8); RHDP	L	3.45	3.15	2.65
32F1414	MAN6640	.560 in.	Orange	630 nm	510 µcd	2.5 V	2 Digit; Common Cathode; RHDP	K	3.45	3.15	2.65
32F1415	MAN6660	.560 in.	Orange	630 nm	510 µcd	2.5 V	Single Digit; Common Anode; RHDP	M	3.15	2.50	2.10
32F1498	MAN6680	.560 in.	Orange	630 nm	510 µcd	2.5 V	Single Digit; Common Cathode; RHDP	M	3.15	2.50	2.10
32F1499	MAN6710	.560 in.	Red	650 nm	125 µcd	2.0 V	2 Digit; Common Anode; RHDP	K	3.30	2.54	2.12
32F1500	MAN6730	.560 in.	Red	650 nm	125 µcd	2.0 V	1½ Digit; Common Anode; Overflow (±1.8); RHDP	L	3.30	2.54	2.12
32F1416	MAN6740	.560 in.	Red	650 nm	125 µcd	2.0 V	2 Digit; Common Cathode; RHDP	K	3.30	2.54	2.12
32F1501	MAN6750	.560 in.	Red	650 nm	125 µcd	2.0 V	1½ Digit; Common Cathode; Overflow (±1.8); RHDP	L	3.30	2.54	2.12
32F1502	MAN6760	.560 in.	Red	650 nm	125 µcd	2.0 V	Single Digit; Common Anode; RHDP	O	1.88	1.64	1.37
32F1503	MAN6780	.560 in.	Red	650 nm	125 µcd	2.0 V	Single Digit; Common Cathode; RHDP	O	1.88	1.64	1.37
32F1504	MAN8610*	.800 in.	Red	630 nm	600 µcd	2.5 V	Common Anode; RHDP		3.45	2.75	2.30
32F1505	MAN8540*	.800 in.	Red	630 nm	600 µcd	2.5 V	Common Cathode; RHDP		3.45	2.75	2.30

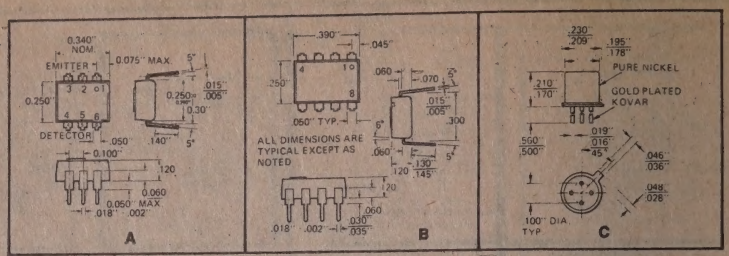
*** Test Condition (Ip) 20mA; All others 10mA** **† 24 pin DIP w/8 characters**

Monsanto Optoelectronics and Infrared Devices

OPTOISOLATORS

- IC compatible
- Physically small
- Rugged Construction

Standard line of Monsanto optoisolator products combine an infrared solid state emitter with a light detecting output stage in a single IC compatible package.



TRANSISTOR SERIES

Stk. No.	Type	Pkg. Type	Current Transfer Ratio	Min. DC Isol. Volt.	Min. BV_{CEO}	Max. T_{on}, T_{off} R_L=100 (μ sec)	1-99	100-999
DESIGNER SERIES								
32F1493	MCT271	A	45-90%	3150	30 V	7	1.45	1.00
32F1494	MCT272	A	75-150%	3150	30 V	10	1.45	1.00
32F1495	MCT273	A	125-250%	3150	30 V	20	1.55	1.10
32F1496	MCT274	A	225-400%	3150	30 V	25	1.85	1.30
32F1497	MCT275	A	70-210%	3150	80 V	15	1.65	1.15
32F1436	MCT2E	A	20% Min.	3550	30 V	.....	1.10	.79
INDUSTRY STANDARD								
32F1435	MCT2	A	20% Min.	1500	30 V	.....	1.05	.77
32F1437	MCT26	A	6% Min.	1500	30 V	.....	.97	.72
32F1484	4N25	.....	20% Min.	2500	30 V	.....	.97	.72
32F1485	4N26	.....	20% Min.	1500	30 V	.....	.97	.72
32F1486	4N28	.....	10% Min.	500	30 V	.....	.97	.72
32F1490	4N35	.....	100% Min.	3550	30 V	10	2.05	1.35
32F1491	4N36	.....	100% Min.	2500	30 V	10	1.40	1.00
32F1492	4N37	.....	100% Min.	1500	30 V	10	1.25	.95
DUAL CHANNEL								
32F1439	MCT6	B	20% Min.	1500	30 V	.....	2.35	1.80
32F1440	MCT66	B	6% Min.	1500	30 V	.....	2.25	1.75
HERMETIC PACKAGE								
32F1438	MCT4	C	15% Min.	1000	30 V	.....	8.20	6.05

TRANSISTOR OUTPUT

Stk. No.	Type	Pkg. Type	Current Transfer Ratio	Min. DC Isol. Volt.	Min. BV_{CEO}	Max. T_{on}, T_{off} R_L=100 (μ sec)	1-99	100-999
DARLINGTON OUTPUT								
32F1423	MCA230	A	100% Min.	1500	30 V	.....	1.35	.95
32F1424	MCA231	A	200% Min.	1500	30 V	.....	1.65	1.25
32F1425	MCA255	A	100% Min.	1500	55 V	.....	1.55	1.10
32F1487	4N29	....	100% Min.	2500	30 V	.....	1.65	1.15
32F1488	4N32	....	500% Min.	2500	30 V	.....	1.70	1.15
32F1489	4N33	....	500% Min.	1500	30 V	.....	1.65	1.10

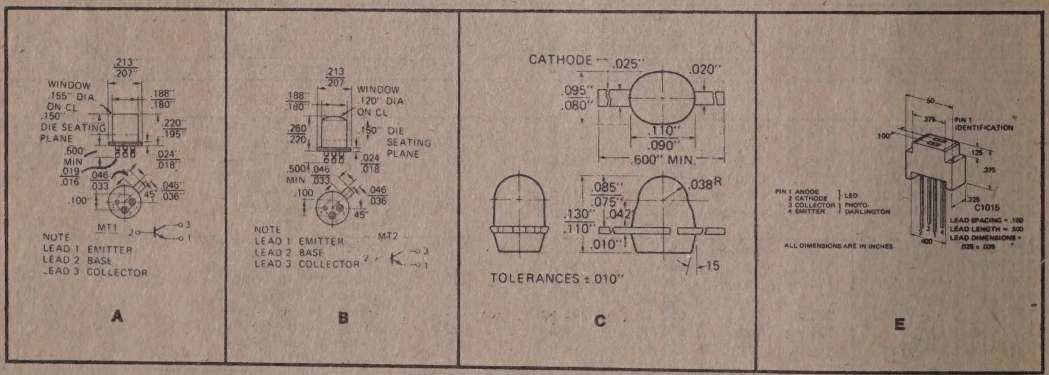
SCR OUTPUT

Stock No.	Type	Pkg. Type	DC Isol Volt.	Forward Blocking Voltage (V_{DRRM})	Max. Turn-on (I_F)	1-99	100-999
32F1431	MCS2	A	1500	200 V	14.0 mA	1.65	1.30
32F1432	MCS2400	A	1500	400 V	14.0 mA	2.20	1.75
32F1433	MCS6200	B	1500	200 V	14.0 mA	4.35	3.40
32F1434	MCS6201	B	2500	200 V	14.0 mA	5.10	4.05

HIGH SPEED LOGIC

Stock No.	Type	Output Format	Pkg. Type	Min. DC Isol Volt.	Max. Trig. (I_F)	1-99	100-999
32F1429	MCL601	Logic Gate Totem Pole	B	2000	5.0 mA	8.95	6.45
32F1430	MCL611	Logic Gate Totem Pole	B	2000	15 mA	8.95	6.45

INFRARED EMITTERS, DETECTORS, SENSORS



INFRARED EMITTERS

Stock No.	Type	Package	Forward Voltage (V_F)	Power Out (P_O)	Test Current	Maximum Power	1-99	100-999
32F1442	ME60	C	1.3 V	550 μW	50 mA	75 mW	1.04	.81
32F1443	ME7024	.....	1.3 V	1000 μW	50 mA	150 mW	1.95	1.45
32F1444	ME7124	E	1.4 V	3 mW	50 mA	150 mW	1.65	1.30

PHOTODETECTORS

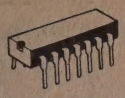
Stock No.	Type	Package	Sensitivity (μA/mW/cm²)	Collector Dark Current	Collector-Emitter Breakdown	Maximum Power	1-99	100-999
32F1445	MT1	A	560	1 nA	65 V	200 mW	6.15	4.85
32F1446	MT2	B	1400	1 nA	65 V	200 mW	6.15	4.85

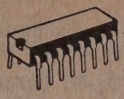
SENSOR SYSTEMS

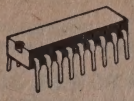
Stock No.	Type	Package	Output Format	Package Type	Collector Current (I_C)	Typical Bandwidth	Max. Dark Current (I_{CEO})	1-99	100-999
32F1426	MCA7	.....	Darlington	Reflective Sensor Switch	50 μA @ I_F=50 mA, V_{CE}=5 V	0.8 kHz	100 nA	3.90	3.00
32F1441	MCT8	.....	Transistor	Slotted Limit Switch	200μA @ I_F=20 mA, V_{CE}=10 V	150 kHz	100 nA	2.35	1.80
32F1427	MCA8	.....	Darlington	Slotted Limit Switch	2 mA @ I_F=16 mA, V_{CE}=1 V	0.8 kHz	100 nA	2.50	1.90
32F1428	MCA81	.....	Darlington	Slotted Limit Switch	1.6 mA @ I_F=50 mA, V=CE1 V	1.5 kHz	100 nA	2.25	1.75

Sprague Product Selection Guide

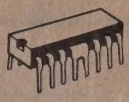
SPRAGUE
THE MARK OF RELIABILITY


14-pin dual-in-line
Fig. A


16-pin dual in-line
Fig. B


18-pin dual in-line
Fig. C

8-pin dual in-line
Fig. D


16-pin webbed dual in-line
Fig. E

3

Complete line of State-of-the-art integrated circuits designed to interface wih DTL, TTL; CMOS, or PMOS logic and incandescent lamps, multiplexed LED's, relays, solenoids, stepping motors, heaters etc.

SERIES 400 AND 500 POWER DRIVERS

TYPE NO.	FIG.	FUNCTION
UHP-400	A	Quad 2-input AND Gate
UHP-400-1	A	
UHP-500	A	
UHP-402	A	Quad 2-input OR Gate
UHP-402-1	A	
UHP-500	A	
UHP-403	A	Quad 2-input OR Gate
UHP-403-1	A	
UHP-503	A	
UHP-406	A	Quad 2-input AND Gate
UHP-406-1	A	
UHP-506	A	
UHP-407	A	Quad 2-input NAND Gate
UHP-407-1	A	
UHP-507	A	
UHP-408	A	Quad 2-input NAND Gate
UHP-408-1	A	
UHP-508	A	
UHP-432	A	Quad 2-input NOR Gate
UHP-432-1	A	
UHP-532	A	
UHP-433	A	Quad 2-input NOR Gate
UHP-433-1	A	
UHP-533	A	

SERIES 480/490 GAS-DISCHARGE DISPLAY DRIVERS

UHP-480	A	Cathode Drivers with MOS or open collector TTL input capabiity
UHP-481	B	
UHP-482	C	
UHP-490	A	Anode Drivers with MOS or open collector TTL input capabiity
UHP-491	B	
UHP-495	A	

SERIES 2000/2800 DARLINGTON TRANSISTOR ARRAYS

ULN-2001A	A	For general purpose PMOS, CMOS Interface Applications
ULN-2011A	A	
ULN-2021A	A	
ULN-2801A	B	
ULN-2811A	B	
ULN-2821A	B	
ULN-2002A	A	For 14-25V PMOS Interface Applications
ULN-2012A	A	
ULN-2022A	A	
ULN-2802A	B	
ULN-2812A	B	
ULN-2822A	B	
ULN-2003A	A	For 5V TTL or CMOS Interface Applications
ULN-2013A	A	
ULN-2023A	A	
ULN-2803A	B	
ULN-2813A	B	
ULN-2823A	B	
ULN-2004A	A	For 6-15V CMOS or PMOS Applications
ULN-2014A	A	
ULN-2024A	A	
ULN-2804A	B	
ULN-2814A	B	
ULN-2824A	B	
ULN-2005A	A	For high Output TTL Interface Applications
ULN-2015A	A	
ULN-2025A	A	
ULN-2805A	B	
ULN-2815A	B	
ULN-2825A	B	

SERIES 2060/2070 1.5 A DARLINGTON TRANSISTORS

TYPE NO.	FIG.	FUNCTION
ULN-2061M	D	TTL, DTL, Schottky TTL and 5 V CMOS Interface (50 V Vcex)
ULN-2064B	E	
ULN-2068B	E	
ULN-2062M	D	TTL, DTL, Schottky TTL and 5 V CMOS Interface (80V Vcex)
ULN-2065B	E	
ULN-2069B	E	
ULN-2066B	E	6 to 15 V CMOS and PMOS Interface (50 V Vcex)
ULN-2070B	E	
ULN-2076B	E	
ULN-2067B	E	6 to 15 V CMOS and PMOS Interface (80 V Vcex)
ULN-2071B	E	
ULN-2077B	E	
ULN-2074B	E	General purpose (50 V Vcex)
ULN-2075B	E	General Purpose (80 V Vcex)

SERIES 2840 QUAD 1.5 A DRIVERS

UDN-2841B	E	Sink Drivers from Negative Supply
UDN-2842B	E	
UDN-2843B	E	Source Driver from Negative Supply
UDN-2844B	E	
UDN-2845B	E	Sink & Source Driver from Negative Supply
UDN-2846B	E	

SERIES 2950 SOURCE DRIVERS

UDN-2956	A	6-16 V PMOS/CMOS Interface
UDN-2957	A	TTL, DTL, 5 V CMOS Interface

SERIES 2980 SOURCE DRIVERS

UDN-2981A	C	For 5 V TTL, DTL, CMOS Interface
UDN-2983A	C	
UDN-2982A	C	For 6-16 V CMOS, PMOS Interface
UDN-2984A	C	

SERIES 3600 PERIPHERAL/POWER DRIVERS

UDN-3611M	D	Dual 2-input AND Driver
UDN-3612M	D	Dual 2-input NAND Driver
UDN-3613M	D	Dual 2-input OR Driver
UDN-3614M	D	Dual 2-input NOR Driver

SERIES 5700 PERIPHERAL/POWER DRIVERS

UDN-5703A	C	Quad 2-input OR Driver
UDN-5706A	C	Quad 2-input AND Driver
UDN-5707A	C	Quad 2-input NAND Driver
UDN-5711M	D	Dual AND Driver
UDN-5712M	D	Dual NAND Driver
UDN-5713M	D	Dual OR Driver
UDN-5714M	D	Dual NOR Driver
UDN-5733A	C	Quad 2-input NOR Driver

SERIES 6100 FLUORESCENT DISPLAY DRIVERS

UDN-6116A	B	For TTL, DTL, 5 V CMOS Interface
UDN-6118A	B	
UDN-6126A	C	For 6-15 V PMOS, CMOS Interface
UDN-6128A	C	

SERIES 6100/7100 GAS-DISCHARGE DISPLAY DRIVERS

UDN-6144A	A	For Anode Driver Applications. 12-25 V PMOS Interface
UDN-6164A	B	
UDN-6184A	C	
UDN-7180A	C	For Cathode Driver applications. 12-25V PMOS Interface
UDN-7183A	C	
UDN-7184A	C	
UDN-7186A	C	

LANSDALE
Germanium Power Selector Guide

This selector guide reflects the "preferred" germanium power transistors and can be used as a quick reference to find the best device for your applications.

HIGH POWER, DIFFUSED BASE TRANSISTORS

25 AMP	Case—TO-3/60 P_D=85W Switching @ 15A V_{CE}(sat) 0.75V Max. @ 25A	V_{CE}		90V	75V	75V	90V	80V
		H_{FE} I_C=5A 50 Min.	V_{CEO}	40V	50V	60V	70V	90V
				MP110B*	MP600A*	MP601A*	MP602A*	MP603A*
	Case—TO-3/60 P_D=106W V_{CE}(sat) 0.6V Max. @ 25A	V_{CB}/V_{CEX}		60V	80V	100V	120V	140V
		H_{FE} I_C=8A 25 Min.	V_{CEO}	30V	60V	80V	100V	120V
				MP2000B*	MP2100B*	MP2200B*	MP2300B*	MP2400B*
	Case—TO-3/60 P_D=106W Switching @ 25A V_{CE}(sat) 0.3V Max. @ 25A	V_{CBO}		60V	100V	120V		
		H_{FE} I_C=25A 20 Min.	V_{CEO}	30V	60V	80V		
				2N1651	2N1652	2N1653		
				2N2285	2N2286	2N2287		
50 AMP	Case—TO-3/60 P_D=120W V_{CE}(sat) 0.5V Max. @ 50A	H_{FE} I_C=25A	V_{CBO}	60V	100V	120V		
			V_{CEO}	30V	60V	80V		
		15 Min.		2N2357	2N2358	2N2359		
				MP2357	MP2358	MP2359		
60 AMP	Case—TO-3/60 P_D=120W	H_{FE} I_C=25A	H_{FE} I_C=60A	V_{CEX}	80V	110V	140V	
				V_{CEO}	60V	90V	120V	
	V_{CE}(sat) @ 60A 0.75V Max.	20-60	10 Min.		2N5435	2N5436	2N5437	
	V_{CE}(sat) @ 60A 0.50V Max.	40-120	15 Min.		2N5438	2N5439	2N5440	
	Note: For TO-41/60 Case, specify MP5435 thru MP5440							

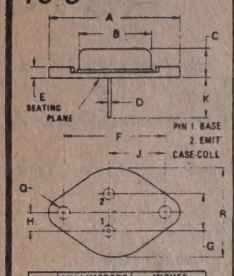
HIGH POWER ALLOY TRANSISTORS

10 AMP	Case—TO-3/40 (Contains 5 grain groups)	H_{FE} I_C=1A	V_{CEX} V_{CER}	65V 40V				
		74-250		MP110*				
15 AMP	Case—TO-36 P_D=170W V_{CE}(sat) @ 12A	H_{FE} I_C=5A	V_{CES} V_{CEO}	40V 25V	45V 30V	50V 45V	70V 55V	80V 65V
		20-40		2N441*	2N442*	2N443*	2N2076	2N2075
				2N2078		2N2077		
		25-50					2N174*	2N1100*
		35-70		2N277*	2N278*	2N173*	2N1099*	2N2079
				2N2082		2N2081	2N2080	
25 AMP	Case—TO-3/50 P_D=106W V_{CE}(sat) 0.8V Max. @ 25A	H_{FE} I_C=25A	V_{CB} V_{CES}	50V 35V	80V 60V	100V 75V		
		15 Min.		2N1162	2N1164	2N1166		
				2N1163	2N1165	2N1167		
30 AMP	Case—TO-36 P_D=170W V_{CE}(sat) 0.3V Max. @ 25A	H_{FE} I_C=5A	V_{CES} V_{CEO}	45V 30V	60V 45V	75V 60V	90V 75V	
		50-100		2N2152	2N2153	2N2154	2N2155	
		80-160		2N2156	2N2157	2N2158	2N2159	
	Case—TO-36 P_D=106W	H_{FE} I_C=15A	I_C (OP.)	H_{FE}	V_{CE}(sat)	V_{CB} V_{CEO}	50V 40V	80V 60V
		15-60	25A	12 Min.	0.7V Max.		2N1518	2N1519
		17-68	35A	12 Min.	0.6V Max.		2N1520	2N1521
		25-100	50A	12 Min.	0.5V Max.		2N1522	2N1523
50 AMP	Case—TO-36 P_D=170W V_{CE}(sat) 0.45V Max. @ 50A	H_{FE} I_C=15A	V_{CES} V_{CEO}	45V 30V	60V 45V	75V 60V	90V 75V	
		30-75		MP500	MP501	MP502	MP503	
		50-125		MP504	MP505	MP506	MP507	
60 AMP	Case—TO-68 P_D=170W V_{CE}(sat) 0.3V Max. @ 60A	H_{FE} I_C=15A	V_{CES} V_{CEO}	45V 30V	60V 45V	75V 60V		
		60-180		2N4048	2N4049	2N4050		
		80-240		2N4051	2N4052	2N4053		
	Note: For TO-36 Case, specify MP4048 thru MP4053							
	Case—TO-3/60 P_D=170W V_{CE}(sat) 0.3V Max. @ 60A	H_{FE} I_C=15A	V_{CES} V_{CEO}	30V 20V	45V 30V	60V 45V	75V 60V	
		60-180		2N4276	2N4278	2N4280	2N4282	
		80-240		2N4277	2N4279	2N4281	2N4283	
	Note: For TO-41/60 case, specify MP4276 thru MP4283							

* MP series type numbers are equivalent to the popular DTG series, formerly made by Delco.

For complete details, request data sheets and Catalog #201, "Lansdale Germanium Transistors."

TO-3

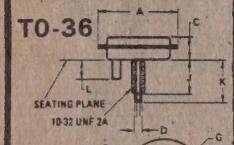


DIM	MILLIMETERS MIN	MAX	INCHES MIN	MAX
A	–	39.37	–	1.550
B	–	21.08	–	0.830
C	–	3.43	–	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.33	5.59	0.210	0.220
J	16.84	17.15	0.655	0.675
Q	3.84	4.05	0.151	0.161
R	–	26.67	–	1.050

	C	D	K
TO3/60	0.36	0.060/0.065	0.61/0.71
TO3/40	0.30	0.039/0.043	0.44/0.48
TO3/50	0.30	0.048/0.052	0.32/0.42

All JEDEC dimensions and notes apply

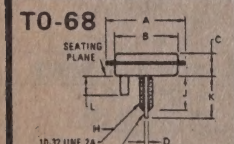
TO-36



DIM	MILLIMETERS MIN	MAX	INCHES MIN	MAX
A	–	31.75	–	1.250
C	–	13.21	–	0.520
D	–	4.83	–	0.190
F	–	3.56	–	0.140
G	8.76 NOM		0.345 NOM	
J	9.53	12.70	0.375	0.500
K	15.49	18.03	0.610	0.710
L	–	7.92	–	0.312

All JEDEC dimensions and notes apply

TO-68



DIM	MILLIMETERS MIN	MAX	INCHES MIN	MAX
A	–	31.75	–	1.250
B	25.15	–	0.990	–
C	8.99	12.70	0.775	0.500
D	1.02	2.41	0.040	0.095
F	2.29	3.56	0.090	0.140
G	8.51	9.02	0.335	0.355
H	4.212	4.310	0.1658	0.1697
J	9.52	12.70	0.375	0.500
K	15.49	18.03	0.610	0.710
L	2.54	7.92	0.100	0.312
M	85°	90°	85°	95°

All JEDEC dimensions and notes apply

IDI Product Selection Guide

International Devices, Inc.
A MEMBER COMPANY OF VSI ELECTRONICS

GERMANIUM POWER TRANSISTORS

Listed in order of collector current for optimized hFE then in numerical sequence.

Type	Case	hFE @ Ic Min/Max	Amps
2N307	TO-3	20/-	0.2
2N307A	TO-3	30/-	0.2
2N176	TO-3	25/-	0.5
2N178	TO-3	15/45	0.5
2N242	TO-3	30/120	0.5
2N297A	TO-3	40/100	0.5
2N554	TO-3	50 typ	0.5
2N555	TO-3	50 typ	0.5
2N665	TO-3	40/80	0.5
2N669	TO-3	75/250	0.5
2N2137	TO-3	30/60	0.5
2N2138	TO-3	30/60	0.5
2N2139	TO-3	30/60	0.5
2N2140	TO-3	30/60	0.5
2N2142	TO-3	30/60	0.5
2N2143	TO-3	50/100	0.5
2N2144	TO-3	50/100	0.5
2N350A	TO-3	20/60	0.7
2N351A	TO-3	25/90	0.7
2N376A	TO-3	35/120	0.7
2N375	TO-3	35/90	1.0
2N618	TO-3	60/140	1.0
2N1359	TO-3	35/90	1.0
2N1360	TO-3	60/140	1.0
2N1362	TO-3	35/90	1.0
2N1363	TO-3	60/140	1.0
2N378	TO-3	40/80	2.0
2N379	TO-3	20/70	2.0
2N380	TO-3	30/70	2.0
2N459	TO-3	20/70	2.0
2N459A	TO-3	40/70	2.0
2N1011	TO-3	30/75	3.0
2N1529	TO-3	20/40	3.0
2N1529A	TO-3	20/40	3.0
2N1530	TO-3	20/40	3.0
2N1530A	TO-3	20/40	3.0
2N1531	TO-3	20/40	3.0
2N1531A	TO-3	20/40	3.0
2N1532	TO-3	20/40	3.0
2N1532A	TO-3	20/40	3.0
2N1534	TO-3	35/70	3.0
2N1534A	TO-3	35/70	3.0
2N1535	TO-3	35/70	3.0
2N1535A	TO-3	35/70	3.0
2N1536	TO-3	35/70	3.0
2N1536A	TO-3	35/70	3.0
2N1537	TO-3	35/70	3.0
2N1537A	TO-3	35/70	3.0
2N1539	TO-3	50/100	3.0
2N1539A	TO-3	50/100	3.0
2N1540	TO-3	50/100	3.0
2N1540A	TO-3	50/100	3.0
2N1541	TO-3	50/100	3.0
2N1541A	TO-3	50/100	3.0
2N1542	TO-3	50/100	3.0
2N1542A	TO-3	50/100	3.0
2N3611	TO-3	35/70	3.0
2N3612	TO-3	.....	3.0
2N3613	TO-3	60/120	3.0
2N3614	TO-3	.....	3.0
2N3615	TO-3	30/60	3.0
2N3616	TO-3	.....	3.0
2N3617	TO-3	45/90	3.0
2N3618	TO-3	45/90	3.0
2N456A	TO-3	30/90	5.0
2N457A	TO-3	30/90	5.0
2N458A	TO-3	30/90	5.0
2N1021	TO-3	30/90	5.0
2N1073	TO-41	20/60	5.0
2N1073A	TO-41	20/60	5.0

GERMANIUM SWITCHING TRANSISTORS

Type	Case	Pwr Diss mW	Coll. Curr. ma	Coll. Volt v	fhfb MHz Min
2N1304	TO-5	150	300	30	5
2N1305	TO-5	150	300	30	5
2N1306	TO-5	150	300	25	10
2N1307	TO-5	150	300	30	10
2N1308	TO-5	150	300	25	15
2N1309	TO-5	150	300	30	15
2N1404	TO-5	150	300	25	4
2N1994†	TO-5	150	300	30	3
2N1997	TO-5	250	500	45	..
2N1998	TO-5	250	500	35	..
2N388	TO-5	150	200	25	5
2N388A	TO-5	150	200	40	5
2N395	TO-5	150	250	30	3
2N396	TO-5	150	250	30	5
2N404	TO-5	150	100	25	4
2N404A	TO-5	150	150	40	..
2N427	TO-5	150	400	30	..
2N428	TO-5	150	400	30	..
2N595	TO-5	150	300	20	..
2N596	TO-5	150	300	20	..

†Bidirectional

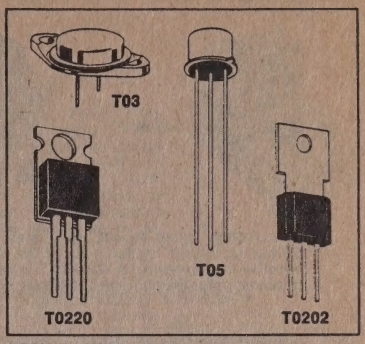
T0220 PLASTIC POWER TRANSISTORS

Type NPN	Type PNP	Rated V_{CEO} v	Rated P_T W	Rated I_C A	hFE @ Ic Min-Max	Amps
TIP29	TIP30	40	12	1	15-75	1
TIP29A	TIP30A	60	12	1	15-75	1
TIP29B	TIP30B	80	12	1	15-75	1
TIP29C	TIP30C	100	12	1	15-75	1
TIP31	TIP32	40	16	3	10-50	3
TIP31A	TIP32A	60	16	3	10-50	3
TIP31B	TIP32B	80	16	3	10-50	3
TIP31C	TIP32C	100	16	3	10-50	3

T0202 PHASE CONTROL SCR's

Type	Voltage Type	I_T (RMS) Amps	I_{GT} @ 25°C	V_{GT} @ 25°C
C106B1	200	4.0	200	.8
C106C1	300	4.0	200	.8
C106D1	400	4.0	200	.8
C106E1	500	4.0	200	.8
C106M1	600	4.0	200	.8

Also available in B2, C2, D2, E2, and M2 case.



LOW-POWER GERMANIUM TRANSISTORS

Type	BV_{ces} Volts	hFE @Ic Min/Max	mA	Fab MHz Min	Pd mW
200 mA max					
2N331	12 V_{eb}	30/70	1.0	0.4	75
2N1191	25	20/80	10	1.5	200
2N1192	25	40/135	10	2.0	200
2N1193	25	70/300	10	2.5	200
300 mA max					
2N1008	20	40/150	10	...	200
2N1008A	40	40/150	10	...	200
500 mA max					
2N464	40	14/...	1.0	0.7	200
2N465	30	27/...	1.0	0.8	200
2N466	20	56/...	1.0	1.0	200
2N467	15	112/...	1.0	1.2	200
2N1185	30	130/...	10	1.75	200
2N1189	30	60/...	10	1.75	200
2N1190	30	100/...	10	2.25	200
500 mA (Base connected to case)					
2N322	18	34/65	20	1.0	225
2N323	18	53/121	20	1.5	225
2N324	18	72/198	20	2.0	225
2N524	30	25/42	20	0.8	225
2N525	30	34/65	20	1.0	225
2N526	30	53/90	20	1.3	225
2N527	30	72/121	20	1.5	225
2N1175	25	70/140	20	1.5	225
2N1413	25	25/42	20	0.8	225
2N1414	25	34/65	20	1.0	225
2N1415	25	53/90	20	1.3	225

HIGH VOLTAGE GERMANIUM POWER TRANSISTORS

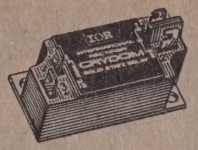
Type	Case	BV_{CBO}	I_C
2N3730	TO-3	200V	3 amps
2N3731	TO-3	320V	10 amps

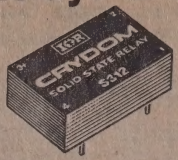
GERMANIUM ALLOY PNP GENERAL PURPOSE AMPLIFIERS

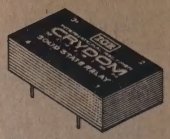
Type	Case	Pd mW	Ic mA	Coll. Volt v	hFE Min
2N1370	TO-5	150	150	25	50
2N1371	TO-5	150	150	45	50
2N1372	TO-5	250	200	25	30
2N1378	TO-5	250	200	45	30
2N1373	TO-5	250	200	25	50
2N1374	TO-5	250	200	45	50
2N1375	TO-5	250	200	25	75
2N1376	TO-5	250	200	45	75
2N1377	TO-5	250	200	12	95
2N1378	TO-5	250	200	25	95
2N1380	TO-5	250	200	12	30
2N1381	TO-5	250	200	25	30
2N1382	TO-5	200	200	25	50
2N1383	TO-5	200	200	25	30

IOR CRYDOM SOLID-STATE RELAYS — Solid State Relays and I/O Switches

Series 1


Series 2


Series 3



3

SERIES 1 AC OUTPUT PANEL MOUNT, HEAVY DUTY RELAYS
2.5 to 40 Amps, 120, 240, 480 VAC

Heavy duty, panel mount, solid state relays make it possible to switch AC power loads up to 10 kW. Output circuit is an inverse-parallel arrangement of dual SCR's to meet the most demanding requirements. Screw type terminals provide maximum connection flexibility. Used in heater, motor control, solenoid, lamp and other load controls. All specified maximum load ratings are based on adequate heat sink mounting of the relay base.

GENERAL SPECIFICATIONS—SERIES 1

Isolation Voltage: 1500 VAC standard; 2500 VAC and 3750 VAC available

Temperature Range: —30 C to + 80 C
Size: 1.75″ w. x 2.25″ d. x 0.875″ h.
Case: Style 1.

DC INPUT MODELS

2.5 to 40 Amps, 120, 240 and 480 VAC
Control Signal Range: 3-32 VDC
Must Operate Voltage: 3 VDC max.
Must Release Voltage: 1 VDC min.
Input Impedance: 1.5 Ohms
Snubber: Integral

Stock No.	Type	Line VAC (47-63 Hz)	Max. Load Current Amps	1-Cycle Surge Amps	1-Sec. Surge Amps	Net Each 1-9	10-24	25-49	50-99
27F324	D1202	100-140	2.5	15	5	18.90	17.00	15.30	13.80
27F325	D1210	100-140	10	80	24	22.50	20.25	18.20	16.40
27F326	D1225	100-140	25	175	40	27.65	24.90	22.40	20.15
27F327	D1240	100-140	40	450	80	34.90	31.40	28.25	25.45
27F328	D2402	200-280	2.5	15	5	20.20	18.20	16.35	14.75
27F329	D2410	200-280	10	80	24	24.20	21.80	19.60	17.65
27F330	D2425	200-280	25	175	40	29.60	26.65	23.95	21.60
27F331	D2440	200-280	40	450	80	36.70	33.00	29.70	26.75
27F332	D4808*	340-480	8	50	17	32.50	29.25	26.35	23.70
27F333	D4812*	340-480	12	60	20	37.50	33.75	30.40	27.35
27F334	D4825*	340-480	25	175	40	41.10	37.00	33.30	29.95

*Cntrl. signal range, 3-20 VDC; input impedance, 500 ohms min.

AC INPUT MODELS

2.5 to 40 Amps, 120, 240, and 480 VAC
Control Signal Range: 90-20 VAC
Must Operate Voltage: 90 VAC or 80 VDC
Must Release Voltage: 10 VAC or 10 VDC
Input Impedance: 40 K OHMs
Snubber: Internal

Stock No.	Type	Line VAC (47-63 Hz)	Max. Load Current Amps	1-Cycle Surge Amps	1-Sec. Surge Amps	Net Each 1-9	10-24	25-49	50-99
27F309	A1202	100-140	2.5	15	5	20.40	18.00	16.20	14.80
27F310	A1210	100-140	10	80	24	26.25	23.25	20.95	19.15
27F311	A1225	100-140	25	175	40	35.40	31.50	28.35	25.80
27F312	A1240	100-140	40	450	80	37.20	33.50	30.15	27.10
27F313	A2402	200-280	2.5	15	5	21.70	19.55	17.60	15.80
27F314	A2410	200-280	10	80	24	28.45	25.60	23.05	20.75
27F315	A2425	200-280	25	175	40	42.60	38.35	34.50	31.05
27F316	A2440	200-280	40	450	80	39.00	35.10	31.60	28.45
27F317	A4808*	340-480	8	50	17	34.00	30.60	27.55	24.80
27F318	A4812*	340-480	12	60	20	39.00	35.10	31.60	28.45
27F319	A4825	340-480	25	175	40	42.60	38.35	34.50	31.05
27F320	CL2623†	120	10	...	..	29.00	26.25	22.45	21.15

*Cntrl signal range, 90-120 VAC; input impedance, 12K ohms min.
†Traffic Control Relay, exact repl. SSR used on most traffic control systems.

SERIES 2—AC OUTPUT PANEL-MOUNT RELAYS
8 AND 15 AMPS, 120 AND 240 VAC

Solid-state relays combine small size and high current rating in a package designed for heat-sink or panel mounting. Standard 0.187″ push-on terminals; positioned for maximum isolation between signal and power circuits. Relays are controlled directly, by logic level DC signals and turn on and off within one-half cycle. Most models are U.L. recognized and CSA approved. Rated 8 and 15 amps when heat-sink mounted. Internal snubber. Units occupy less than 1 cu. in. space. Technical data sheets available on request.

GENERAL SPECIFICATIONS—SERIES 2

Control Signal Range: 3.5-8 VDC.
Must Operate Voltage: +3.5 VDC maximum.
Must Release Voltage: 1 VDC minimum.
Must Operate Current: 12 mA maximum.
Isolation Voltage: 1500 VAC standard; 2500 VAC available.
Operating Temperature Range: —30° C to +80° C.
Snubber: Internal.
Case Style: 2.

Stk. No.	Type	Line VAC (47-63 Hz)	Max. Load Current @ 40° C Amps rms	1-Cycle Surge Amps Peak	1-Sec. Surge Amps Peak	Net Each 1-9
27F336	S218	20-140	8	120	42	12.00
27F338	S228	40-280	8	120	42	13.60

SERIES 3—AC OUTPUT PC BOARD MOUNT RELAYS
2 AND 4 AMPS, 120 AND 240 VAC
INTEGRAL HEAT RADIATION (S3714 AND S3724 ONLY)

Small size, maximum current rating and minimum off-state leakage combined in a package designed for PCB applications. Units are 0.4 cu. in. volume and require only 1 sq. in. space on PCB. Overall height of 0.4″ (on most models), allows PCB spacing on ½″ centers. Square, rigid pins: also suitable for wire wrap or push-on connectors. Models S3714 and S3724 have integral heat radiators; provide greatest available output (4 Amps) for a P.C. mount unit. Rated 40° C ambient. Technical data sheets available on request. All models, except S310, S320, S312 and S322, have integral snubber (R/C transient suppression networks).

GENERAL SPECIFICATIONS—SERIES 3

Control Signal Range: 3.5-8 VDC.
Must Operate Voltage: +3.5 VDC.
Must Release Voltage: 1.0 VDC minimum.
Must Operate Current: 12 mA.
Isolation Voltage: 1500 VAC standard; 2500 VAC available.
Operating Temperature Range: —30° C to +80° C.
Snubbers: Integral, except Models S312 and S322.
Size: See chart below.
Case Style: See chart below.

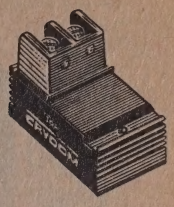
Models	Size	Case Style
S312 and S322	.60″ w. x 1.2″ d. x .63″ h.	3
S3012A and S3022A	.60″ w. x 1.45″ d. x .63″ h.	30
S3714 and S3724	.80″ w. x 1.45″ d. x 1.10″ h.	37

Stk. No.	Type	Line VAC (47-63 Hz)	Max. Load Current @ 40° C Amps rms	1-Cycle Surge Amps Peak	1-Sec. Surge Amps Peak	Net Each 1-9
65F470	S310*	20-140	0.3	4	2.5	7.50
67F471	S320*	40-180	0.3	4	2.5	9.00
27F341	S312*	20-140	2	55	14	10.00
27F339	S3012*	20-140	2	55	14	10.90
27F342	S322#	40-280	2	55	14	11.50
27F340	S3022#	40-280	2	55	14	12.40
65F472	S3714#	20-140	4	80	18	14.85
65F473	S3724#	40-280	4	80	18	16.15

*Without snubber. #With internal snubber.

SERIES 4 — AC & DC INPUT AND OUTPUT SWITCHES

Up to 4 Amps Output Rating



Complete, highly flexible set of AC devices that provide isolated interfaces between programmable controllers, microprocessors, computerized machine control and outside field elements, including solenoids, valves, heaters, motors, etc. LED status indicator associated with control condition of device for easy program setup and testing. LED recessed for protection. Output units can deliver 2.75 Amps at 70°C or 4 Amps at 40°C. Lower load-rated switches also available.

Switches are essentially four-terminal, solid state relays that accept logic level control signals and switch a DC or AC power load. Input switches accept power level potential controls and convert them into an isolated logic level signal (TTL, CMOS, etc.). Output units have wide compatibility with resistive or inductive loads due to internal transient suppression in DC models and internal snubber networks in AC models.

GENERAL SPECIFICATIONS—SERIES 4

***Logic Load for All Input Switches**
Supply Voltage: 4.5 VDC/18 VDC Max.
Supply Current: 7 mA max.
Isolation Voltage: 1500 VAC
Operating Temperature Ranges: —30° to +80°C
Case Style: 4

Color Coding: AC Field, Red terminal block: DC Field, Blue terminal block; Input unit, White case; Output unit, Black case

****Logic Control for All Output Switches**
Control Range: 4-8 VDC
Control Current: 16 mA max.
Must Operate Voltage: 4 VDC
Must release Voltage: 0.8 VDC.

Table of Input/Output Switches

Stock No.	Switch Type	I.R. No.	Control Voltage	Max. Load Voltage	Max. Load Current	Net Each
27F343	DC Input*	S410	10-32 VDC	30 VDC	Logic	14.60
65F474	DC Input*	S411	10-55 VDC	30 VDC	Logic	14.60
65F475	DC Input*	S412	40-120 VDC	30 VDC	Logic	14.60
27F344	AC Input*	S420	90-135 VAC	30 VDC	.....	15.60
65F476	AC Input*.	S421	180-170 VAC	30 VDC	.....	15.60
27F345	DC Output**	S430	4-8 VDC	55 VDC	4 A	24.90
65F477	DC Output**	S432	4-8 VDC	55 VDC	2 A	20.90
65F478	AC Output**	S440	4-8 VDC	120 VAC	4 A rms	20.80
65F479	AC Output**	S441	4-8 VDC	240 VAC	4 A rms	21.50
65F480	AC Output**	S442	4-8 VDC	120 VAC	2 A rms	16.80
65F481	AC Output**	S443	4-8 VDC	240 VAC	2 A rms	17.60

CY3325 System Board

A convenient mounting system for Series 4 I/O switches. Accommodates up to 16 switches in any combination of input, output, AC or DC models, with a mounting provision for pull-up resistors next to each switch. All control terminations are made thru an 18-pin edge card connector. Board measures 17" x 2 19/32" and is designed to be mounted on a standard 19" relay rack panel. Switches are secured in place by a quick-release hold down bar.

27F321. TYPE CY3325 NET.....58.90

UNITED STATES CRYSTAL CORP. MICROPROCESSOR CRYSTALS

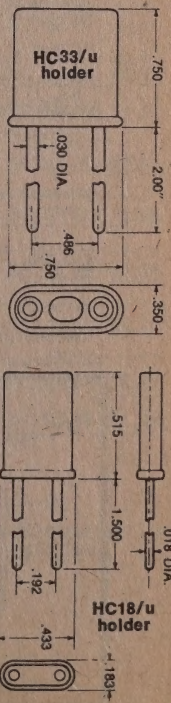
These high quality crystals feature lower resistance, closer tolerance for higher accuracy and are aged to assure long term stability. Crystals for replacement purposes and military types are also available.

1 MHz to 3.5795 MHz

Stock No.	Frequency	Microprocessor	Specifications	Net Each
76F820	1.0000	6800/56860	+.002 HC33/u	7.25
76F821	1.8432	MC/4411	+.002 HC33/u	7.25
76F822	2.0000	F-8/CUP 3850	+.002 HC33/u	6.50
76F823	2.0100	Several MPU's	+.002 HC33/u	6.50
76F824	2.097152	MM5378/MM5379	+.002 HC33/u	6.50
76F825	2.4576	34702	+.002 HC33/u	6.50
76F826	2.667	Pace	+.002 HC33/u	6.50
76F827	3.000	MCS48	+.002 HC33/u	6.50
76F828	3.200	RCA1803	+.200 HC33/u	6.50
76F829	3.2768	Intersil ICM 7250	+.200 HC33/u	6.50
76F830	3.5795	NSC MM5369	+.200 HC33/u	6.50

4 MHz to 48 MHz

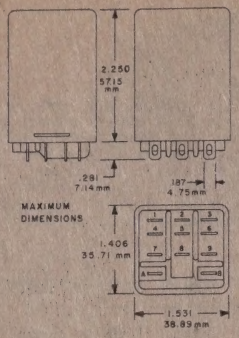
76F831	4.0000	4040/4004/4201 Pace	+.002 HC18/u	
76F832	4.1943	Intersil ICM 703A	+.002 HC18/u	
76F833	4.9152	Several MPU's	+.002 HC18/u	
76F834	5.0000	Several MPU's	+.002 HC18/u	
76F835	5.0688	Com 5016/Com 5016T	+.002 HC18/u	
76F836	5.1850	4040/4004/4201	+.002 HC18/u	4.90
76F837	5.7143	Pace NFC	+.002 HC18/u	
76F838	6.000	MCS48	+.002 HC18/u	
76F839	6.144	Intel 8085	+.002 HC18/u	
76F840	6.400	RCA1803	+.002 HC18/u	
76F841	6.5536	Intersil ICM7045	+.002 HC18/u	
76F842	8.0000	Signetics	+.002 HC18/u	
76F843	10.000	Several MPU's	+.002 HC18/u	
76F844	14.318	Several MPU's	+.002 HC18/u	
76F845	14.391	Several MPU's	+.002 HC18/u	
76F846	18.000	8080/8008/8224	+.002 HC18/u	
76F847	18.4320	8080/8008/8224	+.002 HC18/u	
76F848	20.000	Several MPU's	+.002 HC18/u	4.05
76F849	22.1184	8080A	+.002 HC18/u	
76F850	27.0000	Intel 8080A	+.002 HC18/u	
76F851	32.0000	Several MPU's	+.002 HC18/u	
76F852	36.0000	Intel 8080A	+.002 HC18/u	
76F853	48.0000	T. I. Mod Tim 9904 P.N. SNLS 362	+.002 HC18/u	



MIDTEX INCORPORATED

Microprocessor I/O Modules

CASE DIMENSIONS



Microinterface modules provide a flexible and proven industrial concept for users of microprocessor based systems. These modules provide a low cost, versatile and readily expanded and maintained method of interconnecting input sensors and output devices to the microprocessor system.

Modules are packaged in standard industrial type plug-in enclosures, ideally suited for use in extremely harsh environments for industrial and process-control applications. The Microinterface is comprised of digital input and output modules, both AC and DC, for control functions, and analog modules to interface a variety of sensors to the A/D converters associated with the microprocessor system.

A microprocessor systems designer can select from a wide variety of Microinterface digital and analog modules, all packaged in a standard enclosure, color coded for convenience and ease of field maintenance. LED's are visible on the top surface of each digital module, to facilitate field troubleshooting.

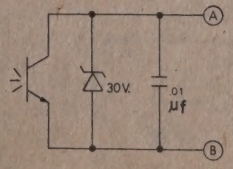
The Microinterface modules may be used at any interface location, but are especially suited to be packaged and located in proximity to the sensors, thereby permitting the output from the Microinterface modules to be transmitted by low-cost (e.g. twisted pair telephone type cable) to the I/O connector. The known cable impedance and Microinterface output characteristics along with the capability for long transmission runs with differential switching techniques make the Microinterface modules ideal devices for remote location in proximity to the sensors.

For a complete technical description of each product, refer to the individual module data sheets in each shipping container.

Microinterface™ Digital Series

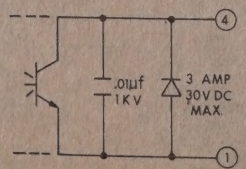
DIGITAL SERIES MODULE TYPE	INPUT MIN.	INPUT TYP.	INPUT MAX.	OUTPUT MIN.	OUTPUT MAX.	STK. NO.	PART NUMBER STANDARD	PART NUMBER ZERO-CROSS	PART NUMBER FILTER AND ZERO-CROSS	1-24	25-49	50-99	100-249
AC INPUT													
Open Collector Output	19 VAC	24 VAC 13mA	30 VAC	.....	30 VDC 15mA	02F1250	681-ACAQOO	.....	.....	20.00	19.00	18.00	14.00
	90 VAC	117 VAC 13mA	140 VAC	.....	30 VDC 15mA	02F1251	681-ACATOO	.....	.....	20.00	19.00	18.00	14.00
Differential Drive Output	19 VAC	24 VAC 13mA	30 VAC	.....	5 VDC	02F1252	681-ACDQOO	.....	.....	27.50	26.13	24.75	19.25
	90 VAC	117 VAC 13mA	140 VAC	.....	5 VDC	02F1253	681-ACDTOO	.....	.....	27.50	26.13	24.75	19.25
AC OUTPUT													
TTL Input	3 VDC	4.5 VDC 8mA	7 VDC	10 VAC	140 VAC 3 AMP	02F1254	680-ACTTOO	.....	.....	19.00	18.05	17.10	13.30
HTL Input	9 VDC	15 VDC 14mA	18 VDC	10 VAC	140 VAC 3 AMP	02F1255	680-ACHTOO	.....	.....	19.00	18.05	17.10	13.30
Differential Drive Input	.....	.....	5 VDC	10 VAC	140 VAC 3 AMP	02F1269	680-ACDTOO	.....	.....	27.00	25.65	24.30	18.90
AC OUTPUT, Zero Crossing													
TTL Input	3 VDC	4.5 VDC 8mA	7 VDC	10 VAC	140 VAC 3 AMP	02F1256	.....	680-AZTTOO	.....	20.00	19.00	18.00	14.00
HTL Input	9 VDC	15 VDC 14mA	18 VDC	10 VAC	140 VAC 3 AMP	02F1257	.....	680-AZHTOO	.....	20.00	19.00	18.00	14.00
Differential Drive Input	.....	.....	5 VDC	10 VAC	140 VAC 3 AMP	02F1258	.....	680-AZDTOO	.....	29.00	27.55	26.10	20.30
AC OUTPUT, Zero Crossing, Filtered													
TTL Input	3 VDC	4.5 VDC 8mA	7 VDC	10 VAC	140 VAC 3 AMP	02F1259	.....	.....	680-AFTTOO	24.00	22.80	21.60	16.80
HTL Input	9 VDC	15 VDC 14mA	18 VDC	10 VAC	140 VAC 3 AMP	02F1260	.....	.....	680-AFHTOO	24.00	22.80	21.60	16.80
Differential Drive Input	.....	.....	5 VDC	10 VAC	140 VAC 3 AMP	02F1261	.....	.....	680-AFDTOO	32.00	30.40	28.80	22.40
DC INPUT													
Open Collector Output	22 VDC	28 VDC 28mA	34 VDC	.....	30 VDC 15mA	02F1262	681-DCACOO	.....	.....	18.00	17.10	16.20	12.60
	100 VDC	130 VDC 28mA	150 VDC	.....	30 VDC 15mA	02F1263	681-DCAFOO	.....	.....	18.00	17.10	16.20	12.60
Differential Drive Output	22 VDC	28 VDC 28mA	34 VDC	.....	5 VDC	02F1264	681-DCDCOO	.....	.....	26.00	24.70	23.40	18.20
	100 VDC	130 VDC 28mA	150 VDC	.....	5 VDC	02F1265	681-DCDFOO	.....	.....	26.00	24.70	23.40	18.20
DC OUTPUT													
TTL Input	3 VDC	4.5 VDC 8mA	7 VDC	.....	30 VDC 3 AMP	02F1266	680-DCTCOO	.....	.....	18.00	17.10	16.20	12.60
HTL Input	9 VDC	15 VDC 14mA	18 VDC	.....	30 VDC 3 AMP	02F1267	680-DCHCOO	.....	.....	18.00	17.10	16.20	12.60
Differential Drive Input	.....	.....	5 VDC	.....	30 VDC 3 AMP	02F1268	680-DCDCOO	.....	.....	27.00	25.65	24.30	18.90

TYPICAL OUTPUT CIRCUIT



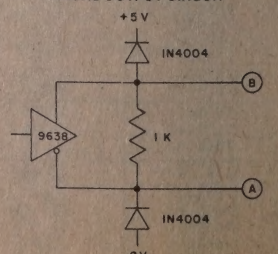
1. AC INPUT MODULE
2. DC INPUT MODULE

TYPICAL OUTPUT CIRCUIT



1. DC OUTPUT MODULE

TYPICAL OUTPUT CIRCUIT

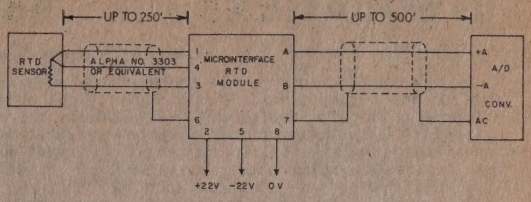


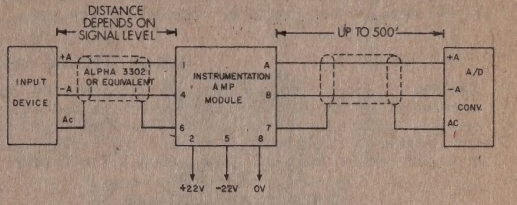
1. DIFFERENTIAL DRIVE AC INPUT MODULE

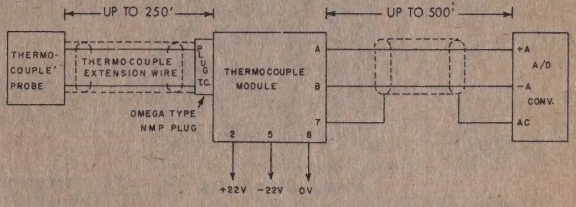
Microprocessor I/O Modules

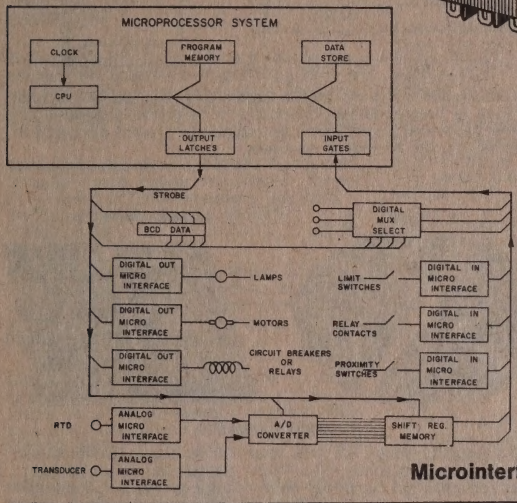
MIDTEX INCORPORATED

Microprocessors are best used as logic elements, rather than computers. Therefore proper selection of I/O modules is as important as the selection of the system hardware. The microprocessor shown below is wired as a logic element. The gates and latching output drivers are wired to a level compatible to Microinterface modules. Functions such as noise rejection, switch debounce, freq. and voltage correlation tables and meanings to various inputs are handled by internal software.









Microinterface™ Analog Series

Analog Series Module Type	Input Type	Temp. Range in °C. Min.	Max.	Adjustments Zero	Span	Gain	Offset	Stk. No.	Part Number* Voltage Output	Current Output	1-24	25-49	50-99	100-249
THERMOCOUPLE INPUT	For J Type Thermocouple (Iron Constantan)	0	+500	X	X		X	01F1090	682-THJV00	.....	95.00	90.25	85.50	66.50
								01F1091	.....	682-THJC00	96.00	91.20	86.40	67.20
	For K Type Thermocouple (Cromel Alumel)	0	+1000	X	X		X	01F1092	682-THKV00	.....	95.00	90.25	85.50	66.50
								01F1093	.....	682-THKC00	96.00	91.20	86.40	67.20
	For T Type Thermocouple (Copper Constantan)	—160	+350	X	X		X	01F1094	682-THTV00	.....	95.00	90.25	85.50	66.50
								01F1095	.....	682-THTC00	96.00	91.20	86.40	67.20
RTD	Platinum 100Ω 0° C 2 or 3 wire	—100	+100	X	X		X	01F1096	682-RTOV00	.....	**85.00**	**80.75**	**76.50**	**59.50**
								01F1097	.....	682-RTOC00				
INSTRUMENTATION AMPLIFIER	x10 (max.) Gain	NA	NA			X	X	01F1098	682-IAAV00	.....	**70.00**	**66.50**	**63.00**	**49.00**
	x100 (max.) Gain					X	X	01F1099	682-IABV00	.....				
	x1000 (max.) Gain					X	X	01F1100	682-IACV00	.....				
	x10 (max.) Gain	NA	NA			X	X	01F1101	.....	682-AAC00	**71.00**	**67.45**	**63.90**	**49.70**
	x100 (max.) Gain					X	X	01F1102	.....	682-ABC00				
	x1000 (max.) Gain					X	X	01F1103	.....	682-ACC00				
DC STRAIN GAUGE	20mV/V (5V Excit.)	NA	NA		X		X	01F1104	682-DSAV00	.....	**92.00**	**87.40**	**82.80**	**64.40**
	10mV/V (10V Excit.)							01F1105	682-DSBV00	.....				
	5mV/V (10V Excit.)							01F1106	682-DSCV00	.....				
	20mV/V (5V Excit.)	NA	NA		X		X	01F1107	.....	682-DSAC00	**93.00**	**88.35**	**83.70**	**65.10**
	10mV/V (10V Excit.)							01F1108	.....	682-DSBC00				
	5mV/V (10V Excit.)							01F1109	.....	682-DSCC00				
THERMISTOR	500 ohm Probe	—50	+70	X	X		X	01F1110	682-TMAV00	.....	**72.00**	**68.40**	**64.80**	**50.40**
	2252 ohm Probe	—15	+115	X	X		X	01F1111	682-TMBV00	.....				
	500 ohm Probe	—50	+70	X	X		X	01F1112	.....	682-TMAC00	**73.00**	**69.35**	**65.70**	**51.10**
	2252 ohm Probe	—15	+115	X	X		X	01F1113	.....	682-TMBC00				

*OUTPUT: (For all) ±10VDC Typ., ±12VDC Max.; ±20ma Typ., ±24ma Max.

PART NUMBERING SYSTEM

682- XX X X X XX

MODULE FUNCTION
- IA = Instrumentation Amplifier
- RT = RTD (Resistance Temperature Detector)
- TH = Thermocouple
- DS = DC Strain Gauge
- TM = Thermistor

FEATURE
- A = x 10 Gain, B = x 100 Gain, C = x1000 Gain — Instrumentation Amp.
- J = Iron Constantan, K = Chromel Alumel, T = Copper Constantan — Thermocouple
- A = 20mV/V (5V Excit.), B = 10mV/V (10V Excit.), C = 5mV/V (10V Excit.) — DC Strain Gauge
- A = 500 Ohm Probe, B = 2252 Ohm Probe — Thermistor

OUTPUT
- C = Current
- V = Voltage

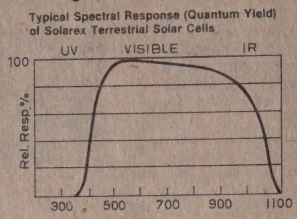
SUFFIX DESIGNATION
- 00 = Standard

SOLAREX Solar Cells and Panels

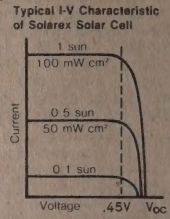
• No Pollution • No Noise • No Expenditure of Precious Resources

Solar cells and panels permit us to tap the unlimited energies of the sun and produce power without pollution. Highly efficient silicon semi-conductor devices convert light directly into electricity. Each cell produces the same voltage between its two terminals when exposed to light. Connect a load between the two terminals and the voltage drop causes a current to flow. The current is caused by absorption of light energy (photons). The amount of current varies with the light intensity and the surface area of the solar cell. Connect various size solar cells in series to produce higher voltage and in parallel to produce higher current.

TYPICAL SPECTRAL RESPONSE
Wavelength, Nanometers

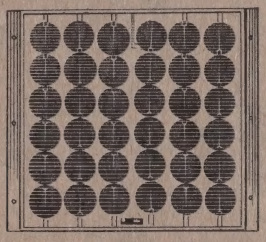


BEHAVIOR UNDER VARIOUS LIGHT INPUTS



SOLAR ELECTRIC GENERATORS

Generating systems contain enough Unipanels™ wired together in series to produce the required output voltage and enough in parallel to provide the required current. These solar power arrays are mounted on a rigid frame by means of non-metallic fasteners or silicone rubber. Electricity generated by the solar panel array can be stored in a rechargeable battery and supplied on demand. Unique to Solarex is the Powermizer™ specifically designed to prevent overcharging of batteries and also to prevent discharge of batteries during periods of darkness.



SOLAR UNIPANELS

Modular—Capable of upgrading on site to increase or change the power output of the array by adding Unipanels and/or altering the interconnection of the array. **Lightweight Panel Construction**—Over 4W/lb. **High Panel Packing Density**—Up to 12W/sq. ft. **Maximum Weatherability**—All solar panels are manufactured to exceed Jet Propulsion Laboratory environmental test specifications (−40° to +90°C and 90% humidity @ +70°C). **High Wind Loading Toleration**—Arrays capable of withstanding in excess of 150 knot wind. **Maintenance-Free**—No moving parts, self-cleaning. **Economical**—Low life cycle cost. **Safe**—Not hazardous to man or wildlife; no electric shock potential, no combustible vapors, no hot surfaces or burners. Can be short-circuited or open-circuited without danger.

SELECTION OF UNIPANELS

To estimate the number of panels needed for a specific application determine the average daily load in ampere hours at nominal operating voltage plus 20% for system losses. Then divide the ampere hours thus determined by the peak sun hours available at site. Then divide this total current (A) required by the number of panels needed.

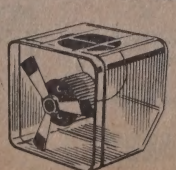
Stock No.	Type	Cell Size	Nom. V.	Amp.	Watt	No. Pan.	Size (inches)	Each 1-1	Each 2-9
69F100	0155D	2¼"	1.5	.300	0.5	6	4.5 x 5.0	45.00	40.50
69F101	615D	2¼"	6	.400	2.5	16	5.5 x 11	90.00	81.00
69F102	220D	2¼"	12	.180	2.5	32	7 x 8.5	94.00	84.60
69F103	230D	2¼"	12	.400	5.0	32	10 x 11	170.00	153.00
69F104	1270D	3"	12	.650	9.0	32	13 x 14	290.00	261.00
69F105	435HP	2¼"	14	.400	6.0	36	10 x 12	199.00	179.10
69F106	1480D	3"	14	.650	10.0	36	13 x 16	318.00	286.20
69F107	4300D	4"	14	2.15	36.0	36	27 x 27	1080.00	972.00
69F108	785D	3"	7	1.3	10.0	18	10.5 x 20	320.00	288.00
								1-1	2-4
69F174	4200	3"	12	1.3	20.0	36	20 x 20	624.00	561.00
69F175	HE50	6.3mm	12	2.7	35.0	64	21 x 21	1040.00	936.00
69F110	Mounting Bracket For 4300D							$120.00	

SOLAR AND PHOTO CELLS MANUAL

140 pages. Complete with theory, applications and experiments.
69F176. NET 5.95

SOLAR ENERGY FAN CUBE

The energy source of the future is here now in the form of a unique and attractive solar energy fan cube. The cube contains a 3" solar cell that energizes the fan motor which rotates the fan at a speed relative to amount of available light. Produces 1.2V at 125 mA.
69F111. NET 24.95



• Round **• Rectangular**

SOLAR CELLS

A high quality silicon N/P type solar cell. All types (except 4T223) have 2" minimum color-coded Teflon coated lead wires. Tested to produce specified current at rated voltage (0.45V) in full sunlight (100 mw/cm²) illumination @ 25°C.
Temperature Coefficients: Temperature range, −65° to +125°C. Max. temp. +250°C for one minute (300° for short period). Voltage increases/decreases by 2 millivolts per degree centigrade below/above 25°C. Current increases/decreases by 25 amps per cm² per degree centigrade above/below 25°C. Power decreases/increases by 0.3% per degree centigrade above/below 25°C.

PHOTOVOLTAIC DEMONSTRATION KIT

Type 9956. Kit contains 19 component parts to provide hundreds of different circuits. The first complete kit for direct conversion of sunlight into electricity.
69F177. NET 299.95

RECTANGULAR SOLAR CELLS

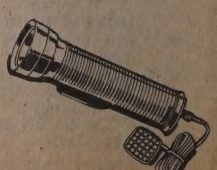
Stock No.	Type	Dimensions L x W In.	Dimensions L x W mm	Minimum Current mA@.45V	Conv. Efficiency	Each 1-1	Each 2-9	Each 10-49
69F112	2T205	.4 x .8	10 x 20	45	10%	3.55	3.20	2.85
69F113	4T206	.8 x .8	20 x 20	90	10%	4.75	4.30	3.82
69F114	1T218	.8 x .2	20 x 5	19	10%	1.20	1.10	.98
69F115	1T216	.4 x .4	10 x 10	22	10%	1.30	1.20	1.06
69F116	05T219	.4 x .2	10 x 5	8	10%	1.10	1.00	.89
69F117	025T220	.2 x .2	5 x 5	4	10%	.90	.80	.71
69F118	4T222	.8 x .8	20 x 20	105	12%	4.80	4.30	3.82
69F119	4T223	.8 x .8	20 x 20	125	14%	6.10	5.50	4.89

ROUND SOLAR CELLS

Stock No.	Type	Diameter In.	Diameter mm	Min. Curr. A@.45V	Conv. Efficiency	Each 1-1	Each 2-9	Each 10-49
69F120	81T233	4"	100	2.15	12%	29.45	26.51	23.56
69F121	44T229	3"	75	1.2	12%	17.00	15.30	13.60
69F122	25T203	2¼"	56	0.55	10%	8.90	7.99	7.10

SOLAR POWERED FLASHLIGHT

Type 102. Perfect for use in a car. Place flashlight in glove compartment and place solar cell on dashboard. Cell will provide trickle charge to rechargeable battery pack. Blocking diode keeps charge in battery. Unit is complete with magnetic clamp, 7¼" long. Weight (with batteries): 12 oz. Instructions included.
69F123. NET 29.95



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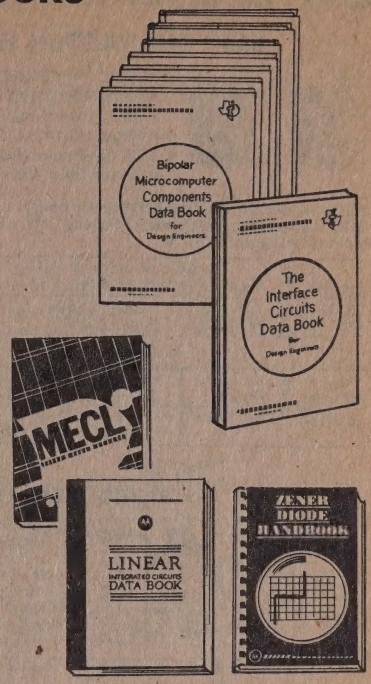
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The Interface Circuits Data Book for Design Engineers
MECL
LINEAR INTEGRATED CIRCUITS DATA BOOK
ZENER DIODE HANDBOOK

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.300" CHARACTER HEIGHT

- .300" High Characters
- High Brightness
- Low Power Requirements
- Standard 14 Pin DIP
- Single-Plane Wide Angle Visibility
- Compatible With TTL And DTL Circuits

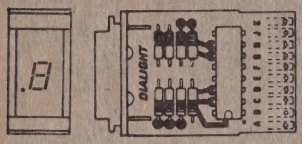
Solid state LED readout, character height .300". Standard 14 pin DIP. Compatible with most TTL and DTL circuits. Typical static forward voltage: 1.7V.

Stk. No.	Type	Description	1-9	10-99	100-249
28F1780	745-0017	Numeric Display	2.75	1.65	1.35
28F1781	745-0018	+/—1 Display	2.75	1.65	1.35

CONNECTOR

Stk. No.	Type	Description	1-9	10-24	25-99	100-249
25F1447	501-0701-009	For Use With Above Displays	1.58	1.42	1.21	1.04

NUMERIC DISPLAY



Displays feature a bright, highly legible character in a 7-segment format, .300" in height. Decimal point included. User has the option of hard wiring to the board or using edge card connectors.

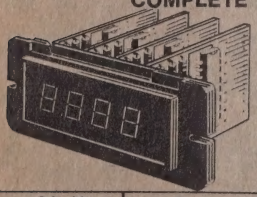
Stock No.	Type	Description	1-9	10-24	25-99	100-249
60F1161	740-3006	With Decoder Driver	10.08	7.42	7.21	5.73
60F1162	740-3008	+/— Display On PC Board	10.08	7.42	7.21	5.73

BEZELS FOR 740 SERIES

Stylish black bezels for simplified panel mounting of multi-digit groupings. Bezel itself must be snapped together and readout will slide into it.

Stk. No.	Type	# Readouts That Will Fit	1-9	10-24	25-99	100-249
60F1163	743-1002	2	6.93	6.39	4.99	3.60
60F1164	743-1003	3	7.61	7.04	5.51	4.00
60F1165	743-1004	4	8.29	7.69	6.04	4.40
60F1166	743-1005	5	8.98	8.34	6.56	4.80
60F1167	743-1006	6	9.66	8.99	7.09	5.20
60F1168	743-1007	7	10.34	9.63	7.61	5.60
60F1169	743-1008	8	11.02	10.28	8.14	6.00
60F1170	743-1009	9	11.70	10.93	8.66	6.40
60F1171	743-1010	10	12.39	11.58	9.19	6.80

COMPLETE ASSEMBLIES



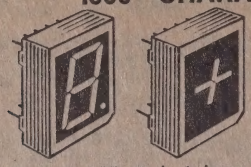
Displays with decoder driver are supplied with stylish black bezel for simplified panel mounting of multi-digit groupings. Displays feature a bright, highly legible character in a 7 segment format, .300" high character. User has the option of hard wiring to the board or using edge card connectors.

Stk. No.	Type	Characters	Each
60F1172	749-1501-001	1	16.33
60F1173	749-1502-001	2	27.09
60F1174	749-1503-001	3	37.85
60F1175	749-1504-001	4	48.61
60F1176	749-1505-001	5	59.38
60F1177	749-1506-001	6	70.14
60F1178	749-1507-001	7	80.90
60F1179	749-1508-001	8	91.66
60F1180	749-1509-001	9	102.42
60F1181	749-1510-001	10	86.59

EDGE CARD CONNECTORS

Stk. No.	Type	Description	1-9	10-24	25-99	100-249
60F1182	501-0700-005	Solder Connections	1.98	1.78	1.57	1.45
60F1183	501-0700-009	PC or Wire Wrap	1.98	1.78	1.57	1.45

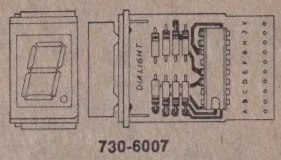
.600" CHARACTER HEIGHT



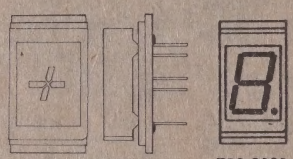
- GaP Red LED
- Large Character—.600"
- Common Anode Construction
- Seven Segment Format With Decimal Point
- Low Power Requirement: 10mA per Segment

Solid state LED readout, large character—.600". Common anode construction. Seven segment format with decimal point. Low power requirement, typically 10mA per segment. Typical static forward voltage: 2.0V.

Stk. No.	Type	Description	1-9	10-24	25-99	100-249
60F1184	730-6001	Numeric Display	5.50	4.20	4.00	3.45
60F1185	730-6005	+/— Display	6.60	5.10	4.80	4.15



730-6007



730-6010 730-6009

NUMERIC DISPLAY

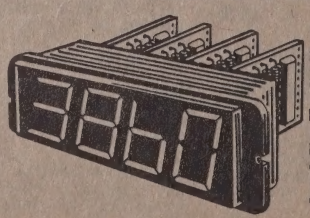
Hybrid Readout display is made up of high efficiency GaP chips arranged in a large seven segment format, .600" in height. Decimal point included. Operate with standard IC power supply levels. Immune to shock and vibration. Excellent display characteristics; uniform segments, wide viewing angle, high contrast ratio. User has option of hard wiring to the board or using edge card connectors.

Stk. No.	Type	Description	1-9	10-24	25-99	100-249
60F1186	730-6007	With Decoder Driver	16.23	12.26	11.34	9.35
60F1187	730-6010	+/— Display	9.95	7.65	7.30	6.35
28F1782	730-6009	W/o Decoder Driver	8.65	6.65	6.35	5.50
28F1783	730-6020	W/Decoder Driver, Latch	19.20	16.73	14.52	12.34

BEZELS FOR 730 SERIES

Stk. No.	Type	# Readouts That Will Fit	1-9	10-24	25-99	100-249
60F1188	733-6002	2	6.93	6.39	4.99	3.60
60F1189	733-6003	3	7.61	7.04	5.51	4.00
60F1190	733-6004	4	8.29	7.69	6.04	4.40
60F1191	733-6005	5	8.98	8.34	6.56	4.80
60F1192	733-6006	6	9.66	8.99	7.09	5.20
60F1193	733-6007	7	10.34	9.63	7.61	5.60
60F1194	733-6008	8	11.02	10.28	8.14	6.00
60F1195	733-6009	9	11.70	10.93	8.66	6.40
60F1196	733-6010	10	12.39	11.58	9.19	6.80

COMPLETE ASSEMBLIES



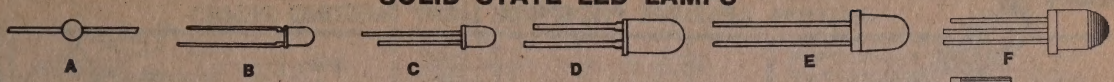
Displays with decoder driver are supplied with stylish black bezel for simplified panel mounting of multi-digit groupings. Displays feature a bright, highly legible character in a large 7 segment format, .600" high character. User has the option of hard wiring to the board or using edge card connectors.

Stk. No.	Type	Characters	Each
60F1197	739-0260-601	2	39.39
60F1198	739-0360-601	3	56.30
60F1199	739-0460-601	4	73.21
60F1200	739-0560-601	5	90.13
60F1201	739-0660-601	6	107.04
60F1202	739-0760-601	7	123.95
60F1203	739-0860-601	8	140.86
60F1204	739-0960-601	9	157.77
60F1205	739-1060-601	10	134.99

Discrete LEDs And Displays

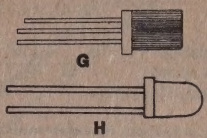
DIALIGHT

SOLID STATE LED LAMPS



Stk. No.	Type 521	Fig.	Pkg.	Lens Color	Typ. Fwd. Volt. (mA)	Typ. Lum. (mcd)	1-9	10-99	100-999	1000-2499
25F866	9185	A	T-¾	Red Non-Diff.	1.6 at 20	.8	.45	.45	.25	.17
25F867	9186	A	T-¾	Red Diff.	1.6 at 20	.8	.45	.45	.25	.17
25F875	9216	B	T-1	Red Diff.	1.6 at 20	2.0	.29	.29	.19	.15
28F1784	9210	B	T-1	Green Diff.	2.4 at 20	2.0	.60	.60	.50	.40
28F1785	9211	B	T-1	Yellow Diff.	2.2 at 10	2.0	.60	.60	.50	.40
25F1460	9200*	C	T-1-¾	Red Diff.	1.9 at 20	1.0	.28	.28	.21	.17
25F1420	9165*	C	T-1-¾	Red Diff.	1.7 at 20	2.0	.50	.50	.37	.33
25F1457	9166*	C	T-1-¾	Clear Diff.	1.7 at 20	2.0	.50	.50	.36	.33
25F860	9173*	C	T-1-¾	Green Diff.	2.3 at 20	3.2	.50	.50	.37	.33
28F1786	9253*	C	T-1-¾	Green Non-Diff.	2.3 at 20	8.0	.50	.50	.37	.33
28F1787	9174*	C	T-1-¾	Yellow Diff.	2.3 at 20	3.2	.50	.50	.37	.33
28F1788	9254*	C	T-1-¾	Yellow Non-Diff.	2.3 at 20	8.0	.50	.50	.37	.33
28F1789	9240*	D	T-1-¾	Red Diff.	1.9 at 20	1.5	.27	.27	.21	.17
28F1790	9212*	D	T-1-¾	Red Diff.	1.6 at 20	2.0	.30	.30	.25	.20
28F1791	9175*	D	T-1-¾	Green Diff.	2.3 at 20	3.2	.50	.50	.37	.33
28F1792	9176*	D	T-1-¾	Yellow Diff.	2.3 at 20	3.2	.50	.50	.37	.33
25F865	9183†	E	T-1-¾	Red Diff.	.5 at 15	2.0	.60	.60	.45	.35
25F877	9244*	F	T-1-¾	Red/Green	2.3 at 15‡	1.4‡	2.89	2.24	1.73	1.32
25F878	9245*	G	T-1-¾	Red/Green	2.3 at 15‡	1.7‡	2.89	2.24	1.73	1.32
28F1793	9246†	H	T-1-¾	Red Diff.	2.2 at 10	4.0	1.05	.90	.75	.60
28F1794	9247†	H	T-1-¾	Red Non-Diff.	2.2 at 10	24.0	1.05	.90	.75	.60
28F1795	9248†	H	T-1-¾	Yellow Diff.	2.2 at 10	3.0	1.05	.90	.75	.60
28F1796	9249†	H	T-1-¾	Yellow Non-Diff.	2.2 at 10	16.0	1.05	.90	.75	.60
28F1797	9250†	H	T-1-¾	Green Diff.	2.4 at 10	3.0	1.05	.90	.75	.60
28F1798	9251†	H	T-1-¾	Green Non-Diff.	2.4 at 10	16.0	1.05	.90	.75	.60

(‡) Red



- **High Luminous Intensity**
- **Low Power Consumption**

521 Series. High luminous intensity. Low power consumption. IC compatible. Vibration/shock resistant. Solid state reliability, life measured in years. Wide viewing angle. Many applications including panel lighting, circuit status indicators, numeric or alphanumeric displays, or visual indicators.

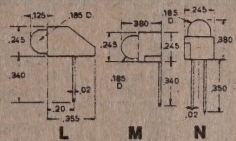
HOLDER

Mounting clip for items at left marked with (*) 515-0005
Mounting clip for item at left marked with (†) 515-0004

Stk. No.	Type	1-24	25-249	250-999	1000-2499
28F1799	515-0004	.10	.07	.06	.05
25F879	515-0005	.10	.07	.06	.05

550 SERIES

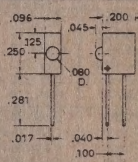
LED lamp with a high light level for back panel illumination. Use a T-1¾ LED. *With integral resistor for operation at 5V.



Stk. No.	Type	Color	Fig.	V_F (mA)	Typ. Lum.	1-99	100-999	1000-2499
25F882	550-0204	Green	N	2.2	0.8	.65	.50	.43
25F883	550-0304	Yellow	N	2.2	0.8	.65	.50	.43
25F884	550-0404	Red	N	1.9	2.0	.54	.37	.32
25F885	550-0504*	Red	N	1.9	2.0	.80	.66	.57
25F886	550-0205	Green	M	2.2	0.8	.65	.50	.43
25F887	550-0305	Yellow	M	2.2	0.8	.65	.50	.43
25F888	550-0405	Red	M	1.9	2.0	.54	.37	.32
25F889	550-0505*	Red	M	1.9	2.0	.80	.66	.57
25F890	550-0206	Green	L	2.2	0.8	.65	.50	.43
25F891	550-0306	Yellow	L	2.2	0.8	.65	.50	.43
25F892	550-0406	Red	L	1.9	2.0	.54	.37	.32
45F493	550-0506*	Red	L	1.9	2.0	.80	.66	.57

555 SERIES

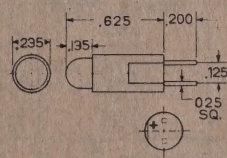
Red LED logic state/fault indicators. Typically they might be used as fault indicators for trouble shooting complex circuits. **For higher brightness, can be operated at 6V @ 20 mA. Use a T-¾ LED. *Requires external resistor.



Stk. No.	Type	Typ. Fwd. Volt. (mA)	1-9	10-24	25-99	100-249
25F1727	555-2001	1.7 at 40*	1.00	.91	.83	.76
28F1800	555-2002	3.6 at 20				
25F893	555-2007	5.0 at 3				
25F895	555-2003	5.0 at 6.5				
25F894	555-2004	5.0** at 16	1.11	1.01	.92	.84
25F899	555-2005	10.0 at 14				
25F901	555-2006	14.0 at 10				

549 SERIES

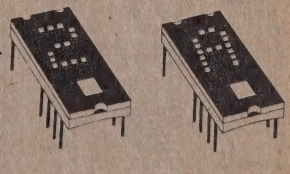
LED Bi-Pin lamp was developed to be directly interchangeable with its T-1¾ incandescent equivalent. LED combined with a built-in resistor (for current limiting) and pins molded in a plastic case substantially improves the life and reliability over an incandescent lamp. Molded case includes a flat on one side for indexing to establish correct polarity.



Stk. No.	Type	Lens	Volts	1-9	10-24	25-99	100-249
25F880	549-0101	Red Diff.	1.7	.76	.72	.67	.63
25F881	549-0104	Red Diff.	5	1.06	1.00	.94	.88

HEXADECIMAL DISPLAY

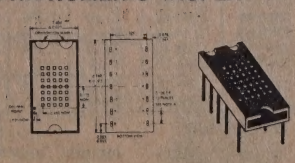
Solid-state visible, with integral TTL MSI circuit chip with latch, decoder, and driver to accept, store, and display 4-bit binary data. 0.270-inch-high character. Left-and-right-hand decimals. Operates from 5-volt or 6-volt supply.



Stk. No.	Type	Description	1-9	10-24	25-99	100-249
25F903	745-0007	Display	11.75	9.10	9.10	8.50
25F1447	501-0701-009	Connector	1.58	1.43	1.21	1.04

5x7 DOT MATRIX ALPHA-NUMERIC DISPLAY

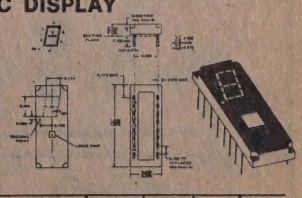
Solid-state visible dot matrix alpha-numeric display with clear transparent plastic encapsulation. 0.300" high character. 5x7 array with X-Y select and decimal. Compatible with UASCII and EBODIC codes. Left hand decimal point. Typical static forward voltage: 1.6V.



Stk. No.	Type	Description	1-9	10-99	100-999	1000-2499
25F1443	745-0005	Dot Matrix	6.00	5.50	4.50	3.60
25F1447	501-0701-009	Connector	1.58	1.43	1.21	1.04

NUMERIC DISPLAY

Solid-state visible displays with integral TTL MSI circuit chip with latch, decoder, and driver. 0.270-inch-high character. Left hand decimal point. Supply voltage, VCC: continuous 5.5V.

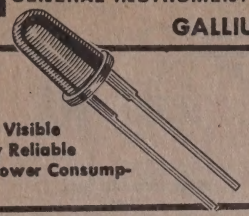


Stk. No.	Type	Description	1-9	10-24	25-99	100-249
25F904	745-0008	BCD Display	11.75	9.10	9.10	8.50
25F905	745-0009	Pulse Count Display	11.75	9.10	9.10	8.50
25F908	501-0702-009	Connector	1.80	1.58	1.36	1.16

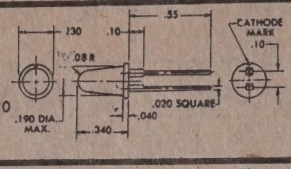
CHICAGO MINIATURE LAMP WORKS
GENERAL INSTRUMENT CORPORATION

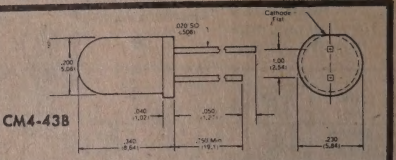
Chicago Miniature LED's

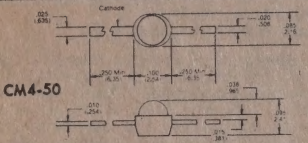
GALLIUM ARSENIDE PHOSPHIDE LIGHT EMITTING DIODES

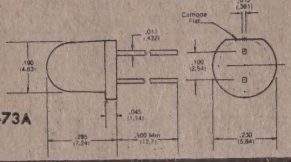


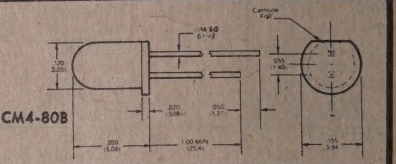
- Easily Visible
- Highly Reliable
- Low Power Consumption

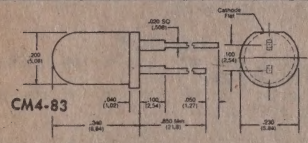


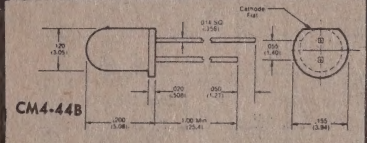


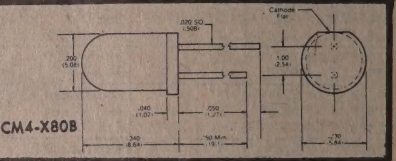






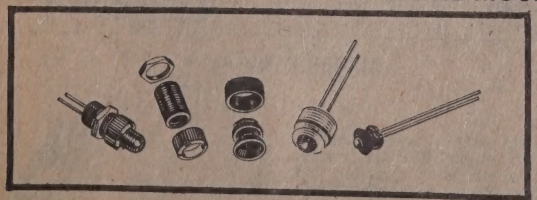






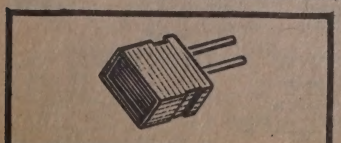
Stock No.	Type	Lens Tint	Lens Diffusion	Light Color	Peak Wavelength Typical	Luminous Intensity @ I_F = 20mA Guaranteed Minimum	Luminous Intensity @ I_F = 20mA Typical	Viewing Angle	1-99	100-999	1000-Up
67F4500	CM4-20	Clear	Transparent	Red	660 nm	0.6 mcd	2.0 mcd	90°	.52	.41	.36
67F4501	CM4-21	Clear	Diffused	Red	660 nm	0.4 mcd	1.6 mcd	90°	.52	.41	.36
67F4502	CM4-22	Red	Transparent	Red	660 nm	0.6 mcd	2.0 mcd	90°	.52	.41	.36
67F4503	CM4-23	Red	Diffused	Red	660 nm	0.1 mcd	0.4 mcd	180°	.45	.35	.32
27F073	CM4-24	Red	Diffused	Red	660 nm	0.9 mcd	3.0 mcd	60°	.45	.35	.32
27F074	CM4-25	Red	Diffused	Red	660 nm	0.4 mcd	1.6 mcd	90°	.45	.35	.32
27F089	CM4-282B	Red	Transparent	Red	635 nm	17.0 mcd	40.0 mcd	28°	.62	.48	.40
27F092	CM4-283B	Red	Diffused	Red	635 nm	1.7 mcd	8.0 mcd	24°	.62	.48	.40
27F093	CM4-284B	Red	Diffused	Red	635 nm	1.2 mcd	4.0 mcd	65°	.62	.48	.40
27F094	CM4-382B	Green	Transparent	Green	565 nm	5.0 mcd	15.0 mcd	28°	.62	.48	.40
27F095	CM4-383B	Green	Diffused	Green	565 nm	0.6 mcd	3.0 mcd	24°	.62	.48	.40
27F097	CM4-384B	Green	Diffused	Green	565 nm	0.5 mcd	1.5 mcd	65°	.62	.48	.40
27F098	CM4-482B	Orange	Transparent	Orange	635 nm	17.0 mcd	40.0 mcd	28°	.62	.48	.40
27F108	CM4-483B	Orange	Diffused	Orange	635 nm	1.7 mcd	8.0 mcd	24°	.62	.48	.40
27F109	CM4-484B	Orange	Diffused	Orange	635 nm	1.2 mcd	4.0 mcd	65°	.62	.48	.40
27F110	CM4-582B	Yellow	Transparent	Yellow	585 nm	16.0 mcd	45.0 mcd	28°	.62	.48	.40
27F129	CM4-583B	Yellow	Diffused	Yellow	585 nm	3.0 mcd	10.0 mcd	24°	.62	.48	.40
27F132	CM4-584B	Yellow	Diffused	Yellow	585 nm	2.5 mcd	6.0 mcd	65°	.62	.48	.40
27F141	CM4-244B	Red	Diffused	Red	635 nm	1.0 mcd	5.0 mcd	90°	.75	.60	.50
27F142	CM4-344B	Green	Diffused	Green	565 nm	0.3 mcd	1.0 mcd	90°	.75	.60	.50
27F144	CM4-444B	Orange	Diffused	Orange	635 nm	1.0 mcd	5.0 mcd	90°	.75	.60	.50
27F145	CM4-544B	Yellow	Diffused	Yellow	585 nm	0.8 mcd	4.0 mcd	90°	.75	.60	.50
67F4507	CM4-83	Red	Diffused	Red	660 nm	1.0 mcd	2.0 mcd	24°	.28	.22	.18
27F146	CM4-80B	Clear	Transparent	Red	660 nm	0.4 mcd	2.0 mcd	70°	.41	.31	.26
27F157	CM4-81B	Clear	Diffused	Red	660 nm	0.3 mcd	1.6 mcd	80°	.41	.31	.26
27F163	CM4-84B-0	Red	Diffused	Red	660 nm	0.3 mcd	0.8 mcd	80°	.25	.20	.16
27F173	CM4-84B	Red	Diffused	Red	660 nm	0.8 mcd	1.6 mcd	80°	.28	.22	.18
27F174	CM4-84B-2	Red	Diffused	Red	660 nm	1.6 mcd	2.0 mcd	80°	.40	.30	.25
27F175	CM4-85B	Dark Red	Diffused	Red	660 nm	0.2 mcd	0.8 mcd	110°	.41	.31	.26
27F176	CM4-86B	Red	Diffused	Red	660 nm	0.1 mcd	0.6 mcd	150°	.40	.30	.25
67F4506	CM4-73A	Red	Diffused	Red	660 nm	0.8 mcd	2.0 mcd	70°	.28	.22	.18
67F4585	CM4-50	Clear	Transparent	Red	660 nm	0.5 mcd	1.4 mcd	90°	.29	.22	.19
67F4586	CM4-53	Red	Diffused	Red	660 nm	0.4 mcd	1.0 mcd	90°	.25	.17	.16
67F4505	CM4-43B	Red	Diffused	Red	660 nm	0.3 mcd	1.0 mcd	90°	.47	.36	.30

LED PANEL MOUNTING HARDWARE



For mounting in panel thickness up to .125" (CM-4-Series) or up to .187" (4999 Series). Ideal for array designs. Easily mounted from panel front.

Stk. No.	Type	Color	Size	Shape	1-9	10-24	25-99
27F177	CM4-5B	Black	T-1¾	Taper.	.05	.05	.05
27F181	CM4-5C	Clear	T-1¾	Taper.			
27F185	CM4-6B	Black	T-1¾	Cylin.			
27F191	CM4-6C	Clear	T-1¾	Cylin.			
27F199	CM4-7B	Black	T-1	Cylin.			
27F200	4999-002	Silver	T-1¾	Taper.	.27	.24	.21
27F201	4999-003	Black	T-1¾	Taper.			



RECTANGULAR LED INDICATOR

Features: solid-state, long life, and reliability. Rectangular lighted area is lit by a GaAsP on GaP high performance LED chip.. No light leakage from unit or sides. Stackable in X or Y direction. High brightness typically 4 mcd @ 20 mA. Applications include: legend backlighting, panel indicator, and bargraph meter.

Stock No.	Type	Color	1-99	100-999	1000-up
28F2550	CM4-264	Red	1.10	.90	.80
28F2551	CM4-564	Yellow	1.10	.90	.80

Semiconductor Coolers

WAKEFIELD DELTA DIVISION

Mounting dimensions for Series 300, 400, 500, 600, 680, GN and WN extrusions, and Series MN.

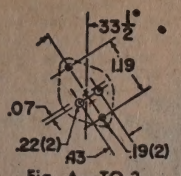


Fig. A—TO-3

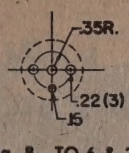


Fig. B—TO-6 & 36

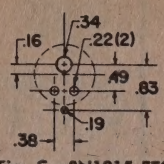
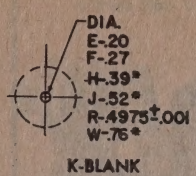


Fig. C—2N1015 ETC.



K-BLANK NO HOLES

L- 8-32X1/2 DEEP
M-10-32X5/8 DEEP
N-1/4-28X5/8DEEP

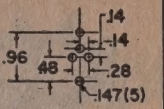


Fig. T—TO-8

3

Fig. 1

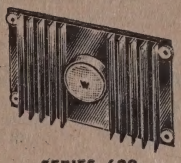
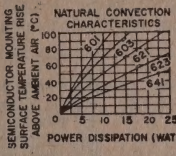


Fig. 2



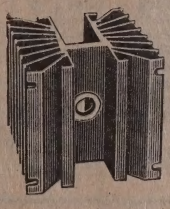
SERIES 600 CIRCUIT BOARD COOLERS

600 SERIES CIRCUIT BOARD COOLERS

Externally mounted applications. Models 601 and 603 especially designed to accommodate the TO-8. Models 621, 623 and 641 accept all standard transistor case styles and case sizes up to 1¼". Shpg. wt., 16 oz.

Stk. No.	Type	Fig.	Inches H	W	D	1-24	25-49	50-99	100-249
58F536	601K	1	1.25	2.24	.56	1.50	1.20	.95	.81
58F537	603K	1	2.00	2.24	.56	1.70	1.36	1.14	.95
58F482	621A	2	1.50	4.81	.46	1.83	1.46	1.16	.98
58F538	621K	2	1.50	4.81	.46	1.83	1.46	1.16	.98
58F480	623A	2	3.00	4.81	.46	2.70	2.16	1.74	1.50
58F539	623K	2	3.00	4.81	.46	2.70	2.16	1.74	1.50
58F467	641A	1	3.00	4.12	1.00	2.81	2.25	1.80	1.52
58F540	641K	1	3.00	4.12	1.00	2.81	2.25	1.80	1.52

SERIES 400 EXTRUSIONS



465, 476

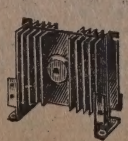
486, 489

Type 465 accepts 1⅛" hex high power rectifiers and SCR's; 476 accepts 1¼" hex rectifiers and SCR's; 486 and 489 accept 1¾" hex SCR's. Tapped ¼-20. Weight, 1.8 to 5.8 lbs.

Stk. No.	Type	Inches H	W	D	1-24	25-49	50-99	100-249
58F419	465-J	5.00	4.00	4.00	8.73	7.60	6.70	6.39
58F420	465-K	5.00	4.00	4.00	7.82	6.80	5.99	5.66
58F1005	476-J	6.00	5.00	5.00	11.82	10.27	8.99	8.58
58F422	476-K	6.00	5.00	5.00	10.68	9.30	8.15	7.69
58F421	476-W	6.00	5.00	5.00	11.82	10.27	8.99	8.58
58F425	486-K	6.00	6.25	6.25	17.21	14.97	13.19	.....
58F428	489-K	9.00	6.25	6.25	24.88	21.63	18.94	.....

VERTICAL MOUNTING BRACKETS

Meets vibration requirements of Mil 202B. Two brackets required per sink. To insulate, use Teflon insulator #103. Heat sinks 402 and 403 use #111, 421 uses #113. Wt., 10 oz.



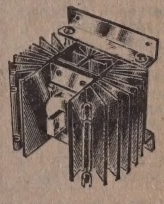
Stk. No.	Type	Pkgs. of 2 1-99	100-499
58F525	111	.31	.25
58F526	113	.44	.38

SERIES 680 CIRCUIT BOARD COOLERS

Provides optimum natural convection cooling per unit volume occupied above the circuit board. Mounting in any position is possible, since the cooler permits free air flow in any direction. High thermal conductivity aluminum alloy. Temp. rise: 680-.5, 90°C at 10 watts; 680-.75, 90°C at 13 watts; 680-1.0, 90°C at 15 watts; 680-1.25, 100°C at 21 watts. All have 1.81" sq. base with 1.50" between mtg. holes. 1.3 to 1.9 oz.

Stk. No.	Type	Hgt. (in.)	1-49	50-99	100-499
58F401	680-.5A	1.03"	1.32	1.26	1.08
58F400	680-.5B	1.03"			
58F1008	680-.5G1	1.03"			
58F399	680-.5K	1.03"			
58F398	680-.75A	1.05"	1.38	1.32	1.13
58F396	680-.75K	1.05"			
58F395	680-1.0A	1.16"	1.50	1.38	1.20
58F394	680-1.0B	1.16"			
58F1010	680-1.0G1	1.16"			
58F393	680-1.0K	1.16"			
58F392	680-1.25A	1.21"	1.55	1.46	1.24
58F391	680-1.25B	1.21"			
58F1011	680-1.25G1	1.21"			
58F390	680-1.25K	1.21"			

SERIES 490 KING-SIZE HEAT SINKS



- Aluminum Alloy
- Mounts & cools multicell 240/650 amp rectifiers
- Four mtg. lugs per end

Designed to mount and cool multicell 240/650 amp rectifiers. Takes square plate types as large as 3½" x 3½". Type 490-12, under natural convection conditions, will permit case temperature rise of only 110°C at 600 watts dissipation, with 3½" sq. rectifier. Aluminum alloy; black anodized finish. Four mounting lugs on each end. Type no. suffix indicates mounting (see specs above).

Stk. No.	Type	Dimensions (in.)	1-24	25-49	50-99
58F409	490-3.5-K	3.5x9.25x6.75	16.57	14.40	12.64
58F408	490-6-K	6.0x9.25x6.75	26.09	22.68	19.83
58F407	490-12-K	12.0x9.25x6.75	44.75	38.91	34.19
58F403	109	1.5x7.5x1.5	Fiberglass Mtg. 2.26 ea.		

TYPE 120 THERMAL COMPOUND

Used between semiconductor and heat sink, or for thermoelectric modules. Zinc oxide crystals in a silicon grease will increase thermal conductivity between semiconductor and heat sink.

Stk. No.	Type	Quantity	1-9	10-24	25-49	50-99
58F470	120-2	2 oz.	2.73	2.57	2.26	2.15
58F372	120-5	5 oz. tube	4.49	4.14	3.75	3.44
58F471	120-8	8 oz.	7.35	6.88	6.07	5.35
58F402	120-80	5 lb.	34.92	34.13	.....	.....

200 Series

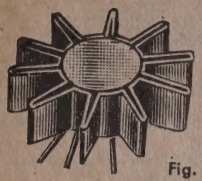


Fig. 1

Fig. 2

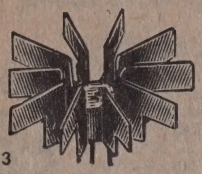


Fig. 3

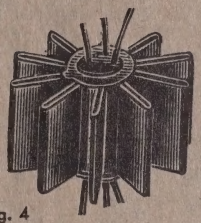
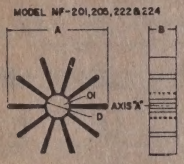


Fig. 4



200 SERIES FEATHERWEIGHT COOLERS

Flexin design. Spring action provides maximum contact of large area to assure repeatable thermal performance. Black copper.

Stk. No.	Type	Fig.	Inches A	Inches B	Fits Case Dia.	Each 1-199	Each 200-499	Each 500-999	Each 1000-4900
58F527	201CB	1	.64	.19	.161/.195	.30	.25	.23	.21
58F388	202CB	1	.49	.20	.161/.195	.27	.22	.20	.19
58F528	203CB	2	.64	.38	.161/.195	.43	.36	.33	.30
58F387	204CB	1	.55	.20	.275/.335	.27	.22	.20	.19
58F529	205CB	1	.72	.19	.275/.335	.30	.25	.23	.21
58F530	207CB	2	.72	.38	.275/.335	.43	.36	.33	.31
58F531	209CB	3	1.26	.44	.275/.335	.47	.40	.36	.34
58F441	211CB	1	.82	.19	.444/.524	.43	.36	.33	.30
58F442	213CB	2	.82	.38	.444/.524	.46	.39	.35	.33
58F443	215CB	3	1.38	.44	.444/.524	.46	.39	.35	.33
58F499	222CB	4	.64	.38	.161/.195	.42	.35	.32	.30
58F498	224CB	4	.72	.44	.275/.335	.47	.40	.36	.34

58F532. 160 tool for Models 201, 2, 3, 4, 5, 7, 9..... 2.30
58F389. 161 Installation tool for Models 211, 213, 215..... 2.30

300 Series

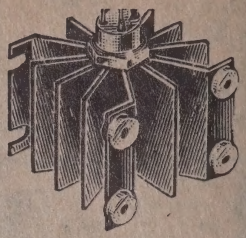
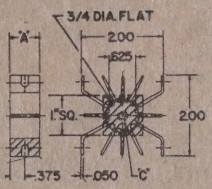
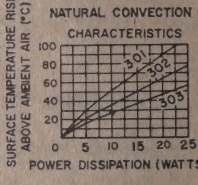


Fig. 5





300 SERIES RADIAL RECTIFIER COOLERS

Radial fin coolers for rectifier or stud mounting transistor applications. Adaptable to stack arrangements. Uses standard teflon insulating washers. Accommodates press-fitted and stud-mounted rectifiers and transistors up to 1"/16" hex case. Semiconductor mounting surface and one mounting foot unanodized. Type no. suffix indicates mtg. accommodations.

Stk. No.	Type	Fig.	Inches H	Inches W	Inches D	1-24	25-49	50-99	100-249
58F533	301K	5	.75	2.00	2.00	2.00	1.59	1.30	1.09
58F496	301M	5	.75	2.00	2.00	2.43	1.93	1.68	1.38
58F495	301N	5	.75	2.00	2.00	2.43	1.93	1.68	1.38
58F494	301R	5	.75	2.00	2.00	2.43	1.93	1.68	1.38
58F534	302K	5	1.50	2.00	2.00	2.43	1.93	1.68	1.38
58F493	302M	5	1.50	2.00	2.00	3.20	2.56	2.06	1.70
58F492	302N	5	1.50	2.00	2.00	3.20	2.56	2.06	1.70
58F535	303K	5	3.00	2.00	2.00	2.80	2.25	1.77	1.50
58F1002	303M	5	3.00	2.00	2.00	3.71	2.97	2.41	1.99
58F487	303N	5	3.00	2.00	2.00	3.71	2.97	2.41	1.99
58F486	303R	5	3.00	2.00	2.00	3.71	2.97	2.41	1.99

400 Series

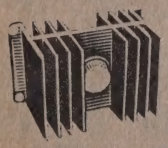


Fig. 6

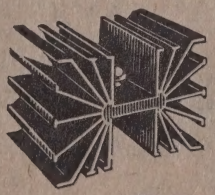
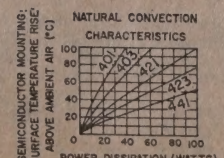


Fig. 6A

Fig. 7



400 SERIES NATURAL CONVECTION COOLERS

Type 401 has thermal resistance of 1.8°C W at medium power. **Type 413,** 1.4°C/W natural convection, 0.3°C W moderate air flow. Type 433, 70°C rise at 100 W power dissipation.
Type 441 with 400 sq. in. cooling area, 55°C/W at high power levels.
Type 423, 0.8°C/W at higher power levels.
Type no. suffix refers to mounting specs; see chart on preceding page.

Stk. No.	Type	Fig.	Inches H	Inches W	Inches D	1-24	25-49	50-99	100-249
58F500	401A	6	1.50	4.81	1.25	2.09	1.65	1.30	1.09
58F501	401B	6	1.50	4.81	1.25	2.48	1.96	1.56	1.29
58F502	401K	6	1.50	4.81	1.25	2.09	1.65	1.30	1.09
58F503	403A	6	3.00	4.81	1.25	3.07	2.41	1.93	1.59
58F504	403B	6	3.00	4.81	1.25	3.47	2.73	2.16	1.77
58F505	403K	6	3.00	4.81	1.25	3.07	2.41	1.93	1.59
58F1003	413A	6	3.00	4.75	.....	4.82	3.79	3.06	2.56
58F1004	413K	6	3.00	4.75	.....	4.82	3.79	3.06	2.56
58F506	421A	6	3.00	4.81	1.25	4.39	3.46	2.77	2.29
58F507	421B	6	3.00	4.81	2.63	4.82	3.79	3.00	2.50
58F508	421K	6	3.00	4.81	2.63	4.39	3.46	2.77	2.29
58F509	423A	6	5.50	4.81	2.63	7.09	5.58	4.44	3.70
58F510	423B	6	5.50	4.81	2.63	7.50	5.90	4.68	3.96
58F511	423K	6	5.50	4.81	2.63	7.09	5.58	4.44	3.70
58F334	433K	6A	5.50	4.37	3.00	8.93	7.03	5.66	4.68
58F521	441K	7	5.50	4.75	4.50	11.72	9.23	7.39	6.14

Semiconductor Hardware

WAKEFIELD DELTA DIVISION

SERIES 170 INSULATING WAFERS

For TO-3 transistors. Features thermally conductive dielectric coating providing excellent thermal path between the case and heat sink. Coating on transistor side only, including edges, hole, I.D. **Sold in packages of 10.**

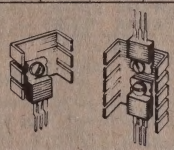
Stock No.	Type	Finish	For Case	Per Package of 10 1-9	10-49	50-99	100-499
58F177	170 DC	Delta Coat 151H	TO-3	1.03	.89	.85	.69
58F1337	171 DC	Delta Coat 151H	TO-3				
58F1338	172 DC	Delta Coat 151H	TO-66				
58F176	170 HC	Hard Coat	TO-3	1.27	1.11	1.02	.86
58F1339	171 HC	Hard Coat	TO-3				
58F1340	172 HC	Hard Coat	TO-66				

TYPE 690 CIRCUIT BOARD HEAT SINKS

Designed to give the most power dissipation per unit cost. Dissipation of 10-20 watts is obtainable. Made of 1100 alloy aluminum in mounting patterns for TO-3 or TO-66 JEDEC packages. Available plain (suffix P) or black anodized (suffix B).

Stock No.	Type	Fits Case	Size, Inches W x H	Each 1-199	200-999	1000-2499	2500-4999
58F1310	690-3-P	TO-3	1.81x1.31	.41	.35	.33	.31
58F1311	690-66-P	TO-66	1.81x1.31	.41	.35	.33	.31
58F1312	690-3-B	TO-3	1.81x1.31	.56	.45	.41	.35
58F1313	690-66-B	TO-66	1.81x1.31	.56	.45	.41	.35

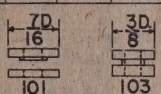
289 & 290 SERIES



Made for plastic power devices with mounting tabs. **289** accommodates a single semiconductor. **290** will handle either one or two devices. Constructed of aluminum alloy. (AB-Black, AP-Plain).

Stock No.	Type	Dimensions LxHxW	No. Devices	EACH 1-499	500-999	1000-4999
58F1359	289-AB	.71x.5x1.0"	1	.17	.12	.10
58F1365	289-AP	.71x.5x1.0"	1	.14	.10	.08
58F1360	290-1AB	1.18x.5x1.0"	1	.18	.13	.11
58F1366	290-1AP	1.18x.5x1.0"	1	.15	.11	.09
58F1361	290-2AB	1.18x.5x1.0"	2	.18	.13	.11
58F1367	290-2AP	1.18x.5x1.0"	2	.15	.11	.09

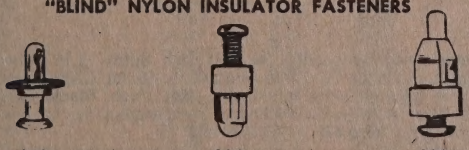
TEFLON INSULATORS



Insulates heat sinks from chassis, eliminating mica insulators between sink and semiconductor. ⅛ to 3½ oz.

Stock No.	Type	For Type	Read.	Each 1-499	500-999	1000-4999	5000-9900
58F519	101	501	3				
		502, 530, 504, 505	4	.24	.20	.19	.18
58F518	103	301	2				
		401	3				
		302, 303, 403, 421, 431	4				
		423, 433, 621, 623, 641	4	.10	.08	.08	.07
58F469	105	441, 1244, 1245, 1541	4	.36	.30	.28	.27
58F412	107	Same as 103	2	.36	.30	.28	.27

"BLIND" NYLON INSULATOR FASTENERS

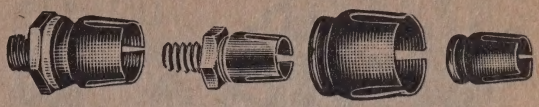


102 104 106

Type 102: Fastener-washer pair quickly mounts and electrically isolates most Series 400 and 600 heat sinks. Size, 7/16" O.D. x 1/16" thick; for .187" panel hole in .063" max. panel thickness. **Type 104:** Screw mount with #8 sheet metal or machine screw; screw length, 5/8" plus panel thickness. **Type 106:** Larger screw mount type; screw length, ¾" plus panel thickness. **Sold in packages of 100.**

Stock No.	Type	For Sink Type	Price Per Package of 100 1-4	5-9	10-49	50-99
58F159	102	Same as 103	5.39	4.50	4.25	4.01
58F160	104	Same as 103	4.52	3.76	3.47	3.32
58F161	106	Same as 105	7.45	6.20	5.70	5.39

SERIES 260 CUP CLIPS FOR TO-5 AND TO-18



260-10SH5B Stud Mtg. for TO-5 | 260-4SH18E Stud Mtg. for TO-18 | 26X-4T5 Tapped Base | 260-P18 Plain Base

Beryllium copper cup clips with brass bases for TO-5 case style transistors except (*) for TO-18. "E" suffix are epoxy insulated. "B" suffix are beryllium oxide insulated for applications requiring low stray capacity. No suffix are non-insulated and are soldered together with 63/67 tin lead alloy. Max. temperature is 300°F. Size: 0.29" I.D. cup, hex base .37" across flats for TO-5; .170" I.D. with .25" hex for TO-18. **Sold in packages of 10.**

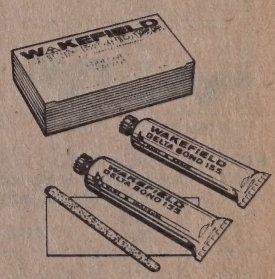
Stock No.	Type	Base	Price Per Package of 10 1-19	20-49	50-99	100-490
58F178	260-P5	Plain, .112"	4.15	3.31	2.86	2.59
58F179	*260-P18	Plain, .089"	4.15	3.31	2.86	2.59
58F1056	*260-2TH18E	2-56 tapped	11.18	8.95	7.77	7.11
58F184	260-4T5	4-40 tap; chamfer	7.86	6.27	5.42	4.99
58F185	260-4T5E	4-40 tap; chamfer	10.70	7.92	6.79	6.18
58F1057	260-4TH5B	4-40 tapped	18.44	14.75	12.74	11.75
58F1058	260-4TH5E	4-40 tapped	10.70	7.92	6.79	6.18
58F1060	*260-4SH18B	4-40 stud	18.44	14.75	12.74	11.75
58F187	*260-4SH18E	4-40 stud	11.18	8.95	7.77	7.11
58F1061	260-6SH5	6-32 stud	11.18	8.95	7.77	7.11
58F1062	260-6SH5E	6-32 stud	14.11	11.29	9.71	8.98
58F188	260-6SH5B	6-32 stud	18.44	14.75	12.74	11.75
58F1063	*260-6SH18	6-32 stud	8.75	7.00	6.06	5.57
58F1064	*260-6SH18B	6-32 stud	18.44	14.75	12.74	11.75
58F1065	*260-6SH18E	6-32 stud	11.18	8.95	7.77	7.11
58F189	260-10SH5B	10-32 stud	18.44	14.75	12.74	11.75
58F1067	260-10SH5E	10-32 stud	11.18	8.95	7.77	7.11

SERIES 298 TO-5 HEAT SINK

Heat sink pressed on top of any TO-5 cased semiconductor. Available in SP (Plain) and SB (Black ebanol) finishes. Made from copper. .75" dia.

Stock No.	Type	Finish	Fits Case	1-199	200-499	500-999
58F1363	298-SB	Black ebanol	TO-5	.11	.09	.08
58F1362	298-SP	Plain	TO-5	.11	.09	.08

DELTA BOND 155



An electrically non-conducting epoxy thermal adhesive for use in bonding semiconductors to heat sinks to improve heat transfer. Resists severe temperature cycling. Cures in 24 hours at room temperature or 1 hour at 90°C. Maximum continuous operating temperature: 65°C; maximum intermittent operating temperature: 100°C. 1½ oz. Hard and 1½ oz. Resin.

58F1364. NET 4.54

THERMALLY CONDUCTIVE ADHESIVE

Type 152. High conductivity adhesive used: As general adhesive, for bonding semi-conductors to chassis heat sinks, fabricating heat sinks or thermal links, for permanent bonding of all materials with highly thermal conductive interface. Porous and nonporous surfaces. Excellent dielectric strength. Bond shear strength, 1" overlap psi, 30 immersion in water unaffected. Temp. range −70°F to +300°F.

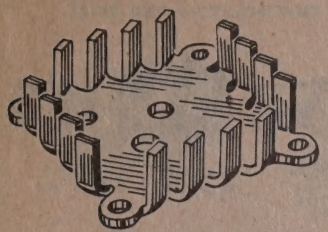
Stk. No.	Type	Size	1-9	10-24	25-49	50-99
58F345	152-1-A	1 oz.	4.22	3.70	3.61	3.35
58F386	152-K-A	7½ oz.	19.10	17.70	16.50	15.50

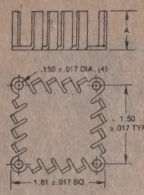
DELTA
WAKEFIELD
DIVISION

Semiconductor Coolers

3

SERIES 689 SLANTED FIN COOLERS

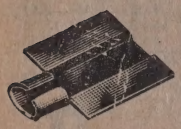




Low-cost one-piece heat sinks for circuit-board applications requiring high thermal efficiency. Interchanges directly with other TO-3 heat sinks. Air movement from any direction is diverted to the center of the heat sink to create turbulence and improve heat transfer. Last digit of Type No. indicates hole pattern: '2' for a standard TO-3, '3' for TO-66. Digits after series number indicates height in inches.

Stock No.	Type	1-199	200-999	1000-2499	2500-4999
58F138	689—.75B2	.50	.43	.40	.36
58F139	689—.75B3	.50	.43	.40	.36
58F140	689—1.0B2	.54	.47	.43	.39
58F141	689—1.0B3	.54	.47	.43	.39
58F142	689—1.25B2	.60	.52	.48	.43
58F143	689—1.25B3	.60	.52	.48	.43

HEAT SINK FOR TO-92 TRANSISTOR



Type 292. Heat Sink accommodates most TO-92 plastic transistors for heat dissipation. Natural convection characteristics show that for power dissipation of .20 watts, collector lead temperature rise above ambient is 18°C. Made of type 6061-T6 Aluminum or copper with black "C" finish, or plain.

Stock No.	Type	Material	Finish	Each 1-499	500-999	1000-4999	5000-9999
58F1021	292AP	Alum.	Plain	.04	.03	.03	.02
58E373	292AB	Alum.	Black	.15	.12	.10	.08

TYPE 296 HEAT SINK FOR TO-5 TRANSISTORS

296-1 296-2 296-3 296-4

Heat Sink snaps onto TO-5 transistor, uses minimum amount of PC board layout space. Material: 6061T6 aluminum. Plain or Black finish. Use type 120 thermal joint compound.

ALUMINUM

Stock No.	Type	Wing Height	Finish	Each 1-499	500-999	1000-4999	5000-9999
58F163	296-1-AP	¼"	Plain	.05	.04	.03	.03
58F1028	296-1-AB	¼"	Black	.10	.08	.07	.05
58F164	296-2-AP	½"	Plain	.05	.04	.04	.03
58F1024	296-2-AB	½"	Black	.10	.08	.07	.06
58F165	296-3-AP	¾"	Plain	.06	.05	.04	.03
58F1025	296-3-AB	¾"	Black	.13	.11	.09	.07
58F166	296-4-AP	1"	Plain	.06	.05	.04	.03
58F1026	296-4-AB	1"	Black	.14	.11	.09	.08

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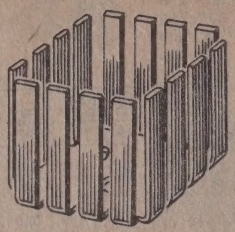
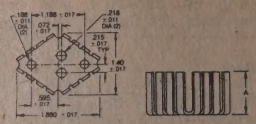
in Electronics

SERIES 635 SPACE SAVER COOLERS

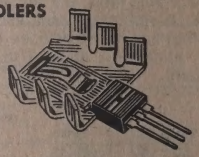




Ultra low-cost, lightweight heat sinks for circuit-board applications. One-piece design conforms to diamond shape of the TO-3, TO-66 and TO-220 packages for minimum space usage in high-density appl. Directly interchangeable with other TO-3 heat sinks. Last digit of Type No. indicates hole pattern: '2' for standard TO-3, '3' for a TO-66. Digits after series no. indicates height in inches.

Stock No.	Type	Each 1-199	200-999	1000-2499	2500-4999
58F1341	635—.5B2	.29	.26	.24	.21
58F1345	635—.5B3	.29	.26	.24	.21
58F1342	635—.75B2	.33	.29	.27	.24
58F1346	635—.75B3	.33	.29	.27	.24
58F1343	635—1.0B2	.36	.32	.29	.26
58F1347	635—1.0B3	.36	.32	.29	.26
58F1344	635—1.25B2	.40	.35	.32	.29
58F1348	635—1.25B3	.40	.35	.32	.29

SERIES 291 CLIP-COOLERS



Clip-on, one-piece construction. Aluminum black finish. **Type No.** code: Series No., Height (inches), Finish and Mtg. Style.

C1—Clip-on for TO-202
C2—Clip-on for TO202 and TO220
H—Clrnce hole for TO202, TO220

Stock No.	Type	1-499	500-999	1000-4999	5000-9999
58F152	291—.36ABC1	.15	.12	.11	.10
58F153	291—.80ABC1	.16	.13	.11	.10
58F154	291—.36ABC2	.15	.12	.11	.10
58F155	291—.80ABC2	.16	.13	.11	.10
58F156	291—.36ABH	.15	.12	.11	.10
58F157	291—.80ABH	.16	.13	.11	.10

SERIES 630 HEAT SINKS FOR TO-3 AND TO-66

631 632 633

Provides maximum cooling per unit cost. Suffix -3 in Type No. indicates unit is for TO-3 transistor; suffix -66, for TO-66 transistor. Made of type 1100-H14 aluminum, .062" thick. Black anodized (suffix B) or plain (suffix P) finish. Temperature rise for 5 watts: type 631, 68°C; type 632, 57°C; 633, 45°C.

Stock No.	Type	Height	Finish	EACH 1-199	200-999	1000-2499	2500-4999
58F1035	631-3-B	1"	Black	.28	.20	.18	.17
58F167	631-3-P	1"	Plain	.12	.09	.08	.08
58F1036	631-66-B	1"	Black	.28	.20	.18	.17
58F168	631-66-P	1"	Plain	.12	.09	.08	.08
58F1037	632-3-B	2"	Black	.29	.24	.21	.19
58F169	632-3-P	2"	Plain	.16	.13	.11	.10
58F1038	632-66-B	2"	Black	.29	.24	.21	.19
58F170	632-66-P	2"	Plain	.16	.13	.11	.10
58F1039	633-3-B	3"	Black	.34	.27	.24	.22
58F171	633-3-P	3"	Plain	.21	.17	.14	.13
58F1040	633-66-B	3"	Black	.34	.27	.24	.22

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Whatever your tube needs—standard receiving, industrial or special purpose types—Newark can quickly fill your order. We can ship OEM quantities at OEM prices directly from stock. Just order by tube type and we will ship one of the leading manufacturer's tubes to fill your order.

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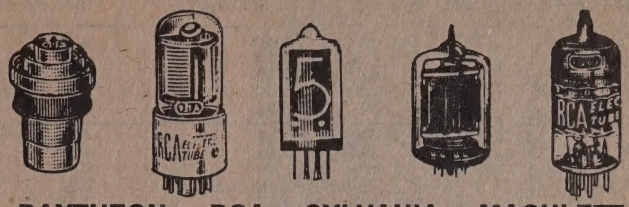

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4

AS NEW TUBE TYPES ARE RELEASED, NEWARK WILL STOCK THEM.

Tube Type	1-5	6-24
0A2	2.60	2.34
0A2WA	5.31	4.78
0A3	5.65	5.08
0A3A	5.01	4.51
0A4G	3.70	3.33
0B2	3.05	2.74
0B2WA	4.60	4.14
0B3	5.05	4.54
0C2	8.10	7.29
0C3	4.50	4.05
0C3A	4.50	4.05
0D3	5.15	4.63
0D3A	5.15	4.63
0D3W	14.95	13.45
1BC2A	4.44	4.00
1DG3A	5.14	4.63
1G3GTA/1B3GT	3.76	3.38
C1K/6014	21.98	19.78
1K3A/1J3	4.06	3.65
1L4	5.54	4.99
1L6	8.88	7.99
1P21	75.00	67.50
1P22	24.64	22.18
1P28	21.00	18.90
1P28/V1	45.90	41.31
1P28A	37.38	33.64
1P39	12.50	11.25
1P40	12.55	11.29
1R5	6.68	6.01
1T4	3.02	2.72
1U4	4.64	4.18
1U5	4.78	4.30
1V2	2.36	2.12
1X2C	4.14	3.73
1X2C/1BX2	4.14	3.73
2AS2A	4.08	3.67
2AV2	3.00	2.70
2BP1	56.00	50.40
2C39WA/C	46.90	42.21
2C39WA/G	76.94	69.25
2C40A	115.90	...
2D21	3.15	2.83
2DS4	10.68	9.61
2E24	19.60	17.64
2E26	9.84	8.86
2EG4	10.68	9.61
2X2A	9.61	8.65
C3J/AL	22.90	20.61
C3J/L	31.08	27.97
NL-C3J/L	25.20	22.68
NL-C3J/AL	25.20	22.68
NL-C3J/AL-NE	34.30	30.88
C3J/5632	23.73	21.36
C3JA/5684	23.94	21.55
3A3C	3.82	3.44
3A4	6.80	6.12
3AF4A/3DZ4	4.48	4.03
3AQP1	45.00	40.50
3AT2B	3.72	3.35
3AW2A	4.14	3.73
3B24W	18.95	17.05
3B28	15.75	14.17
3BN2A	3.62	3.26
3BU8/3GS8	4.82	4.34
3BW2/3BS2A/3BT2	4.04	3.64
3BY6	3.16	2.84
3C23	16.17	14.55
3CB6/3CF6	2.78	2.50
3CU3A	4.64	4.18
3CZ3A	4.14	3.73
3DB3/3CY3	4.18	3.76
3DT6A	3.26	2.93
3E29	43.00	38.70
3GK5	3.68	3.31
3HM5/3HA5	3.64	3.28
3HQ5	5.40	4.86
3JC6A	5.02	4.52
3KT6	4.00	3.60
3RP1	42.00	37.80
3RP1A	61.50	55.35
3V4	6.38	5.74
3V4/DL94	4.92	4.43
4-125A/4D21	75.90	68.31
4-250A/5D22	70.38	63.34
4AU6	3.84	3.46
4AV6	3.24	2.92
4BL8/XCF80	2.96	2.66
4BU8/4GS8	4.40	3.96
4BZ6/4JH6	3.36	3.02
4CB6	2.92	2.63
4CS6	4.06	3.65
4CX250B	49.28	44.35
4DK6	3.38	3.04
4DT6A	3.78	3.40
4E27A/5-125B	143.91	...
4EH7/LF183	3.54	3.19
4EJ7/LF184	3.54	3.19
4GJ7/XCF801	4.26	3.83
4GK5	3.82	3.44
4GX7	4.38	3.94
4HM5/4HA5	3.20	2.88
4HM6	3.64	3.28
4HQ5	4.06	3.65
4HS8	3.72	3.35
4JC6A	4.96	4.46
4KE8	5.90	5.31
4X150A	44.80	40.32
5ADP1	96.60	86.94
5AQ5	3.68	3.31
5AR4/GZ34	5.40	4.86
5AS4A	3.06	2.75
5BC3A	4.26	3.83
5BE8	3.26	2.93
5CG8	4.20	3.78
5EU8	3.24	2.92
5FG7	5.52	4.97
5GH8A	4.48	4.03
5GJ7/LCF801	3.40	3.06
5GM6	3.24	2.92
5GS7	4.12	3.71
5GX7	4.06	3.65
5HB7	3.46	3.11
5HG8/LCF86	5.32	4.79
5HZ6	3.24	2.92
5JK6	4.18	3.76
5KE8	6.38	5.74
5KZ8	3.86	3.47
5LJ8	4.18	3.76
5MB8	4.78	4.30
5R4GB	4.00	3.60
5U4G	4.94	4.45
5U4GB	3.16	2.84
5U4GB/5AS4A	3.42	3.08
5U9/LCF201	4.84	4.36
5V3A/5AU4	3.78	3.40
5V4GA	4.28	3.85
5Y3GT	2.94	2.65
NL-C6J	47.90	43.11
NL-C6J/K	49.30	44.37
NL-C6J/KP	53.80	48.42
NL-C6J/L	49.60	44.64
C6JA/5685	51.80	46.62
6AB4	3.62	3.26
6AC7	6.55	5.89
6AD10	8.74	7.87
6AF3	4.46	4.01
6AF4	5.36	4.82
6AF4A	5.36	4.82
6AF9	6.66	5.99
6AF11	5.88	5.29
6AG5	4.28	3.85
6AG7	10.30	9.27
6AG9	6.88	6.19
6AH6	6.78	6.10
6AH6WA	8.25	7.42
6AH9	6.28	5.65
6AJ5	4.30	3.87
6AK5/EF95	4.88	4.39
6AK6	2.75	2.47
6AK8/EABC80	4.10	3.69
6AL3/EY88	3.62	3.26
6AL5	3.06	2.75
6AL11	6.46	5.81
6AM8A	5.34	4.81
6AN4	5.10	4.59
6AN5	5.40	4.86
6AQ5A	3.22	2.90
6AQ5A/6HG5	3.68	3.31
6AQ6	3.72	3.35
6AQ7GT	4.38	3.94
6AQ8/ECC85	3.70	3.33
6AR5	2.68	2.41
6AR8	8.10	7.29
6AR11	5.88	5.29
6AS5	3.96	3.56
6AS6	5.65	5.08
6AS7GA	9.20	8.28
6AS11	6.60	5.94
6AT6	2.28	2.05
6AT8A	5.18	4.66
6AU4GTA	4.78	4.30
6AU5GT	5.88	5.29
6AU6A	3.08	2.77

Receiving, Industrial & Special Purpose Tubes

AS NEW TUBE TYPES ARE RELEASED, NEWARK WILL STOCK THEM.

...be Type	1-5	6-24
...WB	4.95	4.45
...8A	5.18	4.66
...V5GA	5.34	4.81
...AV6	2.86	2.57
6AW8A	4.24	3.82
6AX3	3.38	3.04
6AX4GTB	3.68	3.31
6AX5GT	4.64	4.18
6AX5GT	4.88	4.39
6AZ8	7.34	6.61
6B10	5.24	4.72
6BA6/EF93	3.16	2.84
6BA6/EF93	3.60	3.24
6BA8A	5.16	4.64
6BA11	4.64	4.18
6BC4	6.80	6.12
6BC5	3.24	2.92
6BC5/6CE5	3.24	2.92
6BC7	3.68	3.31
6BC8/6BZ8	5.34	4.81
6BD6	2.92	2.63
6BD11	5.56	5.00
6BE3	4.42	3.98
6BE6	3.78	3.40
6BF5	3.12	2.81
6BF6	2.78	2.50
6BF11	5.90	5.31
6BG6GA	7.38	6.64
6BH6	3.90	3.51
6BH8	4.42	3.98
6BH11	5.20	4.68
6BJ3	2.90	2.61
6BJ6	4.02	3.62
6BJ7	3.06	2.75
6BJ8	4.26	3.83
6BK4C/6EL4A	7.08	6.37
6BK5	2.92	2.63
6BK7B	5.04	4.54
6BL7GTA	6.00	5.40
6BL8/ECF80	2.66	2.39
6BM8/ECL82	3.52	3.17
6BN4A	4.06	3.65
6BN6	4.78	4.30
6BN6/6KS6	4.78	4.30
6BN8	4.32	3.89
6BQ5/EL84	3.74	3.37
6BQ6GTB/6CU6	6.10	5.49
6BR8A/6FV8A	5.16	4.64
6BS3A	3.66	3.29
6BU8	5.04	4.54
6BV11	5.74	5.17
6BW4	3.68	3.31
6BW11	5.74	5.17
6BX6/EF80	4.18	3.76
6BX7GT	5.90	5.31
6BY6	3.58	3.22
6BY8	3.64	3.28
6BZ6	3.24	2.92
6BZ6/6JH6	2.98	2.68
6C4	4.04	3.67
6C4	4.26	3.83
6C4WA	4.20	3.78
6C5	10.50	9.45
6C9	6.48	5.83
6CA4	3.92	3.53
6CA5	3.12	2.81
6CA7/EL34	5.62	5.06
6CB5A	7.76	6.98
6CB6A/6CF6	3.14	2.83
6CD6GA	6.88	6.19
6CG8A	4.08	3.67
6CJ3/6CH3	3.56	3.20
6CL3	3.62	3.26
6CL3/6CK3	3.82	3.44
6CL6	4.66	4.19
6CL8A	5.02	4.52
6CM3	4.38	3.94
6CM6	4.38	3.94

Tube Type	1-5	6-24
6CM7	4.16	3.74
6CM8	4.02	3.62
6CN7	4.70	4.23
6CQ8	4.24	3.82
6CS6	4.04	3.64
6CS7	4.06	3.65
6CU8	4.14	3.73
6CW4	9.44	8.50
6CW5/EL86	3.36	3.02
6CX8	5.74	5.17
6CY5	5.62	5.06
6CY7	3.92	3.53
6CZ5	4.30	3.87
6D4	5.40	4.86
6D10	5.98	5.38
6DC6	3.42	3.08
6DE4/6CQ4	4.40	3.96
6DE6	3.30	2.97
6DE7	4.52	4.07
6DJ8	3.50	3.15
6DJ8/ECC88	3.50	3.15
6DJ8/ECC88	3.15	2.83
6DK6	3.58	3.22
6DL5/EL95	3.24	2.92
6DN7	4.58	4.12
6DQ5	7.44	6.70
6DR7	4.86	4.37
6DS4	4.22	3.80
6DT6A	3.40	3.06
6DV4	11.26	10.13
6DW4B	3.56	3.20
6DZ4	5.36	4.82
6E5	12.84	11.56
6EA8	3.74	3.37
6EC4A/EY500	4.52	4.07
6EH5	3.24	2.92
6EH7/EF183	3.64	3.28
6EH8	3.22	2.90
6EH8	3.22	2.90
6EJ4A	10.14	9.13
6EJ7/EF184	3.48	3.13
6EM5	4.30	3.87
6EM7/6EA7	5.82	5.24
6EN4	7.76	6.98
6EQ7	3.82	3.44
6ER5	3.84	3.46
6EU7	3.92	3.53
6EV5	4.64	4.18
6EW6	3.40	3.06
6EW7	5.90	5.31
6EZ5	5.16	4.64
6F6	9.40	8.46
6F6GT	5.28	4.75
6FD7	5.12	4.61
6FG7	5.54	4.99
6FH5	4.48	4.03
6FH8	6.58	5.92
6FJ7	3.76	3.38
6FM7	4.38	3.94
6FM8	3.80	3.42
6FQ7/6CG7	2.88	2.59
6FS5	5.92	5.33
6FV6	4.02	3.62
6FV8A/6BR8A	5.16	4.64
6FY5	3.00	2.70
6FY5/EC97	3.00	2.70
6FY7	3.48	3.13
6G11	6.76	6.08
6GC5	5.14	4.63
6GE5	5.58	5.02
6GF7A	5.06	4.55
6GH8A	3.00	2.70
6GJ5A	5.68	5.11
6GJ/ECF801	3.40	3.06
6GK5/6FQ5A	4.76	4.28
6GK6	3.34	3.01
6GM6	3.98	3.58
6GM8	5.56	5.00

Tube Type	1-5	6-24
6GS7	4.48	4.03
6GT5A	7.24	6.52
6GU7	3.96	3.56
6GV5	4.86	4.37
6GV8/ECL85	3.96	3.56
6GW6/6DQ6B	5.10	4.59
6GW8/ECL86	4.10	3.69
6GX7	4.80	4.32
6GY6/6GX6	3.30	2.97
6H6	7.70	6.93
6HB5	5.14	4.63
6HB6/6HA6	5.30	4.77
6HB7	3.68	3.31
6F5	9.40	8.46
6HF5	8.50	7.65
6HF8	5.36	4.82
6HG5	3.04	2.74
6HG8/ECF86	5.32	4.79
6HM5/6HA5	3.64	3.28
6HQ5	4.80	4.32
6HR6	6.28	5.65
6HS5	7.02	6.32
6HS6	6.52	5.87
6HJ8	3.38	3.04
6HS8	4.52	4.07
6HV5A	8.42	7.58
6HZ5/6JD5	7.68	6.91
6HZ6	3.02	2.72
6J4	9.01	8.11
6J5	6.65	5.98
6J6A	5.34	4.81
6J7	10.30	9.27
6J7	9.44	8.50
6JB5/6HE5	4.56	4.10
6JB6A	6.22	5.60
6JC6A	4.24	3.82
6JC8	3.88	3.49
6JD5	7.68	6.91
6JD6	4.36	3.92
6JE6C/6LQ6	9.08	8.17
6JF6	7.10	6.39
6JG5	3.12	2.81
6JG6A	6.66	5.99
6JH8	5.90	5.31
6JK6	4.14	3.73
6JM6A	5.58	5.02
6JN6	5.20	4.68
6JN8	3.62	3.26
6JQ6	4.78	4.30
6JR6	7.58	6.82
6JS6C	7.06	6.35
6JT6A	5.88	5.29
6JT8	6.46	5.81
6JU6	6.90	6.21
6JU8A	4.20	3.78
6JV8	4.38	3.94
6JW8/ECF802	3.22	2.90
6JZ6	5.14	4.63
6JZ8	4.76	4.28
6K6GT	4.02	3.62
6K7	9.90	8.91
6KA8	4.64	4.18
6KD6	8.04	8.14
6KE8	5.78	5.20
6KG6A/EL509	8.18	7.36
6KN6	7.66	6.89
6KN8/6RHH8	5.76	5.18
6KR8	4.50	4.05
6KT8	5.16	4.64
6KU8	5.14	4.63
6KV6A	6.88	6.19
6KV8	5.28	4.75
6KY8A	8.40	7.56
6KZ8	3.88	3.49
6L6	6.28	5.65
6L6GC	5.78	5.20
6L6WGB	7.60	6.84
6L7	10.24	9.22

Receiving, Industrial & Special Purpose Tubes

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Tube Type	1-5	6-24
6LB6	7.64	6.88
6LC8	4.30	3.87
6LF8	5.58	5.02
6LH6A	7.46	6.71
6LN8/LCF80	2.70	2.43
6LQ6/6JE6C	8.42	7.58
6LQ8	5.28	4.75
6LR6	7.32	6.59
6LR8	6.08	5.47
6LU8	4.60	4.14
6LX8/LCF802	2.82	2.54
6LY8	4.30	3.87
6M11	7.08	6.37
6MB8	4.60	4.14
6MD8	5.58	5.02
6ME6	7.40	6.66
6ME8	5.96	5.36
6MF8	5.90	5.31
6MG8	3.62	3.26
6MJ8	5.10	4.59
6MK8A	4.28	3.85
6MQ8	4.14	3.73
6MU8	5.74	5.17
6N7	7.75	6.97
6N7GT	10.00	9.00
6S4A	4.00	3.60
6S4A	4.00	3.60
6SA7	8.60	7.74
6SC7	7.10	6.39
6SF5	9.00	8.10
6SF5	6.80	6.12
6SF7	9.12	8.21
6SG7	9.00	8.10
6SH7	7.45	6.70
6SJ7	7.40	6.66
6SJ7GT	5.76	5.18
6SK7	6.45	5.80
6SL7GT	5.56	5.00
6SL7WGT	4.80	4.32
6SN7GTB	3.68	3.31
6SN7GTB	3.62	3.26
GB-6SN7WGT	4.85	4.36
6SN7WGTA	5.40	4.86
6SQ7	6.30	5.67
6SQ7GT	5.96	5.36
6SR7	8.32	7.49
6T8A	4.66	4.19
6T9	4.46	4.01
6T10	5.80	5.22
6U5	7.94	7.15
6U8A/6AX8/6KD8	4.22	3.80
6U8A/6KD8	3.70	3.33
6U10	3.90	3.51
6V3A	4.04	3.64
6V4/EZ80	3.16	2.84
6V6	8.85	7.96
6V6	8.58	7.72
6V6	4.96	4.46
6V6GTA	4.34	3.91
6W4GTA	3.02	2.72
6W6GT	4.58	4.12
6X4	3.42	3.08
6X4	3.70	3.33
6X4	3.90	3.51
6X4W	3.90	3.51
6X4WA	3.90	3.51
GB-6X4WA	3.90	3.51
6X5GT	3.30	2.97
6X5GT	3.78	3.40
6X5GT	3.78	3.40
6X5GT	3.68	3.31
6X5WGT	4.60	4.14
GB-6X5WGT	4.60	4.14
6X8 (USE 6X8A)	4.42	3.98
6X8A	4.42	3.98
6X9/ECF200	4.86	4.37
6Y6GA	4.70	4.23
6Y6GA/6Y6G	4.46	4.04
6Y6GT	4.46	4.04
6Y9	5.86	5.27
6Y9/EFL200	5.86	5.27
6Z10/6J10	5.78	5.20
7AU7	2.82	2.54
7HG8/PCF86	5.48	4.93
7KY6	4.60	4.14
7VPI	82.80	74.52
8B8	5.48	4.93
8B10	4.82	4.34
8BA11	5.80	5.22
8BQ5	3.68	3.31
8CS7	3.58	3.22
8CX8	3.88	3.49
8EB8	4.30	3.87
8FQ7/8CG7	2.88	2.59
8GJ7/PCF801	3.68	3.31
8JU8A	3.38	3.04
8JV8	4.40	3.96
8KA8	4.62	4.16
8LT8	3.86	3.47
9A8/PCF80	3.12	2.81
9AQ8/PCC85	5.80	5.22
9BJ11	8.02	7.22
9GH8A	4.04	3.64
9JW8/PCF802	3.24	2.92
9KX6	5.32	4.79
9KZ8	2.92	2.63
10CW5/LL86	3.64	3.28
10DX8/LCL84	3.12	2.81
10EG7	4.06	3.65
10EW7	5.90	5.31
10GK6	4.30	3.87
10GN8	4.94	4.45
10GV8/LCL85	4.02	3.62
10JA8/10LZ8	4.18	3.76
10JT8	6.46	5.81
10JY8	3.84	3.46
10KR8	4.98	4.48
10KU8	5.48	4.93
10LB8	4.98	4.48
10LE8	5.40	4.86
10LW8	5.40	4.86
10T10	5.92	5.33
10Z10	5.56	5.00
11AF9	6.32	5.69
11AR11	6.00	5.40
11BM8	5.20	4.68
11BQ11	7.22	6.50
11DS5	4.78	4.30
11FY7	4.40	3.96
11FY7		
11HM7	5.28	4.75
11JE8	3.82	3.44
11KV8	5.68	5.11
11LQ8	5.34	4.81
11LT8	4.10	3.69
11Y9	5.06	4.55
12AB5	3.76	3.38
12AD6	3.36	3.02
12AE10	6.46	5.81
12AF3/BR3/RK19	3.76	3.38
12AL5	3.32	2.99
12AL11	6.38	5.74
12AQ5	3.48	3.13
12AT7/ECC81	3.24	2.92
12AU6	3.24	2.92
12AU7A/ECC82	3.16	2.84
12AV6	3.00	2.70
12AV7	4.50	4.05
12AX4GTB	3.34	3.01
12AX7A/ECC83	2.98	2.68
12AY3A	3.32	2.99
12AX7A/ECC83	2.82	2.54
12AX7WA	8.05	7.24
12AY3A/12BS3A	3.32	2.99
12AY7	4.60	4.14
12AZ7A	4.22	3.80
12B4A	4.30	3.87
12BA6	2.76	2.48
12BE3	3.38	3.04
12BE6	3.06	2.75
12BF11	6.10	5.49
12BH7A	3.76	3.38
12BH7A	4.28	3.85
12BL6	3.34	3.01
12BR7	4.40	3.96
12BV11	5.96	5.36
12BV7	3.66	3.29
12BY7A/BV7/DQ7	3.66	3.29
12BZ6	5.14	4.63
12CA5	3.96	3.56
12CL3	3.68	3.31
12CT3	5.40	4.86
12CU5/12C5	4.28	3.85
12DB5	3.84	3.46
12DQ7	3.66	3.29
12DS7	4.86	4.37
12DT5	3.12	2.81
12DT8	3.78	3.40
12DZ6	3.08	2.77
12EA6	3.08	2.77
12EK6	3.08	2.77
12FX5	3.42	3.08
12FX8A	3.26	2.93
12GC6	4.00	3.60
12GW6/12DQ6B	5.58	5.02
12HE7	6.60	5.94
12HG7/12GN7A	5.30	4.77
12HL7	4.64	4.18
12JN6	3.96	3.56
12JQ6	5.20	4.68
12MD8	4.86	4.37
12SA7	8.60	7.74
12SG7	9.80	8.82
12SH7	10.80	9.72
12SJ7	9.10	8.19
12SK7	6.45	5.80
12SN7GTA	4.52	4.07
12SQ7	8.66	7.79
12T10	6.00	5.40
12V6GT	4.10	3.69
12W6GT	4.86	4.37
13CW4	11.06	9.95
13DE7	4.76	4.28
13DR7	5.16	4.64
13EM7/15EA7	6.46	5.81
13FD7	4.78	4.30
13FM7/15FM7	4.20	3.78
13GB5/XL500	5.22	4.70
13GF7A	4.96	4.46
13JZ8	5.66	5.09
13Z10/13J10	6.60	5.94
14BL11	7.58	6.82
14GT8	4.06	3.65
15AF11	5.60	5.04
15BD11A	5.80	5.22
15CW5/PL84	3.64	3.28
15DQ8	4.10	3.69
15FY7	3.70	3.30
15MF8	5.82	5.24
C16J/5665	127.85	...
16A8/PCL82	5.32	4.79
16AK9	9.48	8.53
16AQ3/XY88	3.72	3.35
16GK6	3.12	2.81
16GY5	5.36	4.82
17AB10/17X10	6.46	5.81
17AX3	2.86	2.57
17AX4GTA	3.54	3.19
17AY3A	3.90	3.51
17BB14	6.82	6.14
17BE3/17BZ3	3.90	3.51
17BF11	5.68	5.11
17BR3/17RK19	3.50	3.15
17BS3A/17DW4A	3.88	3.49

Receiving, Industrial & Special Purpose Tubes

AS NEW TUBE TYPES ARE RELEASED, NEWARK WILL STOCK THEM.

Tube Type	1-5	6-24
17BW3	3.50	3.15
17CK3	3.50	3.15
17CU5/17C5	3.10	2.79
17D4	4.02	3.62
17DM4A	3.54	3.19
17GE5	4.30	3.87
17GJ5A	6.00	5.40
17GT5A	5.54	4.99
17GV5	4.40	3.96
17HB25	6.34	5.71
17JB6A	5.86	5.27
17JF6	6.72	6.05
17JG6A	7.70	6.93
17JQ6	5.86	5.27
17JT6A	5.66	5.09
17JZ8	4.04	3.64
17Z3/PY81	3.38	3.04
18FY6A	3.16	2.84
18GB5/LL500	4.64	4.18
19AU4GTA	4.30	3.87
19EA8	4.02	3.62
19HV8	5.40	4.86
19JN8/19CL8A	4.02	3.62
19T8	6.04	5.44
20AQ3/LY88	3.64	3.28
20EZ7	3.38	3.04
NL-KY21A	67.00	60.30
21GY5	4.84	4.36
21JV6	5.54	4.99
21JZ6	5.02	4.52
21KA6	5.36	4.82
21LG6A	7.52	6.77
21LR8	4.70	4.23
22BH3A	3.46	3.11
22BW3	4.02	3.62
22JF6	6.86	6.17
22JG6A	6.72	6.05
22JR6	6.74	6.07
22JU6	6.80	6.12
22KM6	7.32	6.59
22KV6A	6.38	5.74
23Z9	5.08	4.57
24BF11	6.00	5.40
24JZ8	7.20	6.48
24LQ6/24JE6C	7.62	6.86
C-25BCP22	133.00	...
25AV5GA	6.08	5.47
25BQ6GTB	3.88	3.49
25C5	3.96	3.56
25CK3	3.72	3.35
25E5/PL36	5.48	4.93
25EH5	3.64	3.28
25EH5	3.64	3.28
25JZ8	4.90	4.41
25L6GT/25W6GT	4.40	3.96
25W6GT	4.40	3.96
25Z6GT	5.70	5.13
26HU5	9.42	8.48
26LX6	9.00	8.10
27GB5/PL500	3.58	3.22
29KQ6/PL521	8.14	7.33
30JZ6	6.12	5.51
31JS6C	6.88	6.19
31LQ6	7.86	7.07
31LZ6	8.04	7.24
32HQ7	9.28	8.35
33JV6	4.26	3.83
33GT7	6.72	6.05
33GY7A	6.14	5.53
34CE3	4.10	3.69
34GD5A	2.38	2.14
35B5	3.04	2.74
35B5	3.04	2.74
35C5	3.16	2.84
35EH5	3.38	3.04
35EH5	3.38	3.04
35L6GT	4.86	4.37
35LR6	7.30	6.57

Tube Type	1-5	6-24
35W4	2.58	2.32
35Z5GT	3.50	3.15
36AM3B	3.08	2.77
36KD6/40KD6	8.00	7.20
36MC6	8.16	7.34
38HE7	6.98	6.28
40KG6A/PL509	8.56	7.70
42KN6	7.22	6.50
50DC4	2.86	2.57
50EH5	3.64	3.28
50GY7A	8.78	7.90
50HK6	3.54	3.19
50L6GT	4.76	4.28
53HK7	8.36	7.52
80	5.02	4.52
83	9.80	8.82
83	9.80	8.82
FG-97	164.00	...
FG280	310.00	...
304TL	195.00	...
393A	20.75	18.67
407A	7.75	6.97
408A	7.55	6.79
408A	7.55	6.79
CK512AX	11.10	9.99
CK533AX	11.20	10.08
CK534AX	11.20	10.08
575A	46.20	41.58
NL-604	32.30	29.07
604/7014	49.35	44.41
NL-604L	34.00	30.60
NL-606	47.90	43.11
NL-606L	49.60	44.64
KU610	101.00	...
NL-610/7723	19.30	17.37
615/7018	22.60	20.34
NL-615	15.30	13.77
NL-616	27.30	24.57
NL-617	31.90	28.71
NL-619	22.20	19.98
NL-623	28.70	25.83
NL-625	84.40	75.97
NL-627	87.20	78.48
632B	63.50	57.15
NL-635/7019	29.30	26.37
NL-635L/7020	31.10	27.99
NL-635P/6930	31.10	27.99
NL-643	30.70	27.63
NL-649/5834	26.80	24.12
NL-660	39.10	35.19
NL-660L/7786	38.70	34.83
NL-660P	38.70	34.83
NL-664L	64.50	58.05
672A	64.40	57.96
673	46.55	41.89
678	83.00	74.70
710/6011	26.88	24.19
710/6011	17.80	16.02
NL-710A	32.30	29.07
NL-710L/7518	19.80	17.82
NL-714	21.60	19.44
714/7021	31.10	27.99
NL-716	20.60	18.54
NL-718	192.00	...
NL-734/5544	49.20	44.28
NL-734L	50.80	45.78
NL-740/6856	39.40	35.46
NL-740L/7022	41.20	37.08
NL-740P/6857	41.20	37.08
NL-760	45.50	40.95
NL-760L	47.30	42.57
760/6858	64.20	57.78
NL-760P	47.30	42.57
NL-761	69.35	62.41
NL-770L	116.50	...
NL-770P	116.50	...
805	63.00	56.70
807	10.70	9.63

Tube Type	1-5	6-24
807	10.65	9.58
NL-809	16.40	14.76
810	61.95	55.75
NL-810	51.00	45.90
811A	16.45	14.80
811A	15.35	13.81
812A	15.81	14.23
812A	15.35	13.81
813	56.00	50.40
828	61.74	55.57
829B	49.00	44.10
833A	131.10	...
NL-840/8754	12.60	11.34
NL-841	13.30	11.97
NL-842	13.30	11.97
NL-843	12.90	11.61
NL-844	16.80	15.12
845	58.45	52.60
NL-845	13.60	12.24
NL-848	15.45	13.90
857B	375.15	...
866A	10.54	9.49
866A	10.90	9.81
872A	21.35	19.21
872A	21.35	19.21
NL-872A	17.00	15.30
NL-874	16.80	15.12
NL-876	13.75	12.37
884	10.55	9.49
NL-900	16.70	15.03
NL-901	16.30	14.67
NL-904	16.70	15.03
NL-905	17.95	16.15
NL-918/5560	23.90	21.51
NL-919	9.50	8.55
921	14.00	12.60
922	12.50	11.25
927	15.70	14.13
929	12.50	11.25
930	11.86	10.67
931A	17.00	15.30
931VA	17.08	15.37
934	14.40	12.96
935	31.00	27.90
NL-950C	8.40	7.56
NL-1005A	249.00	...
NL-1022A	231.00	...
NL-1031	127.00	...
NL-1032A	191.00	...
NL-1051A	121.00	...
NL-1052A	183.00	...
NL-1061	121.00	...
NL-1062P	19.00	17.10
NL-1091	145.00	...
NL-1222	5.25	4.72
GB-1252/6U8A	3.50	3.15
1616	35.35	31.81
1621	16.44	14.80
1622	17.25	15.52
1626	2.00	1.80
1629	5.67	5.10
1946	22.40	20.16
1947	61.60	55.44
1949	32.90	29.61
DR2000	4.29	3.86
DR2010	4.48	4.03
DR2020	3.74	3.37
2022	14.00	12.60
DR2030	3.74	3.37
2033	6.25	5.62
2050	7.55	6.79
2050A	6.10	5.49
2050A/2050	6.10	5.49
2050W	24.78	22.30
2060	79.00	71.10
DR2100	4.20	3.78
DR2110	4.67	4.20
DR2120	2.92	2.63

Receiving, Industrial & Special Purpose Tubes

AS NEW TUBE TYPES ARE RELEASED, NEWARK WILL STOCK THEM.

Tube Type	1-5	6-24
4028A	69.30	62.37
4042	23.80	21.42
4055	75.90	68.31
4055/V1	71.35	64.21
4058	25.40	22.86
4062A	72.85	65.56
4422	15.04	13.54
4517	112.00	...
4552	15.70	14.13
4652/8042	24.65	22.18
4832	310.00	...
4848	60.00	54.00
NL-5440	12.90	11.61
NL-5440A	13.80	12.42
NL-5441A	14.40	12.96
5544/734	54.15	48.73
5550	142.68	...
GL-5550	106.00	...
NL-5550	106.00	...
GL-5551A	121.00	...
GL5554	429.00	...
5557	13.95	12.55
5558	26.90	24.21
5559	51.52	46.37
5560	43.95	39.55
NL-5560/FG95	46.00	41.40
5560	53.10	47.79
5563A	110.40	...
NL5563A	69.30	62.37
5581	14.00	12.60
5582	16.00	14.40
5583	17.00	15.30
NL-5632/C3J	21.30	19.17
5632/C3J	21.30	19.17
5636	8.85	7.96
CK5639	8.66	7.79
5642	6.35	5.71
CK5643	11.77	10.59
5651	3.25	2.92
5651A	3.25	2.92
5651WA	5.84	5.26
CK5651WA	6.02	5.42
5654	3.95	3.55
5654/6AK5W	3.95	3.55
5663	5.60	5.04
5665/C16J	105.35	...
5670	5.15	4.63
5675	15.33	13.79
CK-5675	11.50	10.35
NL-5684-NE	27.10	24.39
NL-5684A-NE	29.30	26.37
5686	5.85	5.26
5687	6.22	5.60
5687WA	7.00	6.30
5691	16.95	15.25
JAN5691	16.95	15.25
5692	12.00	10.80
5693	17.55	15.79
5696	4.40	3.96
5696A	4.00	3.96
CK5703WA	19.17	17.25
5718	7.80	7.02
5725	5.50	4.95
5725/6AS6W	5.50	4.95
5726	3.60	3.24
5726/6AL5W	3.60	3.24
5727	5.35	4.81
5734	63.60	57.24
5736	495.00	...
5749	5.05	4.54
5749/6BA6W	5.35	4.81
5750	5.45	4.90
NL-5750CS	8.40	7.56
5751	4.70	4.23
GB-5751	4.70	4.23
CK5755	23.50	21.15
5763	4.60	4.14
5783	4.20	3.78
5796	36.00	32.40
5814A	4.05	3.64
5814A	4.05	3.64
5819	126.00	...
5822A	231.00	...
5823	2.80	2.52
5824	11.15	10.03
5840W	7.85	7.06
5842	12.50	11.25
5842/417A	13.75	12.37
5845	9.95	8.95
5847/404A	18.01	16.21
5866	94.85	85.36
5869	66.85	60.16
5876A	15.75	14.17
5879	3.75	3.37
5881	4.75	4.27
CK5886	15.81	14.23
5886	15.80	14.22
5886JAN	15.81	14.23
5893	31.65	28.48
5894	49.75	44.77
5896	6.60	5.94
5899	7.55	6.79
5915	4.25	3.82
GB-5931	8.20	7.38
GB-5932	12.50	11.25
5933WA	18.10	16.29
5957	144.20	...
5963	3.05	2.74
5964	3.90	3.51
5965	3.60	3.24
5965A	3.95	3.55
NL-5992	19.60	17.64
5998A	20.70	18.63
6005	5.55	4.99
6012	15.20	13.68
6014/C1K	19.75	17.77
6021	9.55	8.59
6072	5.75	5.17
6072A	6.10	5.49
6073	6.65	5.98
6074	6.95	6.25
6080	8.60	7.74
6080WC	29.80	26.82
6084/E80F	14.20	12.78
6085/E80CC	15.90	14.31
CK6088	9.92	8.93
GB-6101	9.43	8.49
6130/3C45	71.75	64.57
GB-6135	3.75	3.37
6136	5.15	4.63
6137	7.25	6.52
6146A	7.75	6.97
6146A	7.95	7.15
6146B/8298A	8.14	7.33
6146W	10.39	9.35
6155	61.25	55.12
6159A	9.95	8.95
6159B	15.13	13.62
6173	32.20	28.98
6189	5.69	5.12
6197	4.60	4.14
6189/12AU7WA	6.35	5.71
6197	4.60	4.14
6199	77.00	69.30
6201	5.25	4.72
CK6201/12AT7WA	7.43	6.69
6202	4.20	3.78
6203	8.15	7.33
6205	8.45	7.60
6211	4.85	4.36
6216	7.90	7.11
6217	121.00	...
6263A	26.95	24.25
6265	8.45	7.60
6267	2.20	1.98
6267/EF86	3.70	3.33
6293	14.49	13.04
6336A	52.70	47.43
6339	39.75	35.77
6342A	86.00	77.40
6360	9.45	8.50
6360A	8.71	7.84
6386	16.65	14.98
CK6418	10.25	9.22
CK6419	13.80	12.42
6463	4.90	4.41
6476A	17.25	15.52
6485	3.90	3.51
6524	53.90	48.51
CK6528	55.66	50.09
CK6528A	83.98	75.58
6550	8.55	7.69
6550/V1	18.90	17.01
6550A	8.55	7.69
6570	31.50	28.35
CK6627/0B2WA	4.90	4.41
6655A	95.00	85.50
6661/6BH6	3.40	3.06
6664/6AB4	3.45	3.10
6669/6AQ5A	3.10	2.79
6676/6CB6A	3.05	2.74
6676	3.05	2.74
6677/6CL6	4.55	4.09
6678/6U8A	3.40	3.06
6679/12AT7	3.10	2.79
6680/12AU7A	2.85	2.56
6680	2.85	2.56
6681/12AX7A	2.85	2.56
6686	14.50	13.05
6688	11.15	10.03
6802	14.00	12.60
6807	111.55	...
6816	75.90	68.31
NL-6844A	19.85	17.86
6850	53.20	47.88
6883	8.14	7.33
6883B/8032A/8552	8.68	7.81
6884	51.10	45.99
6895	56.21	50.59
6897	170.35	...
6909	16.60	14.94
6910	16.15	14.53
6922	6.14	5.53
6922/E88CC	6.75	6.07
6922	6.75	6.07
6939	21.79	19.58
6973	4.98	4.48
6977	7.20	6.48
NL-6989-NE	59.50	53.55
NL-6989/C6J/KL	53.80	48.42
NL-7009	29.90	26.91
7025	2.98	2.68
7027A	7.48	6.73
7036	5.90	5.31
7038V4	285.00	...
7054	3.40	3.06
7056	2.85	2.56
7058	3.85	3.46
7059	3.35	3.01
7060	4.95	4.45
7061	4.65	4.18
7077	97.75	87.97
7102	135.00	...
7119/E182CC	18.75	16.87
NL-7153	26.90	24.21
7167	3.55	3.19
GL7171	109.00	...
7189	4.22	3.80
7199	5.32	4.79
7233	6.05	5.44
7239	15.60	14.04
7247	3.96	3.56
7262A	221.40	...
7289/3CX100A5	54.60	49.14

Receiving, Industrial & Special Purpose Tubes

AS NEW TUBE TYPES ARE RELEASED, NEWARK WILL STOCK THEM.

Tube Type	1-5	6-24
7289/3CX100A5	39.30	35.37
7320	15.90	14.31
7325	170.00	...
7355	5.62	5.06
7360	11.30	10.17
7534/E130L	115.00	...
7543	3.50	3.15
7551	6.35	5.71
7554	65.80	59.22
NL-7556A-NE	34.00	30.60
7558	6.45	5.80
7581A	7.30	6.57
7586	11.50	10.35
7587	19.85	17.86
7591A	4.94	4.45
7643	18.35	16.51
GL-7669	121.00	...
7701	4.65	4.18
NL-7723-NE	24.70	22.23
7734	12.35	11.11
7735	44.80	40.32
7735A	105.00	...
7735B	165.00	...
NL-7786-NE	40.60	36.54
7788	33.05	29.74
ML-7815/AL	67.00	60.30

Tube Type	1-5	6-24
7815R	39.30	35.37
7868	4.72	4.25
7895	13.05	11.74
7905	14.70	13.23
NL-7977/4032	21.00	18.90
7984	10.90	9.81
8005	54.60	49.14
8008	26.25	23.62
8020W	29.26	26.33
8032	10.54	9.49
8035	16.90	15.21
8056	13.95	12.55
8058	24.23	21.81
8068	9.45	8.50
8072	54.60	49.14
8077/7054	2.85	2.56
NL-8091	39.00	35.10
8102	3.15	2.83
8106	2.90	2.61
8121	63.00	56.70
8122	63.00	56.70
8136	2.50	2.25
8156	9.53	8.58
8165/4-65A	51.80	46.62
8167/4CX300A	143.91	...
8203	15.70	14.13

Tube Type	1-5	6-24
8226	113.85	...
8233	35.40	31.86
8251/3CX2500F3	307.50	...
8295A	375.00	...
8353	16.40	14.76
8393	14.15	12.73
8417	7.36	6.62
NL-8421/5092	20.15	18.13
NL-8422/5991	19.60	17.64
NL-8423/6091	22.40	20.16
8425A/6AU6A	3.60	3.24
8426A/12AU6	3.72	3.35
8438/4-400A	78.66	70.80
8458	26.74	24.07
8462	109.02	...
NL-8502/4021	34.65	31.18
8507A	160.00	...
8541	65.00	58.50
8541A	150.00	...
8572V4	325.00	...
8573A	260.00	...
8627	25.77	23.19
8643	109.50	...
8753	48.00	43.20
8844	48.50	43.65
8950	7.80	7.02

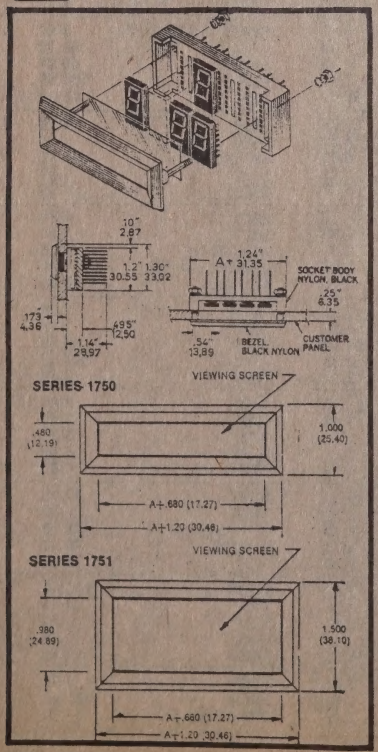
4

IEE APOLLO Incandescent Digital Displays

7-segment digital characters, with ±1 and decimal point options. Adjustable brightness—up to 7,000 fL. Variable low power AC/DC operation: 3.5 to 5V; 24mA per segment. 100,000 hour life expectancy. 9-pin circular base. Single plane 140° viewing. High contrast filamentary segments on black ceramic base. **Character Dimensions (H x W):** DA-1300—.260″ x .472″; DA-2000—.350″ x .600″; DA-2100—.230″ x .400″; DA-2300—.260″ x .472″

Stock No.	Type	RCA Type	Description	1-9	10-99	100-499
65F1910	DA1300	.....	0-9, No DP, 5° Slant	6.00	4.80	4.08
65F1911	DA1310	.....	0-9, LDP, 5° Slant	6.38	5.10	4.34
65F1912	DA1320	.....	±1, No DP, 5° Slant	6.38	5.10	4.34
65F1913	DA2000	DR2000	0-9, No DP, 0° Slant	5.88	4.70	4.00
65F1914	DA2010	DR2010	0-9, LDP, 0° Slant	6.25	5.00	4.25
65F1915	DA2020	DR2020	±1, No DP, 0° Slant	8.50	6.80	5.78
65F1916	DA2100	DR2100	0-9, No DP, 5° Slant	6.25	5.00	4.25
65F1917	DA2110	DR2110	0-9, LDP, 5° Slant	6.88	5.50	4.68
65F1918	DA2120	DR2120	±1, No DP, 5° Slant	8.50	6.80	5.78

IEE ATLAS Universal Display Mounting Hardware



MODELS 1750 AND 1751

For any 14-16 pin DIP package with .3″ row spacing. Consists of a one-piece black nylon bezel requiring a single rectangular panel cutout, a red circularly polarized viewing screen and a universal socket body ready for wire wrap or PCB insertion. Oper. temp. 0° to +70°C. Display brightness is inversely related to oper. temp. Last two numbers in type are decades per assembly. Amber or neutral polarized screen available on spec. order.

1750 BEZEL ONLY

Stk. No.	Type DMH-	1-99	100-999	1000-Up
69F132	22463R-02	3.85	2.62	1.82
69F133	22463R-03	4.13	2.81	1.95
69F134	22463R-04	4.40	2.99	2.08
69F135	22463R-05	4.68	3.18	2.21
69F136	22463R-06	4.95	3.37	2.34
69F137	22463R-07	5.36	3.65	2.54
69F138	22463R-08	5.64	3.83	2.67

1751-54 BEZEL ONLY

Stk. No.	Type DMH-	1-99	100-999	1000-Up
69F154	23441R-02	4.26	2.90	2.02
69F155	23441R-03	4.54	3.09	2.15
69F156	23441R-04	4.81	3.27	2.28
69F157	23441R-05	5.23	3.55	2.47
69F158	23441R-06	5.50	3.74	2.60
69F159	23441R-07	5.78	3.93	2.73
69F160	23441R-08	6.05	4.11	2.86

1750-51 WIRE WRAP TERMINAL SOCKET ONLY

Stk. No.	Type DMH-	1-99	100-999	1000-Up
69F139	22464-02	4.54	3.09	2.15
69F140	22464-03	5.91	4.02	2.80
69F141	22464-04	7.29	4.96	3.45
69F142	22464-05	8.66	5.89	4.10
69F143	22464-06	10.04	6.83	4.75
69F144	24464-07	11.91	7.76	5.40
69F145	22464-08	12.79	8.70	6.05

MODELS 1752 AND 1754

1.3″ window accommodates characters up to 1.1″ with wide-angle viewing. For standard 14-, 16- and 18-pin DIP packaged LED or planar displays with .300″ (model 1753) and .600″ (model 1752) on-centers spacing; .900″ c/c digit spacing. 1 through 8 digit configurations. Last two numbers in type number are decades per assembly. One-piece bezel. Non-glare, high contrast view screen.

1752 BEZEL ONLY

Stk. No.	Type DMH-	1-99	100-999	1000-Up
69F161	24036R-01	5.64	3.83	2.67
69F162	24036R-02	6.33	4.30	2.99
69F163	24036R-03	6.88	4.68	3.25
69F164	24036R-04	7.43	5.05	3.51
69F165	24036R-05	7.98	5.42	3.77
69F166	24036R-06	8.66	5.89	4.10
69F167	24036R-07	8.94	6.08	4.23
69F168	24036R-08	9.76	6.64	4.62

1752 SOCKET ONLY

Stk. No.	Type DMH-	1-99	100-999	1000-Up
69F146	24038-01	4.81	3.27	2.28
69F147	24038-02	6.33	4.30	2.99
69F148	24038-03	8.25	5.61	3.90
69F149	24038-04	9.90	6.73	4.68
69F150	24038-05	11.55	7.85	5.46
69F151	24038-06	13.20	8.98	6.24
69F152	24038-07	15.54	10.57	7.35
69F153	24038-08	17.60	11.97	8.32

1754 WIRE WRAP SOCKET

Stk. No.	Type DMH-	1-99	100-999	1000-Up
69F125	25002-02	6.33	4.30	2.99
69F126	25002-03	8.25	5.61	3.90
69F127	25002-04	9.90	6.73	4.68
69F128	25002-05	11.55	7.85	5.46
69F129	25002-06	13.20	8.98	6.24
69F130	25002-07	15.54	10.57	7.35
69F131	25002-08	17.68	11.97	8.32

Sonalert Solid State Signals

MALLORY

FAST PULSE

Stock No.	Type	Case Style	Freq. (Hz)	Loudness	DC Volt. Min.	DC Volt. Max.	Operating Current	Sound Level (dB)	1-24	25-49	50-99	100-249
64F325	SC110DP	E	2000	Med	30	120*	4 to 16	68 to 80	15.96	15.65	14.91	13.49
64F326	SC110EP	E	2000	Soft	30	120*	2 to 10	55 to 70	15.96	15.65	14.91	13.49
64F327	SC110FP	E	2900	Soft	30	120*	2 to 10	55 to 70	14.96	14.68	14.05	12.64
64F318	SC110HP	E	4500	Med	30	120*	4 to 16	68 to 80	15.96	15.65	14.91	13.49
64F328	SC110NP	E	2900	Loud	30	120*	4 to 16	80 to 95	14.96	14.68	14.05	12.64
64F317	SC110P	E	2900	Med	30	120*	4 to 16	68 to 80	15.15	14.86	14.22	12.79
64F332	SC250HP	E	4500	Med	60	250*	4 to 16	68 to 80	15.15	14.86	14.22	12.79
64F334	SC250P	E	2900	Med	60	250*	4 to 16	68 to 80	15.15	14.86	14.22	12.79
64F335	SC616NP	C	2900	Loud	6	16	4 to 16	80 to 95	10.11	9.93	9.46	8.54
64F336	SC628ADP	E	2000	Med	6	28*	3 to 14	68 to 80	15.15	14.86	14.22	12.79
64F337	SC628AEP	E	2000	Soft	6	28*	2 to 10	55 to 70	15.15	14.86	14.22	12.79
64F339	SC628AHP	E	4500	Med	6	28*	3 to 14	68 to 80	15.15	14.86	14.22	12.79
64F340	SC628AP	E	2900	Med	6	28*	3 to 14	68 to 80	15.15	14.86	14.22	12.79
64F341	SC628DP	E	2000	Med	10	48	3 to 14	68 to 80	11.43	11.24	10.71	9.67
64F342	SC628EP	D	2000	Soft	6	28	2 to 10	55 to 70	11.43	11.24	10.71	9.67
64F343	SC628FP	D	2900	Soft	6	28	2 to 10	55 to 70	11.43	11.24	10.71	9.67
64F312	SC628HP	D	4500	Med	6	28	3 to 14	68 to 80	13.15	12.93	12.33	11.13
64F304	SC628P	D	2900	Med	6	28	3 to 14	68 to 80	11.43	11.24	10.71	9.67
64F344	SC648ADP	E	2000	Med	10	48*	3 to 14	68 to 80	15.15	14.86	14.22	12.79
94F346	SC648AP	E	2900	Med	10	48*	3 to 14	68 to 80	15.15	14.86	14.22	12.79

SLOW PULSE

64F347	SC110DJ	E	2000	Med	30	120*	4 to 16	68 to 80	15.15	14.86	14.22	12.79
64F348	SC110EJ	E	2000	Soft	30	120*	2 to 10	55 to 70	15.15	14.86	14.22	12.79
64F350	SC110HJ	E	4500	Med	30	120*	4 to 16	68 to 80	15.15	14.86	14.22	12.79
64F351	SC110J	E	2900	Med	30	120*	4 to 16	68 to 80	15.15	14.86	14.22	12.79
64F352	SC110NJ	E	2900	Loud	30	120*	4 to 16	80 to 95	15.15	14.86	14.22	12.79
64F353	SC250DJ	E	2000	Med	60	250*	4 to 16	68 to 80	15.15	14.86	14.22	12.79
64F357	SC250J	E	2900	Med	60	250*	4 to 16	68 to 80	15.15	14.86	14.22	12.79
64F359	SC616NJ	C	2900	Loud	6	16	4 to 16	80 to 95	10.11	9.93	9.46	8.54
64F360	SC628ADJ	E	2000	Med	6	28*	3 to 14	68 to 80	15.15	14.86	14.22	12.79
64F362	SC628AFJ	E	2900	Soft	6	28*	2 to 10	55 to 70	15.15	14.86	14.22	12.79
64F364	SC628AJ	E	2900	Med	6	28*	3 to 14	68 to 80	15.15	14.86	14.22	12.79
64F365	SC628DJ	D	2000	Med	6	28	3 to 14	68 to 80	11.43	11.24	10.71	9.67
64F366	SC628EJ	D	2000	Soft	6	28	2 to 10	55 to 70	11.43	11.24	10.71	9.67
64F367	SC628FJ	D	2900	Soft	6	28	2 to 10	55 to 70	11.43	11.24	10.71	9.67
64F368	SC628J	D	2900	Med	6	28	3 to 14	68 to 80	11.43	11.24	10.71	9.67
64F369	SC648ADJ	E	2000	Med	10	48*	3 to 14	68 to 80	15.15	14.86	14.22	12.79
64F371	SC648AJ	E	2900	Med	10	48*	3 to 14	68 to 80	15.15	14.86	14.22	12.79

*AC-DC

FAST WARBLE

64F372	SC628W†	F	2900	Med	6	28	3 to 16	68 to 80	11.43	11.24	10.71	9.67

SLOW WARBLE

64F373	SC628FJW‡	F	2900	Soft	6	28	3 to 14	55 to 70	11.43	11.24	10.71	9.67
64F374	SC628JW†	F	2900	Med	6	28	3 to 16	68 to 80	11.43	11.24	10.71	9.67

†Use with SC628D
‡Use with SC628E

COMPRESSION WASHERS

Compression washers for panel mounting of Type SNP Sonalerts. For panel holes 1.063 ± 0.005 inches in diameter. Mounts from rear of panel.

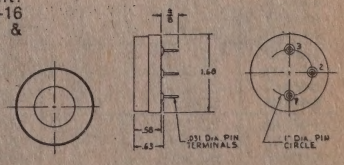
Stock No.	Type	Panel Thickness (in.)	Each
64F375	PW-1	.109 to .125 (11-12 Ga.)	.03
64F376	PW-2	.065 to .093 (13-17 Ga.)	.05
64F377	PW-3	.031 to .050 (18-22 Ga.)	.07

PRINTED BOARD SONALERT

SPECIFICATIONS

STOCK NO.	TYPE	FUNCTION	DC VOLTAGE MIN	DC VOLTAGE MAX	NET
42F968	SBM2	CONT. TONE	1	4	5.75
42F969	SBM428	CONT. TONE	4	28	5.75
42F970	SBM616P	FAST PULSE	6	16	7.48
42F971	SBM616J	SLOW PULSE	6	16	7.48
42F972	SBM616PC	FAST PULSE or CONT. TONE	6	16	8.68
42F973	SBM616JC	SLOW PULSE or CONT. TONE	6	16	8.68

Low profile pin mounted. Hand or wave soldered. Sound level: 64-78db @ 2900 Hz. Oper. current: 2-12 mA max. VDC: 6-16 (except SBM2; 1-5 & SBM428; 4-28).



ERICSSON AUDIBLE SIGNAL DEVICE

BUZZER FOR AC OPERATION

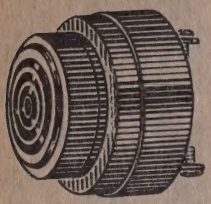
Stock No.	Type	25c/s Oper. VAC	25c/s Imp.	50c/s Oper. VAC	50c/s Imp.	D.C. Resist.	Wt.	NET
92F700	KLG-5103.2	22-90	5600	27-90	7000	3100	0.1	40.00

Suitable for an extra signalling device. The buzzer is mounted on a base plate of zinc-plated sheet metal and has an ivory thermoplastic cover. Size: Height-100mm, Width-77mm, Depth-41mm.

MALLORY

Solid State Signals

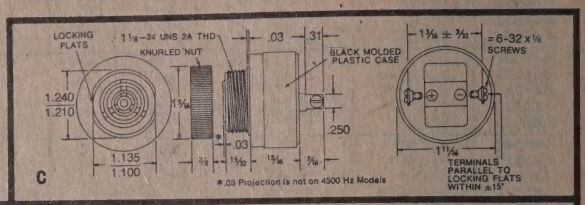
AUDIBLE ELECTRONIC SIGNAL

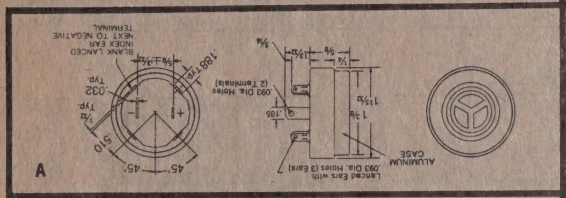


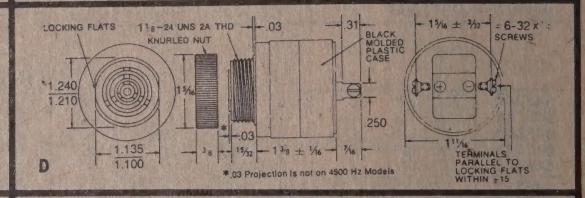
- Compact and Lightweight
- Completely Solid State
- No Moving Parts
- No Arcing, RF Noise or Mechanical Wear
- Self Spray Resistant

Operating Voltage 6 to 250 volts. All Sonalerts, excluding AC models, are polar devices and will not operate when voltage is applied in reverse direction. Operating current 3-14 milliamps. Sound output 68-80 minimum dB depending on voltage. Sound Frequency 1900Hz ±500Hz, 4500Hz ±500 Hz. Withstands storage in temperature ranges from −40°C to +85°C non-operating for 100 hours. After subjection to above storage temp. test and stabilization for 24 hours at room temp., device will meet original specified limits. Sonalert will operate and produce sound over a temp. range of −20°C to +65°C (ambient).

OUTLINE DIMENSIONS




A
ALUMINUM CASE
B
THIS PORTION SNAP-LOCKS INTO PANELS 1/32 TO 1/8 THICK USING APPROPRIATE COMPRESSION WASHER
1.063 DIA. PANEL HOLE REQ'D.
BLACK MOLDED PLASTIC CASE



CONTINUOUS TONE

Stock No.	Type	Case Style	Freq. (Hz)	Loudness	DC Voltage Min.	DC Voltage Max.	Operating Current in mA	Sound Level (dB)	1-24	25-49	50-99	100-249
64F320	SC1.5	A	3500	Soft	1	4	4@1.5V	60@1.5V				
64F321	SC6	A	3500	Soft	4	8	12@6V	70@6V	5.94	5.85	5.58	5.02
64F322	SC12	A	3500	Soft	8	15	14@12V	70@12V				
64F323	SC18	A	3500	Soft	14	22	16@18V	70@18V				
64F324	SC24	A	3500	Soft	20	30	16@24V	70@24V				
64F378	SNP428	B	2900	Med	4	28	1.8 to 14	64 to 78	5.94	5.85	5.58	5.02
64F300	SC628	C	2900	Med	6	28	3 to 14	68 to 80	7.01	6.91	6.59	5.95
64F301	SC628H	C	4500	Med	6	28	3 to 14	68 to 80	7.67	7.54	7.19	6.49
64F306	SC648	C	2900	Med	10	48	3 to 14	68 to 80	7.01	6.91	6.59	5.95
64F270	SC648H	C	4500	Med	10	48	3 to 14	68 to 80	7.67	7.54	7.19	6.49
64F302	SC628A	D	2900	Med	6	28*	3 to 14	68 to 80	10.11	9.93	9.46	8.54
64F313	SC628AH	D	4500	Med	6	28*	3 to 14	68 to 80	13.15	12.93	12.33	11.13
64F271	SC648A	D	2900	Med	10	48*	3 to 14	68 to 80	10.11	9.93	9.46	8.54
64F272	SC648AH	D	4500	Med	10	48*	3 to 14	68 to 80	13.15	12.93	12.33	11.13
64F303	SC110	D	2900	Med	30	120*	4 to 16	68 to 80	10.11	9.93	9.46	8.54
64F273	SC110D	D	2000	Med	30	120*	4 to 16	68 to 80	11.43	11.24	10.71	9.67
64F274	SC110E	D	2000	Soft	30	120*	2 to 10	55 to 70	11.43	11.24	10.71	9.67
64F275	SC110F	D	2900	Soft	30	120*	2 to 10	55 to 70	10.11	9.93	9.46	8.54
64F316	SC110H	D	4500	Med	30	120*	4 to 16	68 to 80	13.15	12.93	12.33	11.13
64F276	SC110N	D	2900	Loud	30	120*	4 to 16	80 to 95	13.15	12.93	12.33	11.13
64F307	SC250	D	2900	Med	60	250*	4 to 16	68 to 80	10.11	9.93	9.46	8.54
64F277	SC250D	D	2000	Med	60	250*	4 to 16	68 to 80	11.43	11.24	10.71	9.67
64F278	SC250E	D	2000	Soft	60	250*	2 to 10	55 to 70	11.43	11.24	10.71	9.67
64F279	SC250F	D	2900	Soft	60	250*	2 to 10	55 to 70	10.11	9.93	9.46	8.54
64F280	SC250H	D	4500	Med	60	250*	4 to 16	68 to 80	13.15	12.93	12.33	11.13
64F282	SC616N	C	2900	Loud	6	16	4 to 16	80 to 95	8.97	8.72	8.31	7.50
64F283	SC628AD	D	2000	Med	6	28*	3 to 14	68 to 80	11.43	11.24	10.71	9.67
64F284	SC628AE	D	2000	Soft	6	28*	2 to 10	55 to 70	11.43	11.24	10.71	9.67
64F285	SC628AF	D	2900	Soft	6	28*	2 to 10	55 to 70	10.11	9.93	9.46	8.54
64F286	SC628D	C	2000	Med	6	28	3 to 14	68 to 80	7.67	7.54	7.19	6.49
64F287	SC628E	C	2000	Soft	6	28	2 to 10	55 to 70	7.67	7.54	7.19	6.49
64F288	SC628F	D	2900	Soft	6	28	2 to 10	55 to 70	7.01	6.91	6.59	5.95
64F289	SC648AD	D	2000	Med	6	28*	3 to 14	68 to 80	11.43	11.24	10.71	9.67
64F290	SC648D	C	2000	Med	10	48	3 to 14	68 to 80	7.67	7.54	7.19	6.49

SHORT PULSE

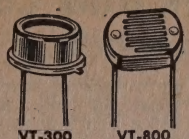
64F291	SC110FK	E	2900	Soft	30	120*	2 to 10	55 to 70	15.15	14.86	14.22	12.79
64F292	SC110K	E	2900	Med	30	120*	4 to 16	68 to 80	15.15	14.86	14.22	12.79
64F297	SC628FK	C	2900	Soft	6	28	2 to 10	55 to 70	11.43	11.24	10.71	9.67
64F298	SC628K	D	2900	Med	6	28	3 to 14	68 to 80	11.43	11.24	10.71	9.67

*AC-DC

Photoconductive Cells

VACTEC, INC.

Cells ideal for circuit board mtg. 2nd digit indicates spectral peak. 0=CdS 5650A, 1=CdSe 7350A, 2=CdS 5150A, *3=CdS 5500A (for high spd. switching), 4=CdSe 6750A. E.g.: VT-312 is Type 1 CdSe 7350A. All have a max. volt. of 300 except (*) 200 and (†) 100. ($) indicates max. dark resis. (ohms) 5 sec. after 2 fc.



VT-300 VT-800

VT-100 (Non-hermetic, Max. Pwr. 200 mW, .365" d. x .065 thk.)

Stock No.	Type	2 fc. Res. in K Ohms	Min. Dark Res. §2 fc	1-99	100-999
61F1016	VT-10L	1.6	100K	1.38	1.06
61F1023	VT-104	136	50 meg		
61F1040	VT-14L*	.6	100K		

VT-700 (Non-hermetic, Max. Pwr. 250 mW, .365 d. x .080 thk.)

43F850	VT-701*	3.0	5 meg	1.01	.75
43F851	VT-721H	4.8	2 meg		
43F852	VT-732	10	10 meg		
43F853	VT-741†	.9	500K		

VT-800 (Non-hermetic, Max. Pwr. 175 mW, .266 d. x .080)

43F854	VT-801*	3	250K	.95	.69
43F856	VT-833	33	15 meg		
43F857	VT-841L†	.9	500K		

VT-900 (Non-hermetic, Max. Pwr. 80 mW, .182 d. x .080)

43F858	VT-902†	8	750K	1.01	.75
43F862	VT-931†	22	1 meg		
43F864	VT-941†	2	500K		

VT-200 (50 mW Max. Pwr., TO-18 Herm. sealed, .183 d. x .150 h.)

Stock No.	Type	2 fc Res. in K ohms	Min. Dark Res. §	1-99	100-499
61F1065	VT-201†	4.3	500K	2.12	1.61
61F1066	VT-202†	8	750K		
61F1069	VT-204	110	20 meg		
61F1071	VT-211†	2.3	500K		
61F1072	VT-211H†	3.5	1 meg		
61F1073	VT-212L†	6	5 meg		
61F1077	VT-214L	64	100 meg		
61F1078	VT-214	140	200 meg		
61F1079	VT-223H	65	5 meg		
61F1082	VT-232†	100	50 meg		
61F1085	VT-234†	700	200 meg		
61F1087	VT-241†	2	500K		
61F1090	VT-242†	15	10 meg		
61F1091	VT-242H†	30	10 meg		

VT-300 (Max. Pwr. 125 mW, TO-5 Herm. sealed, .325 d. x .177 h.)

61F1093	VT-301*	3	200K	2.12	1.61
61F1099	VT-304	144	50 meg		
61F1101	VT-311L*	2.1	500K		
61F1104	VT-314	140	200 meg		
61F1109	VT-333*	28	10 meg		
61F1110	VT-341*	.6	100K		
61F1116	VT-343	28	10 meg		

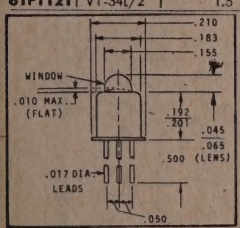
VT-500 (500 mW Max. Pwr., TO-8 Herm. sealed, .486 d. x .220 h.)

61F1123	VT-501*	1.3	100K	2.12	1.61
61F1124	VT-501*	2.6	200K		
61F1125	VT-502L	8	1 meg		
61F1128	VT-512L	9.2	10 meg		
61F1131	VT-523L	36	5 meg		
61F1132	VT-541*	.25	100K		
61F1134	VT-542L	1.5	1 meg		

NOTE: CL504 and 502 have ½" all glass package.

DUAL ELEMENT CELLS (Max. Pwr. 50 mW each ½)

Stock No.	Type	2 fc. Res. in K Ohms	Min. Dark § 2 fc.	1-49	50-99
43F865	VT-301/2	7.5	1 meg	3.11	2.33
61F1117	VT-302/2	16	5 meg		
61F1119	VT-312/2	5	1 meg		
43F868	VT-333/2	60	25 meg		
61F1121	VT-341/2	1.5	100K		



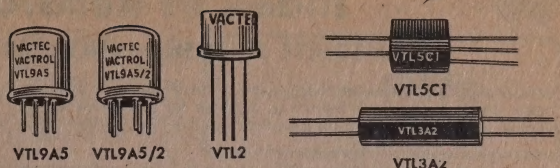
PHOTOTRANSISTORS

In Table: V_{CE}(Sat) at I_C—1mA, I_B—50 μa & dk. is .25V Typ., peak sens. at 850nm. 5mW/cm² source calibrated at 2850°K.

Oper. Temp......150°C
Storage Temp......−65° to +200°C

MAXIMUM RATINGS
Power Dissipation (derate 2 mW/°C above 25°C).....250 mW
Collector Current.....200 mA
Emitter Coll. Volt.....5 V

Stock No.	Type	Typ. I_{CEO}(mA) @ 5 mW/cm², V_{CE}-5 V	Breakdown V $V_{(BR)\ CEO}$ @ I_{CEO}-100 μA	Dark Curr. V_{CE}-20 V 25°C	Dark Curr. V_{CE}-20 V 100°C	1-99	100-999
43F909	VTT1012	.5	50	25 nA	25 uA	1.96	1.38
43F910	VTT1011	1.0	40	25	25	2.12	1.48
43F911	VTT1010	2.0	30	25	25	2.17	1.53
43F912	VTT1013	4.0	20	100	100	2.39	1.67
43F913	VTT1110	2.0	50	25	25	2.28	1.60
43F914	VTT1111	3.5	40	25	25	2.39	1.67
43F915	VTT1112	6.0	30	25	25	2.54	1.78
43F916	VTT1113	12.0	20	100	100	2.65	1.86



VTL9A5 VTL9A5/2 VTL2 VTL5C1 VTL3A2

VTL9 VACTROL—LAMP-PHOTOCONDUCTIVE MODULE

Has .63 dia. x .70" h. with .040 pin base mtg. for PC boards. Min. off-resistance 10 meg except VTL9B6, 1 meg. VTL9A2 equiv. to Clairex CLM4006. VTL9A4 to Clairex CLM5012.

Stock No.	Type	Max. Lamp V.	Lamp mA	Max. On-Ohms	1-49	50-99	100-499
43F870	VTL9A1	1.5	50	400	2.72	2.16	1.81
43F871	VTL9A2	6.0	40	60	3.00	2.40	2.01
43F872	VTL9A3	10.0	14	250	3.10	2.47	2.07
43F873	VTL9A4	10.0	22	300	2.70	2.15	1.80
43F874	VTL9A5	10.0	22	1500	2.70	2.15	1.80
43F877	VTL9A11	12.0	25	600	2.70	2.15	1.80
			NEON TYPES				
43F878	VTL9B6	125	1.5	300	3.07	2.45	2.06
43F879	VTL9B7	125	1.5	800	3.07	2.45	2.06
43F880	VTL9B8	80	.3	2000	3.33	2.66	2.23

VTL2 VACTROLS—LED-PHOTOCONDUCTIVE MODULE

TO-5 hermetic case .325 d. x .265 h. Light emitting diode coupled to efficient photoconductive cell. Operates as low as 1 mW input power to LED. Rated LED current 40 ma. No filaments to burn out. Shock resistant. V_f is 1.65 typ.

Stock No.	Type	Max. on-Ohms @ 40 mA, LED Curr.	Min. Off-Ohms	Max. Decay to	1-49	50-99	100-499
43F881	VTL2C1	10k	10^8	1 meg-3.5 ms	5.41	4.32	3.61
43F882	VTL2C2	500	10^6	100k-500 ms			
43F883	VTL2C3	2k	10^7	100k-35 ms			
43F884	VTL2C4	100	4×10^5	100k-1.5 sec.			

VTL5 VACTROLS—LED-PC MODULE—PLASTIC

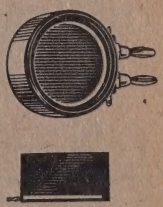
Stock No.	Type	Max. Ohms @ 40 mA LED I.	Max. Decay to 100k	1-49	50-99	100-999
43F885	VTL5C1	500	35 ms	2.58	2.14	1.80
43F886	VTL5C2	500	500 ms			
43F887	VTL5C3	2000	35 ms			
43F888	VTL5C4	200 (@ 10 mA)	1500 ms			
43F889	VTL5C6	3500	50 ms (to 1 meg)			
43F890	VTL5C7	1500	1000 ms			

VTL3 VACTROLS—LAMP-PC MODULE

Stock No.	Type	Lamp Max. V.	Lamp mA	Max. On-Ohms	Max. Cell V.	1-49	50-99	100-499
43F891	VTL3A14	6	40	160	100	2.10	1.67	1.40
43F892	VTL3A17	12	40	160	100	2.10	1.67	1.40
43F893	VTL3A35	10	14	3000	250	2.30	1.84	1.55
43F894	VTL3A44	6	40	55	100	2.10	1.67	1.40
43F895	VTL3A47	12	40	40	100	2.10	1.67	1.40
			NEON TYPES					
43F896	VTL3B19	125	2.0	900	100	1.61	1.36	1.31
43F897	VTL3B49	125	2.0	135	100	1.61	1.36	1.31

SILICON SOLAR CELLS

P & N cells w/high output, spec. leak, curr. Spectral response 400-1200 nm. Typ. junction cap. .15 μF/in.² Response time, 20 sec. Temp. range: −55—+125°C. Temp. coeff. (short ckt.). 0.2%/°C. Open circuit voltage −0.2 mV/°C.



SIZE CHART

Type	Size (cm)	Active Area (cm²)	Type	Size (cm)	Active Area (cm²)
VTS3011	.22 x .51	.084	VTS3022	1.02 x 1.02	.30
VTS3012	.25 x .51	.10	VTS3024	2.03 x 1.02	1.87
VTS3013	.51 x .51	.21	VTS3026	2.03 x 1.02	1.87
VTS3014	1.02 x .51	.42	VTS3028	2.03 x 2.03	3.94
VTS3018	2.03 x .51	.84	VTS3050	2.86 0	5.48
VTS3020	1.02 x 1.02	.90			

Stock No.	Type	Typ. 100 mW/cm² Min. Output mA @ Test V.	2850° K Output 100 fc	2850° K Output Dark Curr. @ .5V (μA)	1-49	50-99	100-499
43F898	VTS3011	1.7 @ .40	.055	1	1.81	1.47	1.27
43F899	VTS3012	2.0 @ .40	.065	2	1.87	1.52	1.30
43F900	VTS3013	4.2 @ .40	.14	5	2.05	1.66	1.43
43F901	VTS3014	8.4 @ .40	.27	10	2.84	2.30	1.98
43F902	VTS3018	17.0 @ .40	.55	40	4.51	3.66	3.16
43F903	VTS3020	18.0 @ .40	.60	50	4.51	3.66	3.16
43F904	VTS3022	21.0 @ .43(2)	.58	50	4.51	3.66	3.16
43F905	TVS3024	38.0 @ .40	1.2	100	7.43	6.03	5.20
43F908	VTS3050	110.0 @ .40	3.5	250	24.02	19.50	16.80

Index of Resistors and Controls

IMMEDIATE SHIPMENT—UNLIMITED QUANTITIES AT FACTORY PRICES

Newark's staff of merchandising experts have carefully selected these resistors, pots, trimmers and controls for a wide variety of electronic installations—from the simple to the highly sophisticated. All items listed are stocked, ready to be shipped at factory OEM prices. See pages 2 and 3 for the Newark facility nearest to you. Call or write your Newark man for additional data on prices.

5

Manufacturer's Type	Page
ALLEN-BRADLEY	
Resistors	
CC (MIL TYPE)	126
CCH (MIL TYPE)	126
RC (MIL TYPE)	125
RCR (MIL TYPE)	125
314, 316 (Cermet networks)	127
Pots and Trimmers	
A	145
D	146
E	145
F	144
G	142
GD	142
MT	146
NP	143
RP	143
RS	143
RT	146
RV4L (MIL TYPE)	139
RV4N (MIL TYPE)	139
S	144
SP	142
W	142
WRA	143
Y	144
70, 72, 73	140
90	146
BOURNS	
H400 (DIALS)	150
H400 (DIALS)	151
H510 (DIALS)	150
H700 (DIALS)	151
H1400 (DIALS)	151
20	149
80	148
200	155
224	155
260	155
271	155
272	157
273	155
274	157
275	155
276	157
3005	155
3006	152
3007	155
3009	152
3012	152
3052	152
3057	155
3059	152
3067	155
3068	157
3069	152
3082	153
3099	153
3250	156
3252	153
3255	156
3260	156
3262	153
3279	153
3280	156
3282	153
3290	156
3292	153
3299	153
3300	156
3305	156
3329	154
3339	154
3345	156
3352	154
3355	157
3359	154
3386	154
3400	150
3500	150
3501	150
3507	150

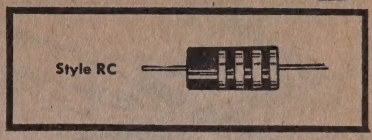
Manufacturer's Type	Page
BOURNS (Cont.)	
3509	150
3520	150
3540	150
3600	157
3610	157
3640	157
3650	157
3683	157
3852	151
3859	151
3862	151
4100 (NETWORK)	149
4300 (NETWORK)	149
6637	151
6657	151
7102B	148
7103C	148
7104D	148
CENTRALAB	
Pots and Controls	
B	147
B16	147
KR (SWITCHES)	147
TRA	147
TSC-1	147
TSF	147
WN	147
WW	147
CLAROSTAT	
Resistors	
VC3D	128
VC5E	128
VC10F	128
Pots	
RA20	159
RA30	159
RV4	158
RV6	158
SC380-3	159
58C1	159
62JA	159
73JA	158
76-JA-3	159
400	159
DALE	
Resistors	
CMF	129
MDP (NETWORK)	129
MSP (NETWORK)	129
RH (MIL TYPE)	130
RS (MIL TYPE)	130
FENWAL	
Thermistors	
CA	138
DB	138
FA	138
FB	138
FP	138
GA	138
GB	138
JA	138
JB	138
JD	138
KA	138
KB	138
KD	138
LA	138
LB	138
NA	138
NB	138
PA	138
PB	138
PT	138
ZB	138

Manufacturer's Type	Page
KEYSTONE	
NTC	136
PTC	136
MALLORY	
Pots and Controls	
L, LW	163
M	163
MG	163
MLC	162
MT	163
MTC-1 (KIT)	162
T	163
U	162
VW	163
OHMITE	
Resistors	
CAB Assortments	132
22	131
44	131
200	133
210	135
270	134
995	131
Power Rheostats	
C	160
E	160
H	160
J	161
K	161
L	161
N	161
R	161
5000 Dial Plates	161
5100 Knobs	161
6500 Coupling Kits	161
Controls	
PCA	160
PCD	160
SPECTROL	
Pots and Trimmers	
43	165
50	166
53	165
55	166
62	164
63, 64	164
65	164
70	165
84	166
132	167
140	167
162	167
533	167
534	168
830	167
860	168
Counting Dials	
11	168
15	168
21	168
SPRAGUE	
Resistors	
242	128
243	128
247	128
450	128
452	128
456	128
YELLOW SPRINGS INSTRUMENT	
Thermistors	
44000	137
Probes	
700	719

Allen-Bradley Resistors

INDUSTRIAL GRADE AND MIL-R-11 STYLE RC

Hot-molded fixed composition resistors are designed for general purpose use in electronic equipment, and are unequalled for uniformity, predictable performance, appearance, and freedom from catastrophic failure when used according to published ratings and recommendations. The tightly compressed resistance material has a large cross-section resulting in low current density and high overload capacity. Uniformity of the material reduces hot spots and noise.



5% TOLERANCE SOLD IN STANDARD PKG. ONLY

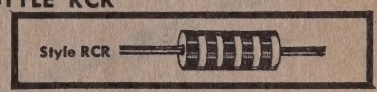
Stock No.	Watt	Mil-R-11 Style	A-B Type	Size	Volt	Ohms	Std. Pkg.	Each 25-75	Each 100-225	Each 250-475	Each 500-975
10F300	⅛	RC05	BB	.145" x .062"	150	2.7-9.1†	50	.33	.16	.16	.14
						10-22M	50	.30	.15	.14	.13
10F305	¼	RC07	CB	.250" x .090"	250	2.7-9.1	50	.13	.09	.08	.07
						10-22M	50	.12	.09	.07	.06
10F310	½	RC20	EB	.375" x .140"	350	1.0-2.4†	50	.15	.10	.08	.07
						2.7-22M	50	.14	.09	.08	.07
10F315	1	RC32	GB	.562" x .225"	500	2.7-22M	25	.20	.10	.09	.08
10F320	2	RC42	HB	.688" x .312"	750‡	10-22M	25	.34	.17	.16	.16

10% TOLERANCE SOLD IN STANDARD PKG. ONLY

10F325	⅛	RC05	BB	.145" x .062"	150	2.7-8.2†	50	.23	.12	.11	.09
						10-22M	50	.21	.11	.10	.09
10F330	¼	RC07	CB	.250" x .090"	250	2.7-8.2	50	.08	.07	.05	.04
						10-22M	50	.07	.06	.05	.04
10F335	½	RC20	EB	.375" x .140"	350	1.0-2.2†	50	.09	.07	.06	.04
						2.7-22M	50	.08	.06	.05	.04
10F340	1	RC32	GB	.562" x .225"	500	2.7-22M	25	.11	.07	.06	.05
10F345	2	RC42	HB	.688" x .312"	750‡	10-22M	25	.23	.12	.11	.10

ESTABLISHED RELIABILITY MIL-R 39008 STYLE RCR

Style RCR resistors not only meet the requirements of MIL-R-39008, but also far exceed the "S" level of established reliability 0.001% failure rate per 1000 hours, Resistors are available in "S" level reliability in all five wattage sizes over the entire resistance range. The "S" reliability level is indicated by a yellow 5th color band on body.



5% TOLERANCE SOLD IN STANDARD PKG. ONLY

10F350	⅛	RCR05	BB	.145" x .062"	150	2.7-9.1	50	.35	.18	.17	.15
						10-22M	50	.32	.16	.15	.14
10F355	¼	RCR07	CB	.250" x .090"	250	2.7-9.1	50	.14	.10	.09	.07
						10-22M	50	.13	.09	.08	.07
10F360	½	RCR20	EB	.375" x .140"	350	2.7-22M	50	.15	.09	.08	.07
						1.0-2.4	50	.17	.10	.09	.08
10F365	1	RCR32	GB	.562" x .225"	500	2.7-22M	25	.21	.11	.10	.09
10F390	2	RCR42	HB	.688" x .312"	750‡	10-22M	25	.36	.19	.18	.17

10% TOLERANCE SOLD IN STANDARD PKG. ONLY

10F370	⅛	RCR05	BB	.145" x .062"	150	2.7-8.2	50	.24	.13	.11	.10
						10-22M	50	.22	.12	.10	.09
10F375	¼	RCR07	CB	.250" x .090"	250	2.7-8.2	50	.10	.07	.06	.04
						10-22M	50	.09	.06	.06	.04
10F380	½	RCR20	EB	.375" x .140"	350	2.7-22M	50	.10	.07	.06	.04
						1.0-2.4	50	.11	.07	.06	.05
10F385	1	RCR32	GB	.562" x .225"	500	2.7-22M	25	.12	.07	.06	.05
10F395	2	RCR42	HB	.688" x .312"	750‡	10-22M	25	.24	.13	.12	.11

(†) Resistance range for Industrial Grade only. (‡) 500 V for style RC and RCR

STANDARD NOM. RESISTANCE VALUES

Figures in large bold type are ±10% values. All values available in ±5% tolerance.

Ohms

1.0	5.1	**27**	130	**680**	3600	**18000**	91000
1.1	**5.6**	30	**150**	750	**3900**	20000	**100000**
1.2	6.2	**33**	160	**820**	4300	**22000**	110000
1.3	**6.8**	36	**180**	910	**4700**	24000	**120000**
1.5	7.5	**39**	200	**1000**	5100	**27000**	130000
1.6	**8.2**	43	**220**	1100	**5600**	30000	**150000**
1.8	9.1	**47**	240	**1200**	6200	**33000**	160000
2.0	**10**	51	**270**	1300	**6800**	36000	**180000**
2.2	11	**56**	300	**1500**	7500	**39000**	200000
2.4	**12**	62	**330**	1600	**8200**	43000	**220000**
2.7	13	**68**	360	**1800**	9100	**47000**	
3.0	**15**	75	**390**	2000	**10000**	51000	
3.3	16	**82**	430	**2200**	11000	**56000**	
3.6	**18**	91	**470**	2400	**12000**	62000	
3.9	20	**100**	510	**2700**	13000	**68000**	
4.3	**22**	110	**560**	3000	**15000**	75000	
4.7	24	**120**	620	**3300**	16000	**82000**	

Megohms

0.24	0.43	0.75	1.3	2.4	4.3	7.5	13.0
0.27	**0.47**	**0.82**	**1.5**	**2.7**	**4.7**	**8.2**	**15.0**
0.30	0.51	0.91	1.6	3.0	5.1	9.1	16.0
0.33	**0.56**	**1.0**	**1.8**	**3.3**	**5.6**	**10.0**	**18.0**
0.36	0.62	1.1	2.0	3.6	6.2	11.0	20.0
0.38	**0.68**	**1.2**	**2.2**	**3.9**	**6.8**	**12.0**	**22.0**

HOW TO ORDER

A-B INDUSTRIAL GRADE

EB — 514 — 5

(A) (C) (D)

MIL-R-11 STYLE RC

RC20 — GF — 514 — J

(A) (B) (C) (D)

MIL-R-3900R STYLE RCR

RCR05 — G — 541 — J — S

(A) (B) (C) (D) (E)

(A) A-B Type No. or MIL-Style No.

A-B Type	MIL-R-11 Style	MIL-R-39008 Style	Rating, Watts
BB	RC05	RCR05	⅛
CB	RC07	RCR07	¼
EB	RC20	RCR20	½
GB	RC32	RCR32	1
HB	RC42	RCR42	2

(B) For MIL types only; maximum ambient temperature and resistance-temperature characteristic per MIL-R-11 or MIL-R-39008. See Allen-Bradley **Publication EC21** for actual performance limits.

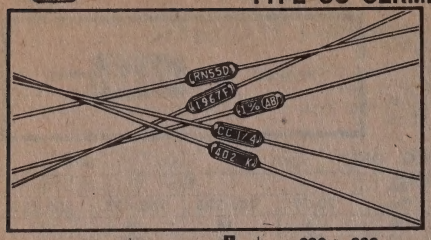
(C) Three-digit number represents resistance. First two digits are significant figures, third is number of zeros that follow. **For values less than 10 ohms:** Industrial Grade; substitute **G** for third digit, making desired resistance value the first two digits multiplied by 0.1—e.g., **27G**=2.7 ohms; for MIL-R-11 and MIL-R-39008 substitute **R** for decimal point—e.g., **2R7**=2.7 ohms.

(D) Tolerance: Code for ±5% is **5** for Industrial Grade, **J** for MIL types; ±10% is **1** for **Industrial** Grade, **K** for MIL types.

(E) MIL-R-39008 resistors only; expresses Failure Rate Level at 50% rated wattage in % per 1,000 hours: M=1.0%, P=0.1%, R=0.01%, S=0.001%. Available only in "S" level.

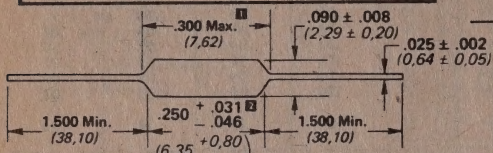
Cermet Resistors

*TYPE CC CERMET FILM FIXED MIL-R-10509 STYLE RN55D



Over forty years of fixed resistor know-how and fifteen years of experience in metal film resistance elements has combined our technological and manufacturing knowledge to produce consistent quality cermet film fixed resistors. Resistances from 10 ohms to 22.1 megohms. Size: .25 inch (6.35 mm) long by .09 inch (2.29 mm) diameter. Tolerance: 1% TCR 100 parts per million. Power Rating: .125 watt @ 125°C., .25 watt @ 70°C. and .5 watt @ 70°C. MIL-R-10509.

Stock No.	Type	MIL-R-10509 Style	Res. Range Ohms	50	100-250	300-1000	1050-5000
10F3000	CC	RN55D (10 to 301K ohms)	10 to 1 Meg.	.38	.18	.12	.09
10F3500	CC	...	1.02 to 22.1 Meg.	.95	.37	.20	.17

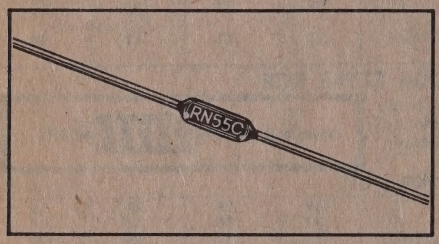


1 Maximum length is "clean lead" to "clean lead"
2 The end of the body is that point at which the body diameter equals .038 *(0,97)*
Basic dimensions in inches — *ITALICS* are in millimeters

STANDARD DECADE — 1%

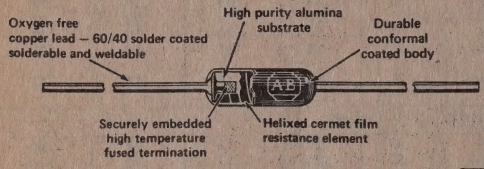
10.0	10.2	10.5	10.7	11.0	11.3	11.5	11.8
12.1	12.4	12.7	13.0	13.3	13.7	14.0	14.3
14.7	15.0	15.4	15.8	16.2	16.5	16.9	17.4
17.8	18.2	18.7	19.1	19.6	20.0	20.5	21.0
21.5	22.1	22.6	23.2	23.7	24.3	24.9	25.5
26.1	26.7	27.4	28.0	28.7	29.4	30.1	30.9
31.6	32.4	33.2	34.0	34.8	35.7	36.5	37.4
38.3	39.2	40.2	41.2	42.2	43.2	44.2	45.3
46.4	47.5	48.7	49.9	51.1	52.3	53.6	54.9
56.2	57.6	59.0	60.4	61.9	63.4	64.9	66.5
68.1	69.8	71.5	73.2	75.0	76.8	78.7	80.6
82.5	84.5	86.6	88.7	90.9	93.1	95.3	97.6

*TYPE CCH CERMET FILM FIXED MIL-R-10509F STYLE RN55C



Over forty years of fixed resistor know-how and fifteen years of experience in metal film resistance elements has combined our technological and manufacturing knowledge to produce consistent quality cermet film fixed resistors. Type CCH is truly the new standard of quality in the film resistor field. Resistance from 10 to 499K ohms. Size: .25 inch (6.35 mm) long by .09 inch (2.29 mm) diameter. Tolerance: 1% and .5%. TCR 50 part per million. Power Rating: .125 watt @ 125°C, .25 watt @ 70°C and .5 watt @ 70°C.

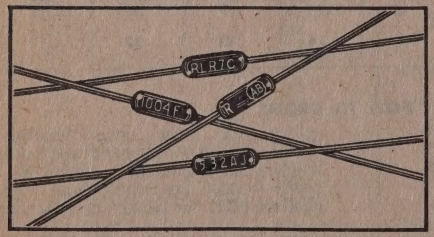
Stock No.	Type	MIL-R-10509F Style	Res. Range Ohms	50	100-250	300-1000	1050-5000
10F4700	CCH	RN55C	10 to 499K	.38	.20	.14	.11


Oxygen free copper lead — 60/40 solder coated solderable and weldable
High purity alumina substrate
Durable conformal coated body
Securely embedded high temperature fused termination
Helixed cermet film resistance element

STANDARD DECADE — 1%

10.0	10.2	10.5	10.7	11.0	11.3	11.5	11.8
12.1	12.4	12.7	13.0	13.3	13.7	14.0	14.3
14.7	15.0	15.4	15.8	16.2	16.5	16.9	17.4
17.8	18.2	18.7	19.1	19.6	20.0	20.5	21.0
21.5	22.1	22.6	23.2	23.7	24.3	24.9	25.5
26.1	26.7	27.4	28.0	28.7	29.4	30.1	30.9
31.6	32.4	33.2	34.0	34.8	35.7	36.5	37.4
38.3	39.2	40.2	41.2	42.2	43.2	44.2	45.3
46.4	47.5	48.7	49.9	51.1	52.3	53.6	54.9
56.2	57.6	59.0	60.4	61.9	63.4	64.9	66.5
68.1	69.8	71.5	73.2	75.0	76.8	78.7	80.6
82.5	84.5	86.6	88.7	90.9	93.1	95.3	97.6

*TYPE CC CERMET FILM FIXED MIL-R-39017C STYLE RLR07



These Type CC resistors are approved under military specification MIL-R-39017C for style RLR07. All have the performance characteristics of Type CC above, plus established reliability data as required by the specification. Resistors under specification revision C have resistance-temperature of ±100 PPM/°C and are available in 2% tolerance using the E24 preferred number series for standard resistance values.

Stock No.	Type	MIL-R-39017C Style	Res. Range Ohms	50	100-250	300-1000	1050-5000
10F4800	CC	RLR07	10 to 1 Meg.	.45	.34	.20	.16
			1.1 Meg. to 22 Meg.	.92	.70	.33	.30

RLR07. 1% version available from Newark on special order. Minimum order 100, order in multiples of 100.

STANDARD RESISTANCE VALUES — 2%

10	47	220	1000	4300	18000	75000	0.33M	1.30M	5.60M
11	51	240	1100	4700	20000	82000	0.36M	1.50M	6.20M
12	56	270	1200	5100	22000	91000	0.39M	1.60M	6.80M
13	62	300	1300	5600	24000	0.10M	0.43M	1.80M	7.50M
15	68	330	1500	6200	27000	0.11M	0.47M	2.00M	8.20M
16	75	360	1600	6800	30000	0.12M	0.51M	2.20M	9.10M
18	82	390	1800	7500	33000	0.13M	0.56M	2.40M	10.00M
20	91	430	2000	8200	36000	0.15M	0.62M	2.70M	11.00M
22	100	470	2200	9100	39000	0.16M	0.68M	3.00M	12.00M
24	110	510	2400	10000	43000	0.18M	0.75M	3.30M	13.00M
27	120	560	2700	11000	47000	0.20M	0.82M	3.60M	15.00M
30	130	620	3000	12000	51000	0.22M	0.91M	3.90M	16.00M
33	150	680	3300	13000	56000	0.24M	1.00M	4.30M	18.00M
36	160	750	3600	15000	62000	0.27M	1.10M	4.70M	20.00M
39	180	820	3900	16000	68000	0.30M	1.20M	5.10M	22.00M
43	200	910							

***Sold Only In Multiples of 50.**

MIL-R-39017C PART NUMBERING EXPLANATION

RLR 07 C 1002 F R

TYPE
Resistor, fixed, film, insulated, established reliability

SIZE/POWER RATING
07 = 1/4 W @ 70° C

TERMINAL
Solderable/weldable

RESISTANCE VALUE
First 3 digits significant, 4th digit "number of zeros" For values below 100 ohms, letter R is decimal point, with all digits significant.

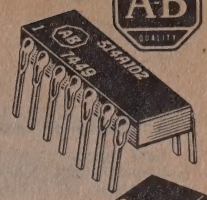
TOLERANCE
F = 1% G = 2%

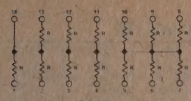
FAILURE RATE
M = 1.0%/1000 hr.
P = 0.1%/1000 hr.
R = 0.01%/1000 hr.

- Solid Ceramic Body
- Solder Coated Leads
- 14/16 Pin Construction
- Auto Insertable

Cermet Resistor Networks

SERIES 314-316

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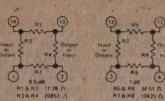
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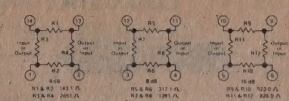
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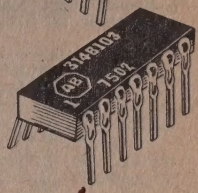

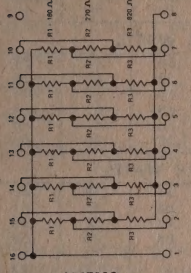
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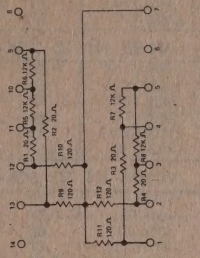
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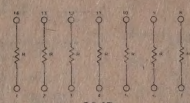
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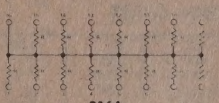
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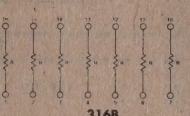
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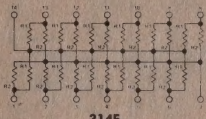
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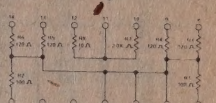
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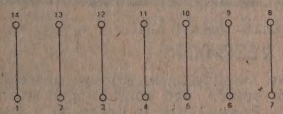
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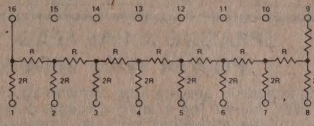
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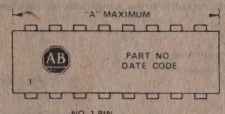
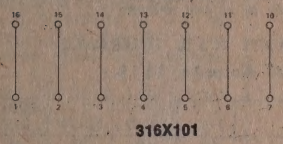


"A" Maximum		Number of Leads
Decimal	Metric	
.745	18,92	14
.845	21,46	16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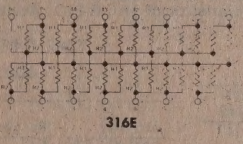
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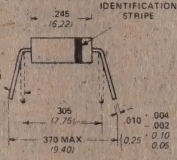
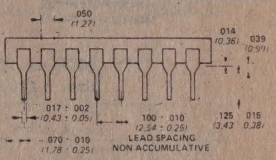
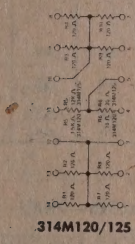





314M120/125

STANDARD NETWORK APPLICATIONS

314A 316A	314B 316B	314E 316E	314M110 314M120 314M125	314M130	316T110	314Z	316L08	314X101 316X101
Pull-Up Resistor Arrays for Unused TTL Gates.	Trans. Line Term. Power Gate	Digital Line Term. ECL & TTL	Complement 7520 Series of Core Memory	Core Memory Sense Line Appli.	TTL to ECL Translator Network.	Fixed Voltage Attentuation with Impedance Matching	8 Bit R/2R Ladder. Network for D/A and A/D	Interconnect Networks. Storing Applications. Matrix
Parallel High Speed Circuitry TTL-MOS Interfacing	Pull-Up. Current Limiting. Logic Level Trans.	Appli.	Sense Amps	w/Two Dual Voltage Comparators.			Converter. with Bi Polar or CMOS Switches.	Interconnections. Test Plugs.

STANDARD RESISTANCE VALUES

SERIES 314A, 314B, 316A AND 316B RESISTOR NETWORKS

22	110	560	3000	13K	68K
24	120	620	3300	15K	75K
27	130	680	3600	16K	82K
30	150	750	3900	18K	91K
33	160	820	4300	20K	100K
36	180	910	4700	22K	120K
39	200	1000	5100	24K	150K
43	220	1100	5600	27K	180K
47	240	1200	6000	30K	220K
51	270	1300	6200	33K	270K
56	300	1500	6800	36K	330K
62	330	1600	7500	39K	390K
68	360	1800	8200	43K	470K
75	390	2000	9100	47K	560K
82	430	2200	10K	51K	680K
91	470	2400	11K	56K	1M
100	510	2700	12K	62K	

SERIES 314E AND 316E RESISTOR NETWORKS

R1/R2	Zo (Characteristic Impedance)	R1/R2	Zo (Characteristic Impedance)
81/130	50	220/330	132
120/200	75	330/390	179
90/660	80	330/470	194
130/210	80	330/680	222
160/260	100	1.5K/3.3K	1.03K
220/270	121	3K/6.2K	2.02K
180/390	123		

SERIES 316L08

R (Ohms)
25K
50K
100K

STANDARD NETWORK SPECIFICATIONS

Netwk.	Res. Tol.	Temp. Coeff. of Res. (ppm/°C)	Power Dissipation Rating (Up to 70°C Ambient)	Oper. Temp. Range
314A	±2%	±100	125 mw/res 1.6 watt/pkg	−55°C to +125°C
314B			250 mw/res 1.6 watt/pkg	
316A			125mw/res 1.8 watt/pkg	
316B			250 mw/res 1.8 watt/pkg	
314E	±2%	±100	125 mw/res 1.6 watt/pkg	−55°C to +125°C
316E			125 mw/res 1.8 watt/pkg	

PRICING INFORMATION

Stk. No.	Type	1-24	25-99	100-249	250-499
10F3800	314A	1.20	1.10	0.95	0.77
10F3900	314B	1.15	1.07	.93	.75
10F4000	316A	1.25	1.13	.98	.79
10F4100	316B	1.20	1.10	.95	.77
10F4200	314E	2.15	2.00	1.75	1.40
10F4210	316E	2.32	2.14	1.88	1.50
10F4220	316L08	3.25	2.65	2.35	2.20
10F4230	314M110	1.90	1.77	1.55	1.24
10F4211	314M120	1.75	1.61	1.40	1.12
10F4212	314M125	1.75	1.61	1.40	1.12
10F4213	314M130	2.50	2.32	2.03	1.60
10F4215	316T110	2.25	2.12	1.83	1.46
10F4216	314Z1001	3.25	2.65	2.35	2.20
10F4217	314Z1002	3.25	2.65	2.35	2.20
10F4218	314X101	.95	.80	.71	.67
10F4219	316X101	.98	.83	.74	.69

Axial Lead Resistors

CLAROSTAT AXIAL LEAD RESISTORS

- **Tolerance of ±5%**

Save space through elimination of mounting brackets and terminal lugs. Standard resistance tolerance is ±5%. Color tealgreen.

OHM CHART

1	30	180	600	2K	6.8K	18K
1.5	33	200	680	2.2K	7K	20K
2	35	220	700	2.25K	7.5K	22K
3	39	225	750	2.5K	8K	22.5K
4	40	250	800	2.7K	8.2K	25K
5	47	270	820	3K	8.5K	27K
7.5	50	300	900	3.3K	9K	30K
10	56	330	1K	3.5K	10K	33K
12	68	350	1.1K	3.9K	11K	35K
15	75	390	1.2K	4K	12K	39K
18	82	400	1.25K	4.5K	12.5K	40K
20	100	450	1.3K	4.7K	13.5K	45K
22	120	470	1.5K	5K	15K	47K
25	125	500	1.75K	5.6K	16K	50K
27	150	560	1.8K	6K	17.5K	

VC3D 1Ω TO 10K—3 WATTS

Stock No.	Range Ohms	1-9	10-24	25-99	100-249
12F480	1.0-100	.65	.56	.45	.36
	101-2.5K	.59	.52	.41	.33
	2501-5.5K	.68	.58	.47	.36
	5501-7.5K	.73	.63	.50	.41
	7501-10K	.85	.74	.59	.48

VC5E 1Ω TO 25K—5 WATTS

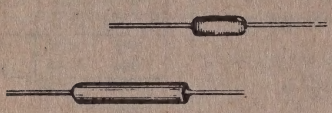
12F481	1.0-1K	.65	.56	.44	.36
	1001-5K	.68	.58	.47	.38
	5001-10K	.73	.63	.50	.41
	10001-15K	.84	.68	.53	.44
	15001-20K	.88	.76	.61	.50
	20001-25K	1.17	1.00	.80	.66

VC10F 1Ω TO 50K—10 WATTS

12F482	1.0-1K	.70	.61	.48	.40
	1001-5K	.77	.68	.53	.44
	5001-10K	.85	.74	.59	.48
	10001-20K	.97	.84	.68	.55
	20001-40K	1.09	.96	.76	.62
	40001-50K	1.29	1.11	.89	.73

5

SPRAGUE AXIAL LEAD "BLUE JACKET" POWER WIRE WOUND RESISTORS



Designed for industrial applications demanding utmost stability under extreme operating conditions. Well suited for printed circuits, terminal boards, and point-to-point wiring applications. Unique all-welded end-cap construction. Power rating is based on a max. temperature rise of 300°C above a 40° ambient at full rated wattage. Will meet performance characteristics of MIL-R-26C. Available only in values shown.

TYPE 242E—3 WATT ±5% TOLERANCE
Size: 13/64" dia. x 17/32"L.

Stk. No.	Range (ohms)	1-9	10-49	50-99	100-249
13F121	1 thru 7.5	.78	.67	.55	.47
13F121	10 thru 1000 except 35, 350 450 and 750	.66	.56	.46	.39
13F122	1100 thru 5000 except 3.5K & 4.5K	.72	.62	.51	.44
13F123	5600 thru 10K except 7K	.82	.69	.57	.49

TYPE 247E—10 WATT ±5% TOLERANCE
Size: 5/16" dia. x 1¾" L.

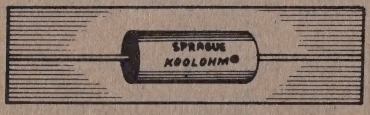
Stk. No.	Range (above)	1-9	10-49	50-99	100-249
13F132	1 thru 7.5	1.12	.95	.78	.68
13F132	10 thru 1000 except 35, 350, 450 and 750	.99	.85	.70	.59
13F133	1100 thru 5000 except 3.5K and 4.5K	1.06	.90	.74	.63
13F134	6000 thru 10K except 7K	1.12	.95	.78	.68
13F330	12K thru 20K	1.22	1.04	.86	.73
13F331	22K thru 30K	1.43	1.22	1.00	.86
13F332	40K	1.43	1.22	1.00	.86

TYPE 243E—5 WATT ±5% TOLERANCE
Size: 13/64" dia. x 15/16" L.

Stk. No.	Range (ohms)	1-9	10-49	50-99	100-249
13F124	1 thru 7.5	.82	.69	.57	.49
13F124	10 thru 1000 except 18 22, 27, 33, 39, 47, 56, 68, 82, 180, 270, 330, 390, 470, 560, 680, 820	.69	.58	.49	.42
13F126	1100 thru 5000 except 2700. 3300, 3900, 4700	.75	.64	.53	.46
13F127	6000 thru 10K except 6800, 8200	.78	.67	.55	.47
13F128	12K thru 20K except 16K, 17K	.90	.76	.64	.54

TABLE A—"BLUE JACKET" VALUES—OHMS

1	12	33	75	250	470	820	2000	4000	7500	15K	35K
1.5	15	35	82	270	500	900	2200	4500	8000	16K	40K
2	18	39	100	300	560	1000	2500	4700	8200	17K	45K
3	20	40	120	330	600	1100	2700	5000	9000	18K	50K
4	22	47	150	350	680	1200	3000	5600	10K	20K	
5	25	50	180	390	700	1400	3300	6000	11K	22K	
7.5	27	56	200	400	750	1500	3500	6800	12K	25K	
10	30	68	220	450	800	1800	3900	7000	14K	30K	



KOOLOHM® AXIAL LEAD WIRE WOUND RESISTORS

Unexcelled insulation and mechanical protection. Nonporous tubular ceramic shells are sealed with high temperature silicone cement. Can be mounted in direct contact with chassis. Ceramic-insulated wire is space wound and cemented, to prevent turn-to-turn shorting. Permits higher resistance values in a given size than in conventonal resistors. Windings and leads welded to end-cap for superior mechanical strength. Tolerance, ±5%. Av. shipping wt. per 25, 8 oz.

TYPE 450E-3 WATTS (½" by 9/16")

Stk. No.	Range (ohms)	1-9	10-49	50-99	100-249
13F334	1 to 7.5	1.08	.92	.76	.65
13F334	10 to 1000	.96	.81	.67	.58
13F335	1200 to 5000	1.04	.88	.73	.63
13F336	6K to 10K	1.06	.90	.74	.63

TYPE 452E-5 WATTS (¼" x1")

13F337	1 to 7.5	1.17	.99	.82	.70
13F337	10 to 250	1.04	.88	.73	.62
13F337	300 to 1000	1.04	.88	.73	.62
13F338	1100 to 5000	1.06	.90	.74	.64
13F339	6000 to 10K	1.18	1.00	.83	.71
13F343	12K to 20K	1.28	1.09	.90	.77

TYPE 456 E-10 WATTS (15/32" x 1-29/32")

Stk. No.	Range (ohms)	1-9	10-49	50-99	100-249
13F340	1 to 7.5	1.28	1.09	.90	.77
13F340	10 to 1000	1.13	.95	.78	.67
13F341	1100 to 5000	1.25	1.06	.88	.75
13F342	6000 to 10K	1.40	1.19	.98	.84
13F344	11K to 20K	1.54	1.31	1.16	.92
13F345	22K to 40K	1.61	1.37	1.13	.97
13F346	45K to 70K	1.83	1.56	1.28	1.10

TABLE B—KOOLOHM VALUES—OHMS

1	15	100	400	2000	11K	20K	45K
2	20	150	500	2500	12K	22K	50K
3	25	200	600	3000	14K	25K	60K
5	40	220	900	5000	15K	30K	70K
10	50	250	1000	6000	16K	35K	
12	75	300	1500	10K	18K	40K	

Resistors

DALE®

MILITARY STYLE METAL FILM RESISTORS

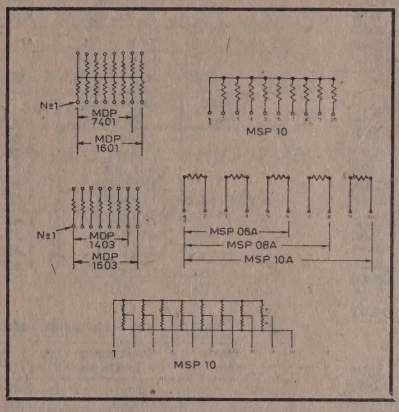
Stock No.	Dale Type	Mil Type	Rating 125°C watt	Rating 70°C watt	TC Code	20-99	100-239	240-499
58F001	CMF-55	RN-55D	1/10	1/8	T-10 ± 100 ppm/°C 30.1Ω-499K	.29	.19	.14
58F002	CMF-60	RN-60D	1/8	1/4	T-10 ± 100 ppm/°C 24.9Ω-1 Meg.	.29	.19	.14
58F003	CMF-65	RN-65D	1/4	1/2	T-10 ± 100 ppm/°C 24.9Ω-2 Meg.	.44	.25	.19
58F005	CMF-55	RN-55C	1/10	1/8	T-20 ± 50 ppm/°C 30.1Ω-301K	.39	.27	.18
58F006	CMF-60	RN-60C	1/8	1/4	T-20 ± 50 ppm/°C 30.1Ω-499K	.39	.27	.18
58F007	CMF-65	RN-65C	1/4	1/2	T-20 ± 50 ppm/°C 30.1Ω-1 Meg.	.60	.34	.21

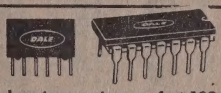
SOLD IN MULTIPLES OF 20 ONLY.

Meet a variety of industrial and military applications. Vacuum deposited metal film resistors have inherently good RF characteristics and low noise level. Epoxy-coated construction protects against severe environmental factors. 1% tolerance. Meets MIL-R-10509. For price quotes on larger quantities contact your Newark salesman.

MSP06 (A or C) 01, MSP08 (A or C) 01, MSP10 (A or C) 01. Used for: Mos/ROM Pull-up/Pull-down. Open Collector, "WIRED OR," Power Driven, TTL Unused Gate, High Speed Parallel Pull-ups. TTL Pull-down, Digital Pulse Squaring.

MSP06 (A or C) 03, MSP08 (A or C) 03, MSP10 (A or C) 03. Used for: "WIRED OR," Power Driven, Power Gate, Pull-ups. Line Term., Long Line Impedance Balancing, LED Current Limiting, ELC Output Pull-down, TTL Input Pull-down.





SIP AND DIP RESISTOR NETWORKS

- **Low temperature coef. ±100 PPM/C° (55°C to +125°C stnd.)**
- **Resistance tolerance ±2% standard**

Stk. No.	Type MDP	1-49	50-99	100-249	250-499
68F100	1401-XXXG	**1.15**	**.95**	**.75**	**.65**
68F101	1601-XXXG	**1.20**	**.98**	**.78**	**.68**
68F102	1403-XXXG	**1.15**	**.95**	**.75**	**.65**
68F103	1603-XXXG	**1.20**	**.98**	**.78**	**.68**
Stk. No.	**Type MSP**	**1-49**	**50-99**	**100-249**	**250-499**
68F104	06A01-XXXG				
68F105	06A03-XXXG				
68F106	06C01-XXXG	.55	.55	.45	.38
68F107	06C03-XXXG				
68F108	08A01-XXXG				
68F109	08A03-XXXG				
68F110	08C01-XXXG	.58	.58	.47	.40
68F111	08C03-XXXG				
68F112	10A01-XXXG				
68F113	10A03-XXXG				
68F114	10C01-XXXG	.60	.60	.49	.41
68F115	10C03-XXXG				

STANDARD VALUES (01, 03 SCHEMATICS)

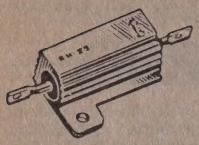
OHMS	MDP1401	MDP1601	MDP1403	MDP1603	MSP (06, 08, 10) A (01, 03)	MSP (06, 08, 10) C01	MSP (06, 08, 10) C03
22	X	X	X	X	X		
24			X				
27	X		X				
30			X				
33	X	X	X	X	X	X	X
36			X				
39	X	X	X	X	X	X	
43			X				
47	X	X	X	X	X	X	X
51	X		X				
56	X	X	X	X	X	X	X
62			X	X			
68	X	X	X	X	X	X	X
75	X		X				
82	X	X	X	X	X	X	
91	X		X				
100	X	X	X	X	X	X	X
110		X	X	X	X		
120	X	X	X	X	X	X	X
130	X		X				
150	X	X	X	X	X	X	X
160	X		X				
180	X	X	X	X	X	X	X
200	X		X				
220	X	X	X	X	X	X	X
240	X		X				
270	X	X	X	X	X	X	X
300			X				
330	X	X	X	X	X	X	X
360			X				
390	X	X	X	X	X	X	X
430			X				
470	X	X	X	X	X	X	X
510	X	X	X		X	X	
560	X	X	X	X	X	X	
620	X		X				
680	X	X	X	X	X	X	X
750			X				
820	X	X	X	X	X	X	
910			X				
1K	X	X	X	X	X	X	X
1.1K			X				
1.2K	X	X	X	X	X	X	
1.3K	X		X				
1.5K	X	X	X	X	X	X	X

Dual terminating and pulse squaring models available. Contact your nearest NEWARK office.

DALE®

Precision Resistors

TYPE RH MIL-R-18546



Designed to meet MIL-R-18546 specifications. Provides a flat surface and recommended for chassis mounting to assure proper heat dissipation. Molded construction and gold anodized finned-aluminum radiator housing. 100% impervious to moisture and salt spray. Heavy duty leads.

RH-5 ±1%—7.5 WATT MIL. NO. RE60
RH-10 ±1%—12.5 WATT MIL. NO. RE65

Stock No.	Resistance in Ohms	1-24	25-49	50-99	100-249
RH-5 13F1878	1.0-1K	2.57	2.06	1.93	1.79
	1.1-5K	2.69	2.16	2.02	1.89
	5.1-10K	2.94	2.34	2.20	2.06
	10.1-12K	3.22	2.57	2.42	2.25
RH-10 13F139	12.1-15K	3.49	2.79	2.63	2.45
	15.1-25K	3.75	3.45	3.13	2.80
	25.1-40K	4.18	3.82	3.47	3.12
	40.1-47.1K	4.58	4.19	3.81	3.48

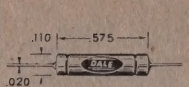
RH-25 ±1%—25 WATT MIL. NO. RE70

Stock No.	Resistance in Ohms	1-24	25-49	50-99	100-249
13F140	1.0-1K	2.57	2.06	1.93	1.79
	1.1-5K	2.69	2.16	2.02	1.89
	5.1-10K	2.93	2.34	2.20	2.05
	10.1-12K	3.22	2.57	2.42	2.25
	12.1-15K	3.50	2.80	2.64	2.46
	15.1-25K	3.75	3.45	3.13	2.80
	25.1-40K	4.18	3.82	3.47	3.12
	40.1-50K	4.58	4.19	3.81	3.48
	50.1-60K	5.00	4.56	4.11	3.64
	60.1-75K	5.44	4.96	4.45	3.96
	75.1-95.2K	5.99	5.44	4.90	4.41

RH-50 ±1%—50 WATT MIL. NO. RE75

Stock No.	Resistance in Ohms	1-24	25-49	50-99	100-249
13F141	1.0-5.9Ω	3.50	3.18	2.82	2.59
	6.0-1K	3.15	2.52	2.35	2.20
	1.1-5K	3.28	2.65	2.48	2.31
	5.1-10K	3.57	2.84	2.67	2.51
	10.1-20K	3.95	3.16	2.96	2.78
	20.1-55K	4.31	3.45	3.22	3.02
	55.1-75K	4.69	3.74	3.50	3.28
	75.1-100K	5.02	4.00	3.79	3.51
	100.1-125K	5.47	4.36	4.09	3.83
	125.1-150K	5.87	4.71	4.41	4.10
	150.1-175K	6.30	5.02	4.71	4.41
	175.1-225K	6.68	5.27	5.05	4.64
	225.1-273K	7.21	5.66	5.46	4.96

TYPE RS—MIL 1% R-26 (MIL-R-23379)



Type RS. These should be specified when space is at a premium and when precision and power are needed. They are of the conventional type with pigtail mounting leads. They are completely protected and silicone sealed. Surpasses Mil-R-26.

RS-2B ±1%—3 WATT

Stock No.	Resistance in Ohms	1-24	25-49	50-99	100-249
13F142	1.0-1K	1.07	.85	.80	.74
	1.1K-5K	1.18	.94	.89	.81
	5.1K-10K	1.24	.97	.91	.85
	10.1K-15K	1.28	1.02	.95	.90
	15.1K-20K	1.67	1.07	1.01	.94
	20.1K-24.5K	1.42	1.13	1.07	.98

RS-5 ±1%—5 WATT—MIL. NO. RW-67 & RWP-21

Stock No.	Resistance in Ohms	1-24	25-49	50-99	100-249
13F143	1.0-1K	1.07	.85	.80	.74
	1.1K-5K	1.18	.94	.89	.81
	5.1K-10K	1.24	.97	.91	.85
	10.1K-15K	1.28	1.02	.95	.90
	15.1K-20K	1.67	1.07	1.01	.94
	20.1K-40K	1.42	1.13	1.07	.98
	40.1K-55K	1.53	1.24	1.14	1.07
	55.1K-75K	1.68	1.33	1.26	1.17
	75.1K-95.2K	1.85	1.48	1.40	1.29

RS-10 ±1%—10 WATT—MIL. NO. RW-68 & RWP-23

Stock No.	Resistance in Ohms	1-24	25-49	50-99	100-249
13F136	1.0-1K	1.07	.85	.80	.74
	1.1K-5K	1.18	.94	.89	.81
	5.1K-10K	1.24	.97	.91	.85
	10.1K-15K	1.28	1.02	.95	.90
	15.1K-20K	1.67	1.07	1.01	.94
	20.1K-40K	1.42	1.13	1.07	.98
	40.1K-55K	1.53	1.24	1.14	1.07
	55.1K-75K	1.68	1.33	1.26	1.17
	75.1K-100K	1.85	1.48	1.40	1.29
	100.1K-125K	2.03	1.67	1.53	1.42
	125.1K-150K	2.21	1.77	1.66	1.55
	150.1K-175K	2.43	1.93	1.81	1.69
	175.1K-225K	2.63	2.12	1.99	1.86
	225.1K-273K	2.90	2.33	2.19	2.07

WIREWOUND STANDARD RESISTANCE VALUES

RH STANDARD VALUES IN OHMS

Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms
.008	.5	6	22.5	56	150	400	910	3.5K
.01	.75	7	25	60	160	430	1K	4K
.02	1	7.5	27	62	180	450	1.2K	5K
.03	1.5	8	30	70	200	470	1.3K	10K
.05	2	10	33	75	220	500	1.5K	15K
.1	2.5	12	35	80	250	560	1.8K	20K
.15	3	15	40	82	270	600	2K	25K
.2	3.3	16	45	100	300	680	2.2K	40K
.25	4	20	47	110	330	700	2.5K	50K
.3	5	22	50	120	390	750	3K	100K
								150K

RS STANDARD VALUES IN OHMS

Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms
.1	1.2	10	50	220	500	825	2K	10K
.13	1.5	15	60	250	510	900	2.2K	12K
.15	2	20	75	270	560	909	2.5K	15K
.2	3	25	100	300	600	1K	3K	20K
.25	4	30	110	330	619	1.1K	3.3K	25K
.3	5	33	120	332	620	1.2K	3.5K	30K
.33	6	35	125	350	681	1.3K	4K	40K
.5	7	40	150	400	700	1.5K	5K	50K
.75	7.5	45	180	450	750	1.78K	7K	100K
1	8	47	200	470	800	1.8K	8.2K	150K

METAL FILM STANDARD RESISTANCE VALUES

ALL MULTIPLES OF THE FOLLOWING DECADE VALUES THAT FALL WITHIN THE CATALOG RANGES FOR EACH MODEL ARE STANDARD 1% FOR FILM RESISTORS

Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms
1.00	1.27	1.62	2.05	2.61	3.32	4.22	5.36	6.81	8.66
1.02	1.30	1.65	2.10	2.67	3.40	4.32	5.49	6.98	8.87
1.05	1.33	1.69	2.15	2.74	3.48	4.42	5.62	7.15	9.09
1.07	1.37	1.74	2.21	2.80	3.57	4.53	5.76	7.32	9.31
1.10	1.40	1.78	2.26	2.87	3.65	4.64	5.90	7.50	9.53
1.13	1.43	1.82	2.32	2.94	3.74	4.75	6.04	7.68	9.76
1.15	1.47	1.87	2.37	3.01	3.83	4.87	6.19	7.87	
1.18	1.50	1.91	2.43	3.09	3.92	4.99	6.34	8.06	
1.21	1.54	1.96	2.49	3.16	4.02	5.11	6.49	8.25	
1.24	1.58	2.00	2.55	3.24	4.12	5.23	6.65	8.45	

Axial Lead Wirewound Resistors OHMITE

TYPE 22 CONFORMAL VITREOUS ENAMEL 5% TOL.

3 WATT STYLE 23J .562 x .250

Stk. No.	Ohms	1-9	10-49	50-99	100-249
13F3500	1.0 to 7.5	.78	.66	.55	.46
13F3501	10 to 3K	.65	.56	.45	.39
13F3502	1.1K to 5K	.71	.61	.50	.43
13F3503	6K to 10K	.81	.68	.57	.48

5 WATT STYLE 25J 1.00 x .250

Stk. No.	Ohms	1-9	10-49	50-99	100-249
13F3504	1.0 to 7.5	.81	.68	.57	.48
13F3505	10 to 1K	.68	.58	.48	.41
13F3506	1.1K to 5K	.75	.63	.53	.45
13F3507	6K to 10K	.78	.66	.55	.46
13F3595	12K to 25K*	.89	.76	.63	.54

*Except 13K and 17K

STOCK RESISTANCE—OHMS

1.0	12	35	82	250	560	1200	3500	7500	22000
1.5	15	39	100	270	600	1500	3900	8000	25000
2.0	18	40	120	300	680	1800	4000	9000	30000
2.2	20	47	125	330	750	2000	4500	10000	33000
3.0	22	50	150	390	800	2200	4700	12000	35000
4.0	25	56	180	400	820	2500	5000	13000	40000
5.0	27	62	200	450	900	2700	6000	15000	50000
7.5	30	68	220	470	1000	3000	6800	17000	...
10	33	75	225	500	1100	3300	7000	20000	...

Series 22 resistors are conformal vitreous enamel coated, axial lead, 5% tolerance resistors, with 1kV dielectric breakdown voltage (500V for 1W size). Typical temperature coefficient for 10Ω and above is ± 30 ppm/°C.

1 WATT STYLE 21J .406 x .156

Stk. No.	Ohms	1-9	10-49	50-99	100-249
13F3508	1.0 to 7.5	1.02	.86	.71	.61
13F3509	10 to 1.8K	.89	.76	.63	.54
13F3510	2K to 3K	.96	.81	.67	.58

2 WATT STYLE 22J .406 x .219

Stk. No.	Ohms	1-9	10-49	50-99	100-249
13F3511	1.0 to 7.5	.78	.66	.55	.46
13F3512	10 to 1.0K	.68	.58	.48	.41
13F3513	1.1K to 3K	.71	.61	.50	.43

5

TYPE 44 "OHMICONE"® CONFORMAL SILICONE CERAMIC 1% TOLERANCE

5 WATT STYLE 45F .937 x .343

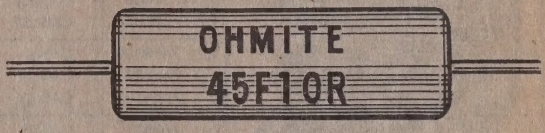
Stk. No.	Ohms	1-9	10-49	50-99	100-249
13F3514	.1 to .75	1.39	1.18	.97	.83
13F3515	1.0 to 1.5	.86	.74	.60	.51
13F3516	10 to 1.0K	.75	.63	.53	.45
13F3517	1.1K to 5K	.81	.68	.57	.48
13F3518	6K to 10K	.89	.76	.63	.54
13F3519	12K to 20K	.99	.84	.69	.59
13F3520	22K to 30K	1.08	.92	.76	.65

10 WATT STYLE 40F 1.843 x .406

Stk. No.	Ohms	1-9	10-49	50-99	100-249
13F3521	.1 to .75	1.62	1.38	1.13	.97
13F3522	1.0 to 7.5	1.18	1.00	.83	.71
13F3523	10 to 1K	1.06	.90	.74	.64
13F3524	1.1K to 5K	1.12	.95	.78	.67
13F3525	6K to 10K	1.18	1.00	.83	.71
13F3526	12K to 20K	1.24	1.05	.87	.74
13F3527	22K to 40K	1.32	1.12	.92	.79
13F3556	50K	1.56	1.33	1.09	.94

STOCK RESISTANCE—OHMS

.1	2.2	22	56	200	450	1000	3300	7500	25000
.15	3.0	25	62	220	470	1100	3500	8000	30000
.2	4.0	27	68	225	500	1200	3900	9000	33000
.3	5.0	30	75	250	560	1500	4000	10000	35000
.4	7.5	33	82	270	600	1800	4500	12000	40000
.5	10	35	100	300	680	2000	4700	13000	50000
.75	12	39	120	330	750	2200	5000	15000	...
1.0	15	40	125	350	800	2500	6000	17000	...
1.5	18	47	150	390	820	2700	6800	20000	...
2.0	20	50	180	400	900	3000	7000	22000	...



Series 44 OHMICONE resistors are 1% tolerance, conformal silicone ceramic coated, with a 500V dielectric breakdown voltage (250V for 1 watt size). Temperature coefficient for less than 1Ω — ±90 ppm/°C; 1 to 10Ω — ±50 ppm/°C; 10Ω & greater — ±20 ppm/°C.

1 WATT STYLE 41F .437 x .125

Stk. No.	Ohms	1-9	10-49	50-99	100-249
13F3528	1.0 to 7.5	1.06	.90	.74	.64
13F3529	*10 to 1.0K	.94	.80	.66	.56
13F3530	1.1K to 3K	.97	.82	.68	.58

* Except for 33

3 WATT STYLE 43F .563 x .250

Stk. No.	Ohms	1-9	10-49	50-99	100-249
13F3531	.1 to .75	1.23	1.05	.86	.74
13F3532	1.0 to 7.5	.84	.71	.59	.50
13F3533	10 to 1.0K	.71	.61	.50	.43
13F3534	1.1K to 5K	.75	.63	.53	.45
13F3535	6K to 10K	.89	.76	.63	.54

TYPE 995 MOLDED VITREOUS ENAMEL 5% TOLERANCE

1½ WATT UNITS-STYLE 995-1A—.422 x .125

Stk. No.	Ohms	1-9	10-49	50-99	100-249
13F168	1.0 to 7.5	1.10	.93	.78	.66
	10.0 to 1K	.98	.83	.68	.59
	1.2K to 1.5K	.99	.84	.69	.60
	1.8K to 3.0K	1.01	.86	.70	.61

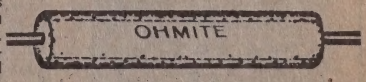
2¼ WATT UNITS-STYLE 995-2A—.375 x .188

Stk. No.	Ohms	1-9	10-49	50-99	100-249
13F169	1.0 to 7.5	1.03	.88	.72	.62
	10 to 1K	.91	.77	.64	.55
	1.2K to 3.0K	.96	.81	.67	.58

STOCK RESISTANCE—OHMS

1.0	15	40	150	..	820	2700	6800	18000	47000
1.5	..	47	180	470	..	3000	7000	20000	50000
2.0	20	50	200	500	1000	3300	7500	22000	..
3.0	22	56	220	560	1200	3900	8000	25000	..
4.0	..	68	250	600	1500	4000	8200	27000	..
5.0	..	..	270	..	1800	4700	9000	30000	..
7.5	30	82	300	700	2000	5000	10000	..	..
10	33	..	330	750	2200	5600	12000	39000	..
12	39	120	..	800	2500	6000	15000	40000	..

All welded Vitreous enamel resistor with 1000 VAC insulation. Protects against moisture, salt spray and salt immersion. Vitrified markings resist high temperatures, solvents and abrasions. Standard resistance tolerance: ±5%. Leads tinned, 1½"L. All sizes 20 gauge except 1½ watt: 24 gauge. Can be used with heat sinks to increase capability by 100%.



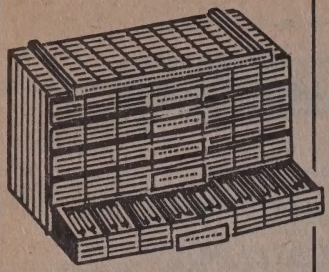
3¼ WATT UNITS—STYLE 995-3A—.547 x .203

Stk. No.	Ohms	1-9	10-49	50-99	100-249
13F145	1.0 to 7.5	.93	.79	.65	.56
	10.0 to 1K	.82	.70	.58	.49
	1.2K to 5K	.88	.75	.62	.53
	5.6K to 10K	.90	.77	.63	.54

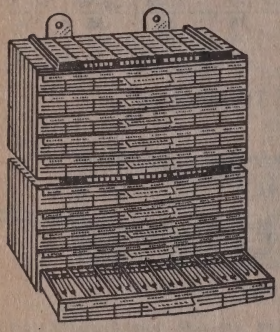
5 WATT UNITS—STYLE 995-5B—.938 x .203

13F146	1.0 to 7.5	1.00	.85	.70	.60
	10.0 to 1K	.88	.75	.62	.53
	1.2K to 5.0K	.90	.77	.63	.54
	5.6K to 10K	1.00	.85	.70	.60
	12K to 20K	1.08	.92	.76	.65
	22K to 25K	1.26	1.07	.88	.76

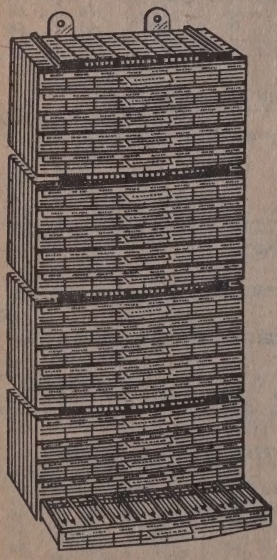
Resistor Assortments



Single Cabinet Unit



Two Cabinet Assortment



Industrial Assortments

WIRE-WOUND/AXIAL LEAD MOLDED VITREOUS ENAMEL

- **All Popular Values Included.**
- **Drawer Segments Clearly Marked.**
- **Cabinet Units Can Be Stacked.**
- **Available in Different Ratings.**

Select wire-wound, carbon film or metal film resistor you need from industrial and service resistor assortments. Each assortment comes in cabinet 9" long, 4¾" high, 5¼" deep. Cabinets have five drawers and each drawer has eight compartments. Dovetail tops and bottoms facilitate stacking. Assemblies of 2, 3 and 4 cabinets are riveted to metal strips for wall hanging.

Stk. No.	Type	Watt	Qty.	No. of Cabs.	Range	No. of Values	Net
76F800	CAB-91	1½ W	167	1	1 to 3 K	40	123.59
76F801	CAB-93	3½ W	325	2	1 to 10 K	71	230.32
76F802	CAB-95	5 W	355	2	1 to 25 K	75	269.64
76F803	CAB-99	11 W	185	1	1 to 50 K	40	157.29

CARBON AND METAL FILM RESISTOR ASSORTMENTS

Type numbers ending with **M** are metal film and **1%** tolerance. Those ending in **F** are carbon film with 5% tolerance.

Stk. No.	Type	Watt.	Qty.	No. of Cabs.	Range	No. of Values	Net
76F805	CAB-5F		150	1	10Ω-.22 M	31	35.00
76F806	CAB-22F	⅛	500	2	10Ω-.22 M	52	100.45
76F807	CAB-34F		1000	3	10Ω-.22 M	103	188.55
76F808	CAB-6F		150	1	1Ω-1.0 M	36	26.40
76F809	CAB-23F	¼	1000	2	1Ω-1.0 M	75	94.40
76F810	CAB-43F		1500	4	1Ω-1.0 M	136	155.25
76F811	CAB-7F		150	1	1Ω-1.0 M	36	29.35
76F812	CAB-24F	½	1000	2	1Ω-1.0 M	75	105.00
76F813	CAB-44F		1500	4	1Ω-1.0 M	136	174.15
76F814	CAB-8M		250	1	10Ω-301 K	40	67.00
76F815	CAB-28M	⅛	500	2	10Ω-301 K	80	134.00
76F816	CAB-31M		1000	3	10Ω-301 K	120	250.00
76F817	CAB-9M		250	1	10Ω-1.0 M	40	63.75
76F818	CAB-29M	¼	500	2	10Ω-1.0 M	80	127.50
76F819	CAB-32M		1000	3	10Ω-1.0 M	120	222.50

CARBON COMPOSITION ASSORTMENT

Stk. No.	Type	Watt.	Tol.	Qty.	No. of Cabs.	Range	No. of Values	Net
76F804	CAB-21	⅛	5%	500	2	2.7Ω-22.0 M	80	186.00
99F1203	CAB-45			1000	4	2.7Ω-22.0 M	160	372.00
13F164	CAB-4		10%	150	1	47Ω-10.0 M	37	28.50
99F1207	CAB-25	¼		1000	2	2.7Ω-22.0 M	80	106.00
99F1204	CAB-46		5%	1500	4	2.7Ω-22.0 M	160	252.00
13F165	CAB-10		10%	150	1	10Ω-10.0 M	40	25.50
99F1201	CAB-26	½		1000	2	2.7Ω-22.0 M	80	116.00
99F1205	CAB-47		5%	1500	4	2.7Ω-22.0 M	160	282.00
13F166	CAB-2		10%	125	1	10Ω-10.0 M	40	36.75
99F1202	CAB-27	1		600	2	2.7Ω-22.0 M	80	111.00
99F1206	CAB-48		5%	900	4	2.7Ω-22.0 M	160	270.00
13F167	CAB-3	2	10%	125	1	10Ω-10.0 M	40	60.00

Newark Can Supply All Your Industrial Electronic Needs Whether Listed or Not . . .

- **Complete Stocks—Best Service**
- **One Purchase Order to One Source for Everything in Electronics**
- **Same Day Shipping from On-the-Shelf Stocks**

Industrial Resistors

OHMITE

TYPE 200 "BROWN DEVIL" RESISTORS

High quality, compact wire-wound resistors for voltage-dropping, bias units, bleeders, etc. Extra-sturdy all-ceramic vitreous enameled. Protected against shock, vibration, heat and humidity. Have standard resistance tolerance of ±5%, 8-watt units have 1x$\frac{5}{16}$" cores; 12 watts, 1$\frac{3}{4}$"x$\frac{5}{16}$" cores; 20-watt units, 2x$\frac{7}{16}$" cores. All have 1$\frac{1}{2}$" leads. Average shipping weight, 3 oz.

13F150 8 WATT "BROWN DEVIL" RESISTORS STYLE 200-8

Type	Ohms	1-9	10-49	50-99	100-249
1500	1				
1500B	1.5				
1501	2				
1502	3	.97	.82	.67	.58
1503	4				
1504	5				
1505	7.5				
1506	10				
1507	12				
1508	15				
1509	20				
1510	25				
1511	30	.85	.72	.60	.51
1512	35				
1513	40				
1514	50				
1515	75				
1516	100				
1517	125				
1518	150				
1519	200				
1521	250				
1522	300				
1523	350				
1524	400	.85	.72	.60	.51
1525	450				
1526	500				
1527	600				
1528	700				
1531	900				
1532	1,000				
1534	1,200				
1535	1,250				
1536	1,500	.90	.77	.63	.55
1537	1,750				
1538	2,000				
1539	2,250				
1540	2,500				
1541	3,000				
1542	3,500	.90	.77	.63	.55
1543	4,000				
1544	4,500				
1545	5,000				
1546	6,000				
1547	7,000				
1548	7,500				
1549	8,000	1.02	.87	.71	.61
1550	9,000				
1551	10,000				
1552	12,500				
1553	15,000	1.26	1.07	.88	.76
1555	20,000				
1557	25,000	1.31	1.11	.92	.79

13F155 12 WATT "BROWN DEVIL" RESISTORS STYLE 200-12

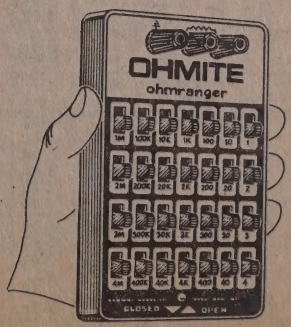
Type	Ohms	1-9	10-49	50-99	100-249
1701	1				
1704	1.5				
1705	2				
1706	3	1.26	1.07	.88	.76
1707	4				
1708	5				
1709	7.5				
1710	10				
1711	12				
1712	15				
1713	20				
1714	25				
1715	30				
1716	35	.88	.75	.62	.53
1717	40				
1718	50				
1719	75				
1720	100				
1721	125				
1722	150				
1723	200				
1724	225				
1725	250				
1726	300				
1727	350				
1728	400				
1729	450	.88	.75	.62	.53
1730	500				
1731	600				
1732	700				
1733	750				
1734	800				
1735	900				
1736	1,000				
1738	1,200				
1739	1,250				
1740	1,500	.93	.80	.65	.56
1741	1,750				
1742	2,000				
1743	2,250				
1744	2,500				
1745	3,000				
1746	3,500	.93	.80	.65	.56
1747	4,000				
1748	4,500				
1749	5,000				
1750	6,000				
1751	7,000				
1752	7,500				
1753	8,000	1.26	1.07	.88	.76
1755	10,000				
1761	15,000				
1765	20,000				
1766	22,500				
1767	25,000				
1768	30,000	1.31	1.11	.92	.79
1770	40,000				
1771	45,000				
1772	50,000	1.43	1.22	1.00	.86

13F160 20 WATT "BROWN DEVIL" RESISTORS STYLE 200-20

Type	Ohms	1-9	10-49	50-99	100-249
1802A	1				
1802B	2				
1802C	3	1.43	1.22	1.00	.86
1802D	4				
1803	5				
1804	10				
1805	25				
1806	50				
1807	75				
1808	100	1.02	.87	.71	.61
1809	150				
1810	200				
1811	250				
1812	300				
1813	350				
1814	400				
1815	500	1.02	.87	.71	.61
1816	650				
1818	750				
1821	1,000				
1822	1,200				
1823	1,250				
1824	1,500				
1825	1,750	1.05	.89	.74	.63
1827	2,000				
1830	2,500				
1831	2,750				
1832	3,000				
1836	5,000	1.05	.89	.74	.63
1837	6,000				
1838	7,000				
1839	7,500				
1840	8,000				
1841	10,000	1.38	1.17	.97	.83
1842	12,500				
1843	15,000				
1844	20,000				
1845	25,000	1.49	1.27	1.04	.89
1850	50,000	1.72	1.46	1.21	1.03
1860	100,000	2.36	2.01	1.66	1.42

Portable Resistance Selector

- **Wide Range**
- **Positive Slide Switch**
- **Completely Portable**
- **Metal Case**
- **Compact Size**
- **Accuracy Assured**



Ohm-Ranger™. Completely portable resistance selector. Wide range of resistance values, from 1 to 11,111,110 ohms in single ohm increments. Accuracy assured by half watt 1% tolerance resistors. Ideal for use in labs, schools, and service technicians. Features a positive slide switch operation with compact 4" x 6" x 1$\frac{3}{16}$" size and 14.5 ounce weight for easy in-hand use and portability. Metal case, four rubber feet for non-slip bench use, and screw type binding posts.

13F161 NET **58.00**

OHMITE Fixed Power Resistors

Lug type, wire-wound with vitreous enamel. Wire of the finest alloy and largest possible size is used for each resistance. The original uniform close spacing of the turns is maintained by the anchoring effect of the vitreous enamel. The wire is securely welded to the terminal lugs. Tolerance: 5%. Shpg. wt: 10-50 watts, 4.0 oz.; 100-225 watts, 1 lb.

STYLE 270-12 (12 WATT — Size 1¾" × 5/16")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F1200	3723	.51	4.86	1.39	1.18	.97	.84
13F1201	3730	1.0	3.46				
13F1202	3734	1.5	2.83				
13F1204	3742	3.3	1.91				
13F1205	3746	4.7	1.60				
13F1207	3754	10	1.10	.97	.83	.68	.59
13F1208	3756	12	1.00				
13F1209	3758	15	.89				
13F1211	3762	22	.74				
13F1212	3764	27	.67				
13F1215	3770	47	.53	.97	.83	.68	.59
13F1218	3776	82	.38				
13F1219	3778	100	.35				

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F1221	3782	150	.28	.97	.83	.68	.59
13F1222	3784	180	.26				
13F1224	3788	270	.21				
13F1228	3796	560	.15				
13F1229	3798	680	.13				
13F1231	3802	1,000	.11				
13F1232	3804	1,200	.10	1.03	.88	.71	.62
13F1233	3806	1,500	.089				
13F1235	3810	2,200	.074				
13F1236	3812	2,700	.067				
13F1238	3816	3,900	.055				
13F1239	3818	4,700	.051				
13F1243	3826	10,000	.032	1.16	.98	.82	.69

STYLE 270-25 (25 WATT — SIZE 2" × 5/16")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F720	0200J	1	5.00	1.60	1.35	1.12	.96
13F721	0200K	2	3.54				
13F722	0200L	3	2.88				
13F723	0200A	5	2.24	1.32	1.12	.92	.79
13F724	0200B	10	1.58				
13F726	0200C	25	1.00				
13F727	0200D	50	.71				
13F728	0200E	75	.58				
13F729	0200F	100	.50	1.25	1.07	.88	.75
13F730	0200G	150	.41				
13F731	0200H	200	.35				
13F732	0201	250	.32				
13F733	0202	500	.22				
13F734	0203	750	.18	1.25	1.07	.88	.75
13F735	0204	800	.17				
13F736	0205	1,000	.16				

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F737	0206	1,500	.13	1.32	1.12	.92	.79
13F738	0207	2,000	.12				
13F739	0208	2,500	.10				
13F740	0209	3,000	.091				
13F742	0211	4,000	.079				
13F743	0212	5,000	.070				
13F744	0213	6,000	.064	1.60	1.35	1.12	.96
13F745	0214	7,500	.057				
13F746	0215	10,000	.050				
13F747	0216	12,000	.045	1.66	1.41	1.16	1.00
13F748	0217	15,000	.036				
13F749	0218	20,000	.031				
13F750	0219	25,000	.028	1.76	1.49	1.23	1.06
13F751	0222	40,000	.022	1.76	1.49	1.23	1.06
13F752	0224	50,000	.019	2.13	1.81	1.49	1.28
13F753	0229	100,000	.009	2.81	2.39	1.97	1.69

STYLE 270-50 (50 WATT — SIZE 4" × 5/16")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F760	0400A	5	3.16	1.86	1.58	1.30	1.11
13F761	0400B	10	2.23				
13F762	0400C	25	1.41				
13F763	0400D	50	1.00				
13F764	0400E	75	.82				
13F765	0400F	100	.71	1.86	1.58	1.30	1.11
13F766	0400G	150	.58				
13F767	0400H	200	.50				
13F768	0401	250	.45				
13F769	0402	500	.32				
13F771	0405	1,000	.22	1.86	1.58	1.30	1.11
13F772	0406	1,500	.18				

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F773	0407	2,000	.16	1.86	1.58	1.30	1.11
13F774	0408	2,500	.14				
13F775	0409	3,000	.13				
13F776	0410	4,000	.11				
13F777	0411	5,000	.10				
13F779	0413	8,000	.079	2.00	1.69	1.40	1.19
13F780	0414	10,000	.071	2.00	1.69	1.40	1.19
13F782	0416	15,000	.057	2.22	1.88	1.55	1.33
13F784	0418	25,000	.045	2.50	2.12	1.75	1.50
13F786	0420	50,000	.026	2.86	2.43	2.01	1.71
13F788	0422	100,000	.018	3.48	2.95	2.44	2.09

STYLE 270-100 (100 WATT — SIZE 6½" × ¾")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F800	0600A	5	4.47	3.10	2.63	2.17	1.86
13F801	0600B	10	3.16	3.10	2.63	2.17	1.86
13F802	0601	25	2.00	2.95	2.51	2.08	1.77
13F803	0602	50	1.41	2.95	2.51	2.08	1.77
13F804	0603	75	1.15	2.86	2.44	2.00	1.72
13F805	0604	100	1.00	2.86	2.44	2.00	1.72
13F806	0605	150	.82	2.86	2.44	2.00	1.72
13F807	0606	250	.63	2.86	2.44	2.00	1.72
13F808	0607	500	.45	3.08	2.61	2.15	1.85

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F810	0609	1,000	.32	3.08	2.61	2.15	1.85
13F812	0611	2,000	.22	3.26	2.76	2.27	1.94
13F813	0612	2,500	.20				
13F814	0613	3,000	.18				
13F815	0614	5,000	.14				
13F817	0616	10,000	.10	3.43	2.92	2.40	2.07
13F819	0618	20,000	.071	3.95	3.35	2.76	2.36
13F823	0622	50,000	.045	4.57	3.89	3.20	2.74
13F826	0625	100,000	.028	4.85	4.13	3.39	2.92

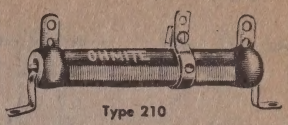
STYLE 270-225 (225 WATT — SIZE 10½" × 1⅛")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F830	0900A	5	6.72	5.65	4.80	3.96	3.39
13F831	0900B	10	4.74	5.65	4.80	3.96	3.39
13F832	0901	25	3.00	5.54	4.71	3.88	3.33
13F833	0902	50	2.12	5.54	4.71	3.88	3.33
13F834	0903	75	1.73	5.48	4.67	3.83	3.30
13F835	0904	100	1.50	5.48	4.67	3.83	3.30
13F836	0905	150	1.25	5.48	4.67	3.83	3.30
13F837	0906	250	.95	5.48	4.67	3.83	3.30
13F838	0907	500	.67	5.37	4.56	3.76	3.23
13F839	0908	750	.55	5.37	4.56	3.76	3.23
13F840	0909	1,000	.47	5.37	4.56	3.76	3.23
13F841	0910	1,500	.39	5.21	4.43	3.65	3.11

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F842	0911	2,000	.34	5.21	4.43	3.65	3.11
13F843	0912	2,500	.30				
13F844	0913	3,000	.27				
13F845	0914	5,000	.21				
13F847	0916	10,000	.15	4.99	4.24	3.48	2.99
13F849	0918	20,000	.11	4.99	4.24	3.48	2.99
13F850	0919	25,000	.095	5.25	4.47	3.68	3.16
13F851	0920	30,000	.087	5.65	4.80	3.96	3.39
13F852	0921	40,000	.075	5.65	4.80	3.96	3.39
13F853	0922	50,000	.067	5.65	4.80	3.96	3.39
13F856	0925	100,000	.047	6.37	5.41	4.46	3.82

Adjustable Dividohm® Power Resistors OHMITE

"Dividohm" Vitreous Enameled Resistors make ideal voltage dividers for original equipment and replacement in transmitters, rectifiers and other apparatus. Handy for obtaining odd resistance values, for adjusting circuits and for use on equipment which must be set to meet various line voltages. Resistance is changed by moving the adjustable lug. Contact can be made to any wire along the length of the resistor making voltages lower than rated voltage available. Stated wattage rating applies only when the entire resistance is in the circuit. Tolerance: 10%. Avg. Shipping wt. 12-50 Watts, 4.0 oz.; 100-225 Watts, 1 lb.



Type 210

STYLE 210-12 (12 WATT—SIZE 1¾"x5/16")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F500	1001	1	3.46				
13F501	1002	2	2.45				
13F502	1003	3	2.00	2.26	1.92	1.58	1.35
13F503	1004	5	1.54				
13F504	1005	7.5	1.26				
13F505	1006	10	1.09				
13F506	1007	15	.89				
13F507	1008	20	77				
13F508	1009	25	.69				
13F509	1010	50	.49				
13F510	1011	75	.40	1.96	1.67	1.38	1.18
13F511	1012	100	.34				
13F512	1013	150	.28				
13F513	1014	200	.24				
13F514	1015	250	.22				

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F515	1016	300	.20				
13F517	1018	400	.17				
13F518	1019	500	.15				
13F520	1021	750	.13	1.96	1.67	1.38	1.18
13F522	1023	1,000	.11				
13F524	1025	1,500	.089				
13F525	1026	2,000	.077				
13F527	1028	2,500	.069				
13F528	1029	3,000	.063	2.03	1.73	1.42	1.22
13F530	1031	4,000	.055				
13F532	1033	5,000	.049				
13F534	1035	7,000	.042				
13F535	1036	7,500	.040				
13F539	1040	10,000	.035	2.26	1.92	1.58	1.35

STYLE 210-25 (25 WATT—SIZE 2"x9/16")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F550	0360	1	5.00				
13F551	0360B	2	3.54				
13F552	0361	3	2.88				
13F553	0362	5	2.24				
13F554	0362B	7.5	1.82				
13F555	0363	10	1.58				
13F556	0364	15	1.29				
13F557	0364B	20	1.12	2.16	1.84	1.51	1.29
13F558	0365	25	1.00				
13F559	0366	50	.71				
13F560	0367	75	.58				
13F561	0368	100	.50				
13F562	0369	150	.41				
13F563	0370	200	.35				
13F564	0371	250	.32				

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F565	0371B	300	.29				
13F566	0371C	400	.25				
13F567	0372	500	.22	2.16	1.84	1.51	1.29
13F568	0373	750	.18				
13F570	0375	1,000	.16				
13F571	0375B	1,250	.14				
13F572	0376	1,500	.13				
13F573	0377	2,000	.12	2.26	1.92	1.58	1.35
13F575	0378	2,500	.10				
13F576	0379	3,000	.091				
13F580	0382	5,000	.070				
13F581	0383	6,000	.064	2.35	2.00	1.64	1.41
13F587	0385	10,000	.050				
13F590	0388	20,000	.031	2.49	2.12	1.74	1.49
13F591	0389	25,000	.028	2.68	2.28	1.88	1.61

STYLE 210-50 (50 WATT—SIZE 4" x 9/16")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F600	0560	5	3.16				
13F601	0561	10	2.23				
13F602	0562	25	1.41				
13F603	0563	50	1.00				
13F604	0564	75	.82	2.76	2.35	1.93	1.66
13F605	0565	100	.71				
13F606	0566	150	.58				
13F607	0567	200	.50				
13F608	0568	250	.45				
13F609	0568B	300	.41				
13F610	0568C	400	.35				

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-UP
13F611	0569	500	.32				
13F612	0570	750	.26	2.76	2.35	1.93	1.66
13F613	0572	1,000	.22				
13F615	0573	1,500	.18				
13F616	0574	2,000	.16	2.84	2.42	1.97	1.70
13F617	0575	2,500	.14				
13F622	0578	5,000	.10				
13F628	0581	10,000	.071	2.86	2.43	2.01	1.71
13F631	0584	20,000	.050	2.97	2.53	2.09	1.79
13F635	0588	50,000	.026	3.62	3.09	2.54	2.17
13F638	0591	100,000	.018	4.29	3.65	3.00	2.55

STYLE 210-100 (100 WATT—SIZE 6½" x ¾")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F670	0956A	1	10.0	5.21	4.43	3.65	3.13
13F671	0956B	2	7.07	5.21	4.43	3.65	3.13
13F672	0956C	3	5.77				
13F673	0956D	4	5.00				
13F650	0956	5	4.47				
13F651	0957	10	3.16				
13F652	0958	25	2.00	4.89	4.16	3.41	2.93
13F653	0959	50	1.41				

Stock No.	Type	Resis. Ohms	Max Amps.	1-9	10-49	50-99	100-UP
13F654	0960	100	1.00	3.97	3.37	2.77	2.38
13F655	0960B	250	.63	3.97	3.37	2.77	2.38
13F656	0961	500	.45	4.02	3.41	2.82	2.43
13F657	0962	1,000	.32	4.02	3.41	2.82	2.43
13F658	0962B	1,500	.26				
13F659	0963	2,500	.20	4.07	3.47	2.86	2.46
13F660	0964	5,000	.14				
13F661	0965	10,000	.10	4.33	3.68	3.02	2.59
13F669	0973	100,000	.028	5.49	4.67	3.84	3.30

STANDARD ADJUSTABLE LUGS

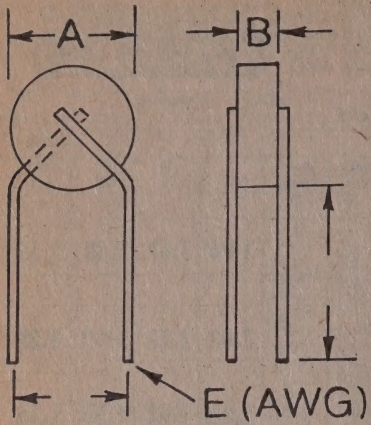
For Dividohms—Bakelite knob type

Stock No.	Type	Description	1-9	10-49	50-Up
13F710	2122	For 25, 50 Watt	1.29	1.10	.89
13F711	2126	For 100 Watt	1.40	1.18	.99
13F712	2134	For 225 Watt	1.49	1.27	1.05

For Dividohms-Screw driver type

Stock No.	Type	Description	1-9	10-49	50-Up
13F713	2115	For 12 Watt	.35	.29	.25
13F714	2121	For 25, 50 Watt	.35	.29	.25
13F715	2125	For 100 Watt	.39	.34	.28
13F716	2133	For 225 Watt	.49	.42	.36

Keystone PTC and NTC Thermistors



PRICE CHART

Code	1-99	100-249	250-499
A	2.25	1.75	1.00
B	2.40	1.90	1.15
C	2.35	1.85	1.10
D	2.48	1.98	1.23
E	2.75	2.25	1.50

PTC THERMISTORS

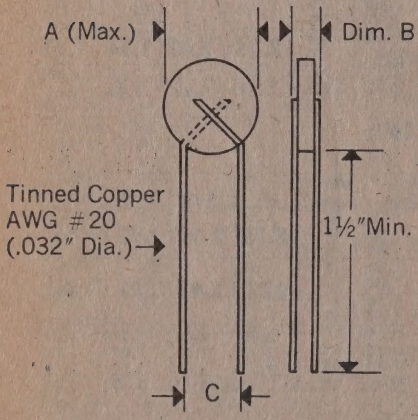
- **Switching temperatures 30° to 140°C**
- **Parts dip soldered**

Positive Temperature Coefficient thermistors are characterized by extremely large resistance change in a small temperature span. Temperature at which resistance begins to increase rapidly is referred to as switching temperature. This point can be changed from below 0°C to above 140°C.

Stock No.	Type	Switch Point	VDC or VAC	R/Ω @ 25°C	D.C. mW/°C	Price Code
20F700	RL3006-50-30-25-PT0	30°C	25	50	7.0	A
20F701	RL3006-50-40-25-PT0	40°C	25	50	7.0	A
20F702	RL3006-50-50-25-PT0	50°C	25	50	7.0	A
20F703	RL3006-50-60-25-PT0	60°C	25	50	7.0	A
20F704	RL5506-5-65-50-PT0	65°C	50	5.0	14.0	A
20F705	RL5510-25-65-120-PT0	65°C	120	25	15.0	A
20F706	RL3006-50-70-25-PT0	70°C	25	50	7.0	A
20F707	RL3006-50-80-25-PT0	80°C	25	50	7.0	A
20F708	RL3006-50-90-25-PT0	90°C	25	50	7.0	A
20F709	RL3006-50-100-25-PT0	100°C	25	50	7.0	A
20F710	RL3006-50-110-25-PT0	110°C	25	50	7.0	A
20F711	RL5510-32-110-50-PT0	110°C	50	32	20.0	A
20F712	RL3006-20-120-25-PT0	120°C	25	20	8.0	A
20F713	RL3006-50-120-25-PT0	120°C	25	50	7.0	A
20F714	RL3312-200-120-50-PT0	120°C	50	200	12.0	B
20F715	RL5505-2.5-120-20-PT0	120°C	20	2.5	14.0	C
20F716	RL5505-5-120-20-PT0	120°C	20	5.0	14.0	C
20F717	RL6306-11-120-20-PT0	120°C	20	11	15.0	D
20F718	RL8206-4-120-30-PT0	120°C	30	4.0	20.0	E

PTC KIT — 1 each of 19 different types

20F754 NET **24.95**



PRICE CHART

Code	1-99	100-249	250-499
A1	2.18	1.43	.93
B1	1.93	1.18	.68
C1	2.04	1.29	.79

Phone Your NEWARK Branch For Quotes On Larger Quantities

NTC DISC THERMISTORS

Resistance temperature characteristic for Negative Temperature Coefficient (NTC) thermistor is resistance decreases as temperature increases, opposite of PTC. Dissipation and time constant temperature range 30°C - 75°C. Ratio- R @ 25°C/R @ 125°C with temperature coefficient—% per °C @ 25°C. All parts dip soldered with maximum operating temperature 125°C.

Stock No.	Type	R @ 25°C	Tol. ±%	Nominal Const. MW/°C	Nominal Const. Time(s)	Ratio	Price Code
20F719	RL1004-65.6-59-D1	100	20	2.5	9	13.91	A1
20F720	RL1003-312-73-D1	500	10	2.5	9	19.22	A1
20F721	RL1007-624-73-D1	1K	10	2.8	10	19.22	A1
20F722	RL1003-1746-97-D1	3K	10	2.5	9	29.28	A1
20F723	RL1004-2910-97-D1	5K	10	2.5	9	29.28	A1
20F724	RL1009-5820-97-D1	10K	10	3.0	10	29.28	A1
20F725	RL1007-13770-120-D1	25K	10	2.8	10	39.82	A1
20F726	RL1003-26670-140-D1	50K	10	2.5	9	50.27	A1
20F727	RL1006-53330-140-D1	100K	10	2.8	10	50.27	A1
20F728	RL1004-104550-155-D1	200K	10	2.5	9	58.32	A1
20F729	RL2004-16.4-59-D1	25	20	6.5	20	13.91	B1
20F730	RL2007-32.8-59-D1	50	20	6.5	30	13.91	B1
20F731	RL2003-62.4-73-D1	100	10	6.5	20	19.22	B1
20F732	RL2005-124.8-73-D1	200	10	6.5	20	19.22	B1
20F733	RL2008-187.1-73-D1	300	10	6.5	30	19.22	B1
20F734	RL2013-312-73-D1	500	10	7.2	50	19.22	B1
20F735	RL2004-582-97-D1	1K	10	6.5	20	29.28	B1
20F736	RL2006-657-69-D1	1K	20	6.5	20	17.74	B1
20F737	RL2007-1164-97-D1	2K	10	6.5	30	29.28	B1
20F738	RL2009-1446-97-D1	2.5K	10	6.5	30	29.28	B1
20F739	RL2010-1746-97-D1	3K	10	7.0	35	29.28	B1
20F740	RL2006-2753-120-D1	5K	10	6.5	20	39.82	B1
20F741	RL2012-5506-120-D1	10K	10	7.2	50	39.82	B1
20F742	RL2006-13330-140-D1	25K	10	6.5	20	50.27	B1
20F743	RL2012-26660-140-D1	50K	10	7.2	50	50.27	B1
20F744	RL2008-52270-155-D1	100K	10	6.5	30	58.32	B1
20F745	RL3004-6.56-59-D1	10	20	7.0	35	13.91	B1
20F746	RL3504-31.2-73-D1	50	10	7.5	45	19.22	B1
20F747	RL4004-174.6-97-D1	300	10	8.0	50	29.28	B1
20F748	RL4504-3.28-59-D1	5	20	10.0	60	13.91	C1
20F749	RL4504-15.6-73-D1	25	10	10.0	60	19.22	C1
20F750	RL4504-116.4-97-D1	200	10	10.0	60	29.28	C1
20F751	RL7605-6.24-73-D1	10	20	16.0	70	19.22	C1
20F752	RL7605-58.2-97-D1	100	10	16.0	70	29.28	C1

NTC DISC KIT — 1 each of 34 different types.

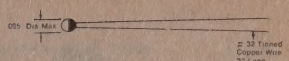
20F753 NET **24.95**

Yellow Springs Instruments Thermistors

YSI 1% PRECISION THERMISTORS

Thermistors which match a published resistance-temperature curve and thus each other to ±1% not only at 25° C but over most of their useable range of —80° C to +150° C. Each thermistor is provided with resistance-temperature data for each degree C and with tolerance curves both in resistance variation and temperature sensing interchangeability. Base resistance from 100 ohms to 1 Megohm at 25° C available to ease circuit design impedance matching problems. Useful as transducers for measurement and control circuits where precision of YSI thermistors allow interchanging of transducers and multiple monitoring from single circuits. In control circuitry direct dialing of set points is possible as is trigger action at a specific temperature since resistance at any usable temperature is known to close tolerances. Also useful as temperature compensating devices for transistors, meters, circuits, etc. Physical size: .095" maximum dimension #32 solid tinned copper leads, 3" long. Thermistors are epoxy encapsulated for ruggedness and long life. Each thermistor supplied with data and with dissipation information, time constant and instructions. Rated at 25°C.

- **Low Cost Precision Thermistors**

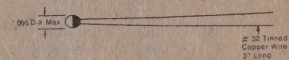


Stock No.	Type	Ohms	Res. Tol.	Temp. Tol.	1-29	30-99	100-999
29F200	44001	100	1.0%	.3°C			
29F201	44002	300	1.0%	.3°C			
29F202	44003	1K	1.0%	.3°C			
29F229	44004	2.252K	.8%	.2°C			
29F203	44005	3K	.8%	.2°C			
29F256	44007	5K	.8%	.2°C			
29F204	44006	10K	.8%	.2°C	6.30	5.45	4.10
29F205	44008	30K	.8%	.2°C			
29F206	44011	100K	.8%	.2°C			
29F214	44014	300K	1.0%	.2°C			
29F215	44015	1 Meg	1.0%	.2°C			

YSI ½% PRECISION THERMISTORS

Specifically designed to match published and provided curves to within ± ½% over exceptionally wide range! Units can be interchanged in measuring circuitry with a maximum 0.1°C error. Resistance tolerance data provided with each thermistor for each degree centigrade and its corresponding resistance shown from —40° to +100°C. Physical size: .095" diameter. #32 solid tinned copper leads, 3" long. Thermistors are epoxy encapsulated for ruggedness and extremely long life. Individually packaged with dissipation information, time constant data, and instructions. Rated at 25°C.

- **Twice the Precision over Previous YSI Devices**

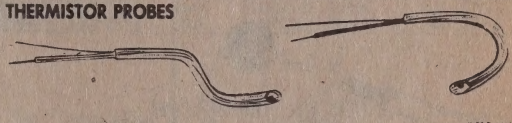


Stock No.	Type	Ohms	Res. Tol.	1-29	30-99	100-999
29F223	44030	3K	.4%			
29F224	44031	10K	.4%			
29F225	44032	30K	.4%	11.35	9.80	7.35
29F228	44033	2.252K	.4%			
29F257	44034	5K	.4%			

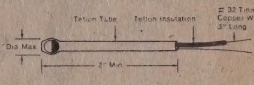
YSI 1% TEFLON PRECISION THERMISTOR PROBES

YSI interchangeable thermistors in chemically impervious form for sensing or control use. The interchangeable precision thermistors listed above, but additionally encased in a 2" length of chemically impervious Teflon. 3" leads extend 1" beyond the probe for convenience in attaching leads. Leads are insulated from each other by a smaller Teflon tube around one lead. Probes can be used straight or can be bent by finger pressure to exact configuration required for placing the thermistor where you want it. 0.11" max. in diameter.

Can be assorted for quantity prices.



- **Precision—± 1% at 25°C.**
- **Easily bent to required shape**
- **Chemically impervious Teflon casing**

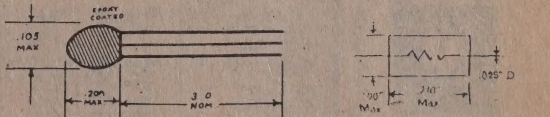


Stock No.	Type	Ohms	Res. Tol.	Temp. Tol.	1-29	30-99	100-299
29F207	44101	100	1.0%	.3°C			
29F208	44102	300	1.0%	.3°C	13.55	11.60	10.25
29F209	44103	1K	1.0%	.3°C			
29F264	44104	2.252 K	.8%	.2°C			
29F210	44105	3K	.8%	.2°C			
29F258	44107	5K	.8%	.2°C			

Stock No.	Type	Ohms	Res. Tol.	Temp. Tol.	1-29	30-99	100-299
29F211	44106	10K	.8%	.2°C			
29F212	44108	30K	.8%	.2°C			
29F213	44111	100K	.8%	.2°C	13.55	11.60	10.25
29F216	44114	300K	1.0%	.2°C			
29F217	44115	1 Meg	1.0%	.2°C			

THERMILINEAR® THERMISTOR DEVICES Linear Output Thermistor Networks

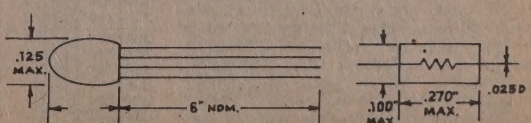
A composite precision thermistor device which, in conjunction with the precision resistors supplied, provides linear voltage output or linear resistance, change with change of termperature. Sensitivities of 20 mv/°C. and more are common, 400 times the sensitivity of an IC thermocouple. Linearity deviation is as little as 2 parts in 1000 from 0 to 100°C. Combined absolute accuracy, linearity and interchangeability specifications of as little as 3 parts in 1000 from 0 to 100°C. Greater accuracies, interchangeabilities, and linearities available for shorter standard ranges. Parts guaranteed to stay within tolerances for three years. Useful for direct digital temperature indication with DVM or linear recorder. Provides linear temperature compensation with thermistor sensitivity. Time constant: 1 second, in well-stirred oil bath. Parts consist of composite thermistor and resistor assembly. For complete information and technical data, write Newark. Type 44018 and type 44019; additional thermistor composites for replacement or multiple input work.



Stock No.	Type	Range	Linearity	1-29	30-99	100-999
29F218	44201	0° to 100°C	±0.2°C			
29F219	44202	−5 to +45°C	±0.06°			
29F220	44203	−30 to +50°C	±0.16°C	15.25	13.00	11.00
29F221	44204	+30 to 100°F	±0.055°C			
29F226	44211	−55 to 85°C	±1.1°C			
29F222	44018	Extra Thermistor	.....			
29F227	44019	−55 to 85°C	±1.1°C	10.85	10.00	7.80

YSI HIGH ACCURACY LINEAR OUTPUT THERMILINEAR THERMISTOR NETWORKS

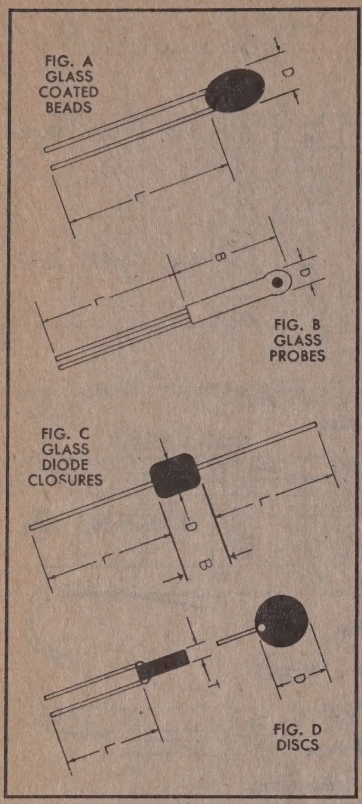
Type 44212. Linear thermistor temperature transducer for use over a range of -50° to +50°C. Uses a 3-thermistor composite and three resistors. Absolute accuracy and interchangeability is ±0.1°C. Linearity deviation is ±0.15°C with ±0.08°C possible with extra resistor selection. **Type 44020** is extra thermistor composite for replacement or multiple input work.



Stock No.	Type	Range	Linearity	1-29	30-99	100-999
29F265	44212	−50 to +50°C	+0.15°C	25.35	22.00	20.40
29F266	44020	Extra Thermistor		21.50	18.20	17.30

See Test Equipment Section for a complete listing of YSI Thermovolt Thermometers

Thermistors



5

GLASS COATED BEADS FIG. A

Stock No.	Mfrs. Type	Ohms @25°C	Tol. %	Resis. Ratio 0°C to 50°C	Diss. Const. mW/°C	Time Const. (Sec)	L (In.)	D (In.)	T (In.)	EACH 1-9	EACH 10-24	EACH 25-99
30F1722	GB31J1	1000	20	7.04	.4	.4	3/8	.043	.....	3.27	2.62	2.12
30F1723	GB32J2	2000	20	7.04	.4	.4	3/8	.043	.....	3.27	2.62	2.12
30F1724	GB35J1	5000	20	7.04	.4	.4	3/8	.043	.....	3.92	3.14	2.55
30F1725	GB41J1	10 K	20	7.59	.4	.4	3/8	.043	.....	3.92	3.14	2.55
30F1726	GA42J16	15 K	20	9.10	.4	.4	3/8	.043	.....	3.92	3.14	2.55
30F1728	GA45J1	50 K	20	9.53	.4	.4	3/8	.043	.....	3.60	2.87	2.33
30F1729	GA51J1	100 K	15	10.30	.4	.4	3/8	.043	.....	2.38	1.89	1.54
30F1730	GA52J16	150 K	20	10.90	.4	.4	3/8	.043	.....	3.60	2.87	2.33
30F1731	GA52J2	200 K	20	10.30	.4	.4	3/8	.043	.....	3.27	2.62	2.12
30F1732	GA55J1	500 K	20	11.80	.4	.4	3/8	.043	.....	3.92	3.14	2.55
30F1733	GA61J1	1000 K	20	13.12	.4	.4	3/8	.043	.....	4.58	3.66	2.97

GLASS PROBES FIG. B

Stock No.	Mfrs. Type	Ohms @25°C	Tol. %	Resis. Ratio 0°C to 50°C	Diss. Const. mW/°C	Time Const. (Sec)	L (In.)	D (In.)	T (In.)	EACH 1-9	EACH 10-24	EACH 25-99
30F1765	GB31P2	1000	20	7.04	1.7	22	2	.100	1/2	2.42	1.94	1.57
30F1766	GB32P2	2000	20	7.04	1.7	22	2	.100	1/2	2.42	1.94	1.57
30F1767	GB32P8	2000	20	7.04	1.7	22	2	.100	1/2	2.84	2.28	1.85
30F1768	GB34P2	4000	20	7.04	1.7	22	2	.100	1/2	2.42	1.94	1.57
30F1770	GB41P2	10 K	20	7.59	1.7	22	2	.100	1/2	2.90	2.32	1.89
30F1774	GA45P2	50 K	20	9.53	1.7	22	2	.100	1/2	2.66	2.13	1.73
30F1776	GA51P8	100 K	15	10.3	1.7	22	2	.100	1/2	2.84	2.28	1.85
30F1778	GA52P2	200 K	20	10.3	1.7	22	2	.100	1/2	2.42	1.94	1.57
30F1779	GA55P2	500 K	20	11.78	1.7	22	2	.100	1/2	2.90	2.32	1.89
30F1781	GA61P2	1000 K	20	13.12	1.7	22	2	.100	1/2	3.39	2.71	2.20

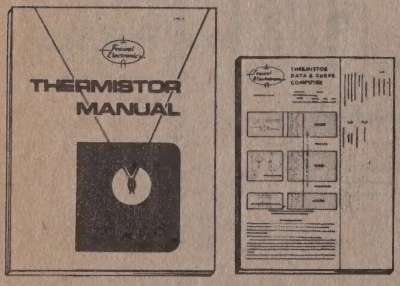
THERMISTOR DIODES (Pellets) FIG. C

Stock No.	Mfrs. Type	Ohms @25°C	Tol. %	Resis. Ratio 0°C to 50°C	Diss. Const. mW/°C	Time Const. (Sec)	L (In.)	D (In.)	T (In.)	EACH 1-9	EACH 10-24	EACH 25-99
30F1744	PB32D1	2 K	10	6.95	1.7	22	1 1/8	.070	.150	1.89	1.51	1.23
30F1745	PB35D1	5 K	10	6.95	1.7	22	1 1/8	.070	.150			
30F1746	PB41D1	10 K	10	6.95	1.7	22	1 1/8	.070	.150			
30F1747	PA45D1	50 K	10	9.10	1.7	22	1 1/8	.070	.150	1.89	1.51	1.23
30F1748	PA51D1	100 K	10	9.10	1.7	22	1 1/8	.070	.150			
30F1749	PT55D1	500 K	10	11.60	1.7	22	1 1/8	.070	.150			
30F1750	PT61D1	1 meg	10	11.60	1.7	22	1 1/8	.070	.150			

DISCS FIG. D

Stock No.	Mfrs. Type	Ohms @25°C	Tol. %	Resis. Ratio 0°C to 50°C	Diss. Const. mW/°C	Time Const. (Sec)	L (In.)	D (In.)	T (In.)	EACH 1-9	EACH 10-24	EACH 25-99
30F1751	FB31J1	1 K	10	6.95	1.0	.....	1 1/2	.050	.....	1.52	1.22	.99
30F1752	FB32J1	2 K	10	6.95	1.5	.....	1 1/2	.050	.....			
30F1753	FA41J1	10 K	10	9.10	1.0	.....	1 1/2	.050	.....			
30F1754	FA42J1	20 K	10	9.10	1.5	.....	1 1/2	.050	.....			
30F1755	FP52J1	200 K	10	11.60	1.5	.....	1 1/2	.050	.....			
30F1756	JD12J4	15	10	4.80	.....	.....	1	.1	.....	1.05	.84	.68
30F1758	JB25J1	500	10	6.95	.....	.....	1	.1	.....			
30F1759	JB31J1	1000	10	6.95	.....	.....	1	.1	.....			
30F1760	JA33J1	3000	10	9.10	.....	.....	1	.1	.....			
30F1761	JA35J1	5000	10	9.10	.....	.....	1	.1	.....	1.05	.84	.68
30F1762	JA38J1	8000	10	9.10	.....	.....	1	.1	.....			
30F1763	JA41J1	10 K	10	9.10	.....	.....	1	.1	.....			
30F1702	KD05J1	5	10	4.80	.....	.....	1 1/2	.2	.....	1.00	.80	.65
30F1704	KD13J3	30	10	4.80	4	20	1 1/2	.2	.....			
30F1705	KD14J1	40	10	4.80	.....	20	1 1/2	.2	.....			
30F1706	KB21J1	100	10	6.95	.....	.....	1 1/2	.2	.....			
30F1707	KB22J1	200	10	6.95	.....	.....	1 1/2	.2	.....	1.00	.80	.65
30F1708	KB23J1	300	10	6.95	.....	.....	1 1/2	.2	.....			
30F1709	KB25J1	500	10	6.95	.....	.....	1 1/2	.2	.....			
30F1710	KA31J1	1000	10	9.10	.....	.....	1 1/2	.2	.....			
30F1711	KA33J1	3000	10	9.10	.....	.....	1 1/2	.2	.....	1.00	.80	.65
30F1712	KA35J3	5000	10	9.10	.....	.....	1 1/2	.2	.....			
30F1735	CA31J1	1000	10	9.10	.....	.....	1 1/2	.3	.....			
30F1741	LB15J1	50	10	6.95	.....	.....	3 3/4	.4	.....			
30F1784	LB21J1	100	10	6.95	.....	.....	3 3/4	.4	.....			
30F1829	LA31J1	1000	10	9.10	.....	.....	3 3/4	.4	.....	1.00	.80	.65
30F1835	DB15J1	50	10	6.95	8	60	3 3/4	.5	.....			
30F1841	NB11J1	10	10	6.95	.....	.....	3 3/4	.77	.....			
30F1842	NA21J1	100	10	9.10	.....	.....	3 3/4	.77	.....			
30F1846	ZB11J1	10	10	6.95	.....	.....	3 3/4	1.00	.....	1.44	1.16	.94

THERMISTOR ENGINEERING PACKAGE



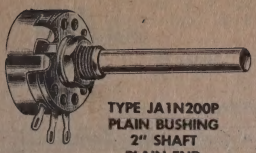
- **Thermistor manual**
- **Handy time-saving "computer"**
- **Specs on over 500 thermistors**
- **Resistance-Temperature charts**
- **All dimensions tabulated**

Includes 8½ x 11" Data and Curve "Computer." Displays resistance values alongside temperature points of thermistor curves. Shortens computation time. Includes dimensions. Package also includes a 32 page thermistor manual. Can be used as a step-by-step primer and guide. Contains definitions of different types of thermistors along with their characteristics. Applications and schematics of thermistor circuits. Application problem solving with thermistors. Linear temperature readout circuits. List of over 500 thermistors and their specs along with Temperature-Resistance tables and a glossary of terms. Schematics of typical circuits included.

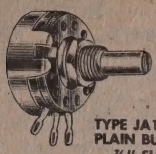
30F1783. NET 1.75

ALLEN-BRADLEY POTENTIOMETERS

TYPE J-STYLE RV4N VARIABLE POTENTIOMETERS



TYPE JA1N200P
PLAIN BUSHING
2" SHAFT
PLAIN END



TYPE JA1N056S
PLAIN BUSHING
⅜" SHAFT
SLOTTED END

TYPE "J". Hot-molded composition variable resistors for use as rheostats and potentiometers in military and industrial applications where superior performance is desired. Many available as Style RV4N of MIL-R-94. Corrosion resistant, nonmagnetic materials. Dust and splash resistant. Terminals treated for easy soldering. Linear Taper "U". Locating lug provided. Supplied with mounting nut M-2786 and internal tooth lock washer M-2898. Additional hardware and SPST switch also available. (See below).

TEMP. RANGE	-55°C to +120°C
POWER RATING	2.25 watt maximum @ +70°C
POWER DERATING	Linearly to 0 watt @ +120°C for linear taper Log taper: derate by .05.
RESISTANCE RANGE	Nominal values from 50 ohms to 5 megohms
VOLTAGE	500 V. max. working voltage (RMS or DC)
LOAD LIFE	Less than 10% change of total res. (1000 hrs)
ROTATIONAL LIFE	Less than 10% change (100,000 cycle life test)
MARKING	Type "J", A-B trade and part number, nom. res. value. Mil spec where applicable.

ADDITIONAL HARDWARE

Stk. No.	Type	Description	Price
10F1953	M-2786	Mounting Nut	.08
10F1954	M-2898	Lock Washer	.08
10F1955	B-13750	Hex Locking Nut	.32
10F1956	M-3236	Acorn Locking Nut	.80
10F1957	M-3318	Knurled Locking Nut	.92
10F605	JS-1	SPST Switch*	Price code C

(*) SPST SWITCH. Single Pole, single throw snap switch available only for "turns on at start of clockwise rotation." 2 amperes, 125 volts RMS, 60 Hertz. Also rated 10 amperes, 10 volts DC, non-inductive. **Use with single section only.**

PRICE CODE

CODE LETTER	1-9	10-24	25-49	50-99
A	3.25	2.70	2.60	2.47
AA	4.00	3.32	3.07	2.87
BB	6.50	5.91	5.77	5.65
C	2.10	1.85	1.75	1.67

10% TOLERANCE-LINEAR TAPER

⅜" SHAFT Stk. No.	Type JA1N056S	Mil. No. RV4NAYSD	2" SHAFT Stk. No.	Type JA1N200P	Ohms	Price
10F453	500UA	500A	10F506	500UA	50	A
10F454	101UA	101A	10F507	101UA	100	A
10F455	151UA	151A	10F508	151UA	150	A
10F456	201UA	201A	10F509	201UA	200	A
10F457	251UA	251A	10F510	251UA	250	A
10F458	351UA	351A	10F511	351UA	350	A
10F459	501UA	501A	10F512	501UA	500	A
10F460	751UA	751A	10F513	751UA	750	A
10F461	102UA	102A	10F514	102UA	1.0K	A
10F462	152UA	152A	10F515	152UA	1.5K	A
10F463	202UA	202A	10F516	202UA	2.0K	A
10F464	252UA	252A	10F517	252UA	2.5K	A
10F465	352UA	352A	10F518	352UA	3.5K	A
10F466	502UA	502A	10F519	502UA	5.0K	A
10F467	752UA	752A	10F520	752UA	7.5K	A
10F468	103UA	103A	10F521	103UA	10K	A
10F469	153UA	153A	10F522	153UA	15K	A
10F470	203UA	203A	10F523	203UA	20K	A
10F471	253UA	253A	10F524	253UA	25K	A
10F472	353UA	353A	10F525	353UA	35K	A
10F473	503UA	503A	10F526	503UA	50K	A
10F474	753UA	753A	10F527	753UA	75K	A
10F475	104UA	104A	10F528	104UA	.10M	A
10F476	154UA	154A	10F529	154UA	.15M	A
10F477	204UA	204A	10F530	204UA	.20M	A
10F478	254UA	254A	10F531	254UA	.25M	A
10F479	354UA	354A	10F532	354UA	.35M	A
10F480	504UA	504A	10F533	504UA	.50M	A

10% TOLERANCE— LOG TAPER

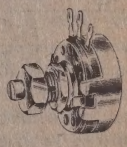
Stk. No.	JA1N200P CW	Stk. No.	JA1N200P CCW	Ohms	Price
10F554	501AA	10F567	501BA	500	A
10F555	102AA	10F568	102BA	1.0K	A
10F556	252AA	10F569	252BA	2.5K	A
10F557	502AA	10F570	502BA	5.0K	A
10F558	103AA	10F571	103BA	10K	A
10F559	253AA	10F572	253BA	25K	A
10F560	503AA	10F573	503BA	50K	A
10F561	104AA	10F574	104BA	.10M	A
10F562	254AA	10F575	254BA	.25M	A
10F563	504AA	10F576	504BA	.50M	A

TYPE J-STYLE RV4L AND DUAL RESISTORS

LINEAR TAPER 10% TOLERANCE

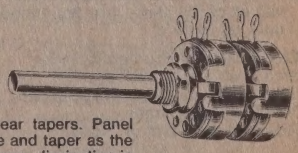
Stk. No.	Type	Mil. No.	Ohms	Price
10F400	JA1L040S500UC	RV4LAYSA500A	50	AA
10F401	JA1L040S101UC	RV4LAYSA101A	100	AA
10F402	JA1L040S151UC	RV4LAYSA151A	150	AA
10F403	JA1L040S201UC	RV4LAYSA201A	200	AA
10F404	JA1L040S251UC	RV4LAYSA251A	250	AA
10F405	JA1L040S351UC	RV4LAYSA351A	350	AA
10F406	JA1L040S501UC	RV4LAYSA501A	500	AA
10F407	JA1L040S751UC	RV4LAYSA751A	750	AA
10F408	JA1L040S102UC	RV4LAYSA102A	1.0K	AA
10F409	JA1L040S152UC	RV4LAYSA152A	1.5K	AA
10F410	JA1L040S202UC	RV4LAYSA202A	2.0K	AA
10F411	JA1L040S252UC	RV4LAYSA252A	2.5K	AA
10F412	JA1L040S352UC	RV4LAYSA352A	3.5K	AA
10F413	JA1L040S502UC	RV4LAYSA502A	5.0K	AA
10F414	JA1L040S752UC	RV4LAYSA752A	7.5K	AA
10F415	JA1L040S103UC	RV4LAYSA103A	10K	AA
10F416	JA1L040S153UC	RV4LAYSA153A	15K	AA
10F417	JA1L040S203UC	RV4LAYSA203A	20K	AA
10F418	JA1L040S253UC	RV4LAYSA253A	25K	AA
10F419	JA1L040S353UC	RV4LAYSA353A	35K	AA
10F420	JA1L040S503UC	RV4LAYSA503A	50K	AA
10F421	JA1L040S753UC	RV4LAYSA753A	75K	AA
10F422	JA1L040S104UC	RV4LAYSA104A	.10M	AA
10F423	JA1L040S154UC	RV4LAYSA154A	.15M	AA
10F424	JA1L040S204UC	RV4LAYSA204A	.20M	AA
10F425	JA1L040S254UC	RV4LAYSA254A	.25M	AA
10F426	JA1L040S354UC	RV4LAYSA354A	.35M	AA
10F427	JA1L040S504UC	RV4LAYSA504A	.50M	AA

FOR LARGER QUANTITIES CONTACT YOUR NEAREST NEWARK FACILITY



TYPE JA1L040S
LOCKING BUSHING
⅜" SLOTTED SHAFT

TYPE JA1L. Hot molded comp. pot. with locking bushing. Linear taper, low noise, infinite resolution. Includes one mtg. nut M-2786, one lock washer M-2898 and one lock nut B-13750. Shpg. Wt. 4 oz.



TYPE JD1N200P
DUAL POTENTIOMETER
2" PLAIN SHAFT

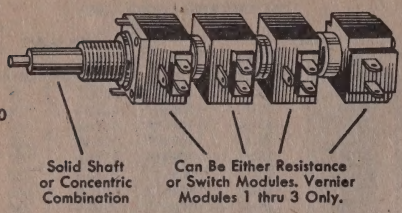
TYPE JD. Dual controls with linear tapers. Panel resistor has the same resistance and taper as the rear resistor. The permissible power dissipation in one resistor element is a function of the power dissipation of the other resistor element. Includes one mounting nut M-2786 and one lock washer M-2898. Max. torque for dual controls is 9 in. oz.; min. 1 in. oz. at 25°C.

DUAL LINEAR-10% TOLERANCE

Stk. No.	Type	Ohms	Price
10F585	JD1N200P500UA	50	BB
10F586	JD1N200P101UA	100	BB
10F587	JD1N200P251UA	250	BB
10F588	JD1N200P501UA	500	BB
10F589	JD1N200P102UA	1.0K	BB
10F590	JD1N200P252UA	2.5K	BB
10F591	JD1N200P502UA	5.0K	BB
10F592	JD1N200P103UA	10K	BB
10F593	JD1N200P253UA	25K	BB
10F594	JD1N200P503UA	50K	BB
10F595	JD1N200P104UA	.10M	BB
10F596	JD1N200P254UA	.25M	BB
10F597	JD1N200P504UA	.50M	BB

Allen-Bradley Mod Pot®

SERIES 70, 72, and 73 POTENTIOMETERS, SWITCHES, VERNIER DRIVE CONTROLS


Series 70
Solid Shaft or Concentric Combination
Can Be Either Resistance or Switch Modules. Vernier Modules 1 thru 3 Only.

Now you can obtain rapid delivery or make A-B MOD POT potentiometers, switches and vernier drive controls. Available in single, dual, triple or four section controls. The controls can be put together in almost any order. We can quickly supply you with special quantities or just an initial quote from our A-B specialist.

Power Rating

Composition	Single Section	Multi-Section
†*Carbon	1 Watt	½ Watt/Section
††**Cermet	2 Watts	1 Watt/Section

* Series 72 rated .5 watt on single or dual.
† Series 73 rated .75 watt on single, .5 watt on dual
** Series 72 rated 1 watt on single, 5 watt on dual
†† Series 73 rated 2 watt on single, 1 watt on dual

To Order a Custom MOD POT Control, Submit the Following Information:

- Number and type of sections required (resistance modules listed in **Chart No. 1**, switch modules in **Chart No. 2**, vernier drive sections in **Chart No. 3.**)
- Bushing types (selections listed in **Chart No. 4**).
- Shaft combinations (selection of types in **Chart No. 5**).
- Locating lug options (selection of types in **Chart No. 6**).

CHART NO. 1, RESISTANCE MODULES

Nominal Resistance Values, Ohms

50*	1K	25K	750K
75*	2K	50K	1.0 megs
100	2.5K	75K	2.5 megs
200	5K	100K	5.0 megs
250	7.5K	200K	10.0 megs*
500	10K	250K	
750	20K	500K	

*Carbon composition only.

To Order Resistance Modules, Specify The Following For Each:

- Nominal resistance value in ohms, from **Chart No. 1.**
- Cermet or carbon composition.
- Tol.: Carbon composition, 10% or 20%; Cermet, 10%.
- Solder lug or square terminals.
- Type of taper: Linear taper. Other tapers available in values of 250 ohms thru 10.0 megohms, carbon composition only, as follows:

Clockwise and counterclockwise
modified logarithmic taper.....±10% or ±20% tolerance
Clockwise exact logarithmic taper.....±10% or ±20% tolerance
Modified linear taper.....±10% or ±20% tolerance
Attenuators, L-pad or T-pad.....±15% or ±20% tolerance

CHART NO. 2, SWITCHES

Current Rating: 2 amps rms for 125 V, 60 Hz, non-inductive load.

Switch Type	Contact Arrangement
Rotary	Two sets of contacts per switch*— One set normally open, one set normally closed. Two sets normally open.
Push-Pull† or Momentary†	Four sets of contacts per switch— Two sets normally open, two sets normally closed.

*Switches are described in the detent position.
(†) Not available on Series 72.

To Order Switches, Specify The Following For Each:

- Type of Switch
- Contact Arrangement
- Location of detent required if rotary switch is ordered—either clockwise or counterclockwise end of rotation.

CHART NO. 3, VERNIER DRIVES

Drive	Type of Shaft and Shaft Combination
4-Turn	Fine adjust shaft only.
16-Turn	Fine and coarse adjust shaft.
Vernier	

- To Order Vernier Drive Control, Specify Type of Shaft Or Shaft Combination Required. See Chart No. 5.

CHART NO. 4, MOUNTING BUSHINGS

BUSHING TYPE	DIAMETER	LENGTH ¼"	LENGTH ¾"	LENGTH ½"
PLAIN	¼"	PA	PC	..
LOCKING†	¼"	..	LC	LH
PLAIN	⅜"	PG†	PK	PN†
LOCKING†	⅜"	..	BK	BN

† Not available on Series 72. Series 72 bushing is all plastic. Series 73 bushing is a metal insert on plastic faceplate.

To Order Mounting Bushings, Specify Type, Diameter and Length by Choosing Two Letters Listed Under Length Columns, e.g., PA = Plain Mounting Bushing, ¼" dia. x ¼" lg.

CHART NO. 5, SHAFT COMBINATIONS AND LENGTHS

Shaft Operating Combinations	Lengths*
**⅛" Dia. Solid	†5/16", ⅜", 7/16", ½", ⅝", ¾", ⅞"
**¼" Dia. Solid	†⅜", ½", ⅝", ¾", ⅞", 1", †1⅛", 1½", 2"
†¼" Dia. Outer Concentric †⅛" Dia. Inner Concentric	¾", ⅞", 1" 1", 1⅛", 1¼", 1⅜", 1½"
†⅛" Dia. Outer Concentric †.078" Dia. Inner Concentric	¾", ⅞", 1" 1", 1⅛", 1¼", 1⅜", 1½"
†¼" Dia. Outer Concentric †.078" Dia. Inner Concentric	¾", ⅞", 1" 1", 1⅛", 1¼", 1⅜", 1½"

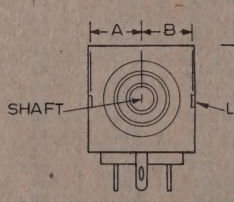
*Lengths are measured from the bushing mounting surface.
† Not available on Series 72
** On Series 72, shaft is plastic. ⅛" dia. have plain ending. ¼" dia. have slotted ending.

To Order Shaft Combination and Length, Specify The Following Information.

- Shaft combination desired
- For dual shaft combinations, specify which sections are to be operated by each shaft.
- Shaft lengths.

Shaft endings. Standard plain round, screw driver slot and flatted shaft endings available on ¼" and ⅛" dia. shafts. .078" dia. shafts available with only plain round endings.

CHART NO. 6 LOCATING LUGS



Dimension A or B, or both, specify distance from shaft center to lug center

Locating Lug Option No. or Letter	A	B
4	No lug	No lug
1	.305"	No lug
*3	.375"	No lug
*6	.437"	No lug
*8	.531"	No lug
*2	.305"	.305"
*5	.375"	.375"
*7	.437"	.437"
*9	.531"	.531"
A	No Lug	.305"
*B	No Lug	.375"
*C	No Lug	.437"
*D	No Lug	.531"

To Order Locating Lugs, Specify Lug Option No. or Letter.
* Not available on Series 72 or Series 73.

All controls include standard A-B mounting hardware and markings. Extra hardware is available on request. Special markings can be provided on each control, if desired. For additional information, request Allen-Bradley Publication 5217 and Mod Pot Order Form 898.

Because of the wide range of standard combinations available, pricing is quoted on an individual specification basis.

Mod Pot® Variable Resistors

EXPLANATION OF TYPE NUMBERS

This chart will assist you in compiling a type number for many of your Mod Pot needs. For special configurations such as vernier drives and concentric shafts you will need a Mod Pot form #898 which can be supplied by your Newark salesman.

Shaft Type and Bushing Diameter

Code Letter	Shaft Type Diameter Inch	Shaft Type Diameter Millimeters	Shaft Type Ending	Bushing Diameter Inch	Bushing Diameter Millimeters
S	.250	*(6,35)*	Standard Slot	.375	*(9,52)*
P	.250	*(6,35)*	Plain Round	.375	*(9,52)*
F	.250	*(6,35)*	Standard Flat	.375	*(9,52)*
L	.125	*(3,18)*	Standard Slot	.250	*(6,35)*
R	.125	*(3,18)*	Plain Round	.250	*(6,35)*
K	.125	*(3,18)*	Standard Flat	.250	*(6,35)*
X	.125	*(6,35)*	Cross Slot	No Bushing	

Locating Lug Option

1	6	A
2	7	B
3	8	C
4	9	D
5		

Total Resistance Value

First two digits are significant figures and the third indicates the number of zeros following the first two digits —

Examples: 101 = 100 Ohms
501 = 500 Ohms
255 = 2.5 Megohms

70A1N032S501U

Basic Type MOD POT®

Series 70
Series 72
Series 73

Bushing Type and Length

F — Face Plate
G — Plain .250 inch *(6.35 mm)* long
N — Plain .375 inch *(9.52 mm)* long
M — Locking .375 inch *(9,52 mm)* long
L — Locking .500 inch *(12.70 mm)* long
H — Plain .500 inch *(12.70 mm)* long

Taper Type and Total Resistance Tolerance

CERMET

W — Linear (U) ±10%

HOT-MOLDED

U — Linear (U), ±10%
M — Linear (U), ±20%
A — Clockwise Modified Logarithmic (A), ±10%
R — Clockwise Modified Logarithmic (A), ±20%
B — Counterclockwise Modified Logarithmic (B), ±10%
T — Counterclockwise Modified Logarithmic (B), ±20%
D — Clockwise Exact Logarithmic (DB), ±10%
K — Clockwise Exact Logarithmic (DB), ±20%
S — Modified Linear (S), ±10%
Y — Modified Linear (S), ±20%

Configuration Lug Terminals

A — Single (Hot-Molded)
B — Single (Cermet)
C — Dual (Hot-Molded) [1]
D — Dual (Cermet) [1]
E — Triple (Hot-Molded) [1]
F — Triple (Cermet) [1]
G — Quad (Hot-Molded) [1]
H — Quad (Cermet) [1]
K — Single (Hot-Molded) with Switch [2]
L — Single (Cermet) with Switch [2]

Square Terminals

M — Single (Hot-Molded)
N — Single (Cermet)
P — Dual (Hot-Molded) [1]
R — Dual (Cermet) [1]

[1] If the electrical specifications are not identical for each section, a special number will be required.
[2] Switch number 1001 See Page 6.

Shaft Length

Measured from mounting surface in inches and sixty-fourths

Examples:

032 = 32/64 or .500 inch *(12,70 mm)*
200 = 2.000 inches *(50,80 mm)*

Pad Type and Characteristic Impedance Tolerance

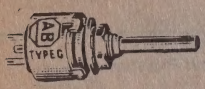
E — Attenuator L-Pad ±15%
L — Attenuator L-Pad ±20%
N — Attenuator Bridged T-Pad ±15%
P — Attenuator Bridged T-Pad ±20%

CAUTION: Part number format does not allow for exclusion of invalid mechanical and/or electrical combinations. Check parameter limits in preceding text.

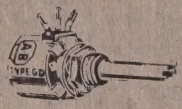
Variable Resistors

TYPES G, GD, W

Type GA2-L040S and WA2-L040S Locking Bushing 5/8" shaft



Type GA2-G056S and WA2-G056S Plain Bushing



Type GD1-G056S Dual Variable Resistors

TYPE G, GD and W. High quality hot molded carbon composition type. TYPE G approved under MIL-R-94 style RV6. TYPE W similar to TYPE G but is industrial grade. TYPE GD is dual minature type. Plain bushing resistors are supplied with one monting nut M-4721 and one lock washer M-4748. Shaft lock bushings furnished with one locknut M-4761, M-4721 and EM-4748. Shpg. wt. 4 oz.

Type G Type W	Type GD
Torque: .5 to 3 in. -@ 25° C	0.5 to 4.5 in oz. @ 25° C
Temp. Range	—55°C to 120°C
Power Rating	½ watt @ 70°C
Derate to 0 Watt	@ 120°C
Rotation	295° ±5°
Voltage	295° ±5°
Voltage	350 Volts maximum
Moisture Resis.	Less than 10% of total resistance
Shock & Vibration	Less than 5%
Load Life	Less than 10% after 1000 hrs. of operation
Enclosure	Immersion sealed
Diameter	½ in. ½ in.
Shaft length	⅞ in. ⅞ in.
Panel Depth	$^{35}/_{64}$ in. $^{35}/_{32}$ in.

ADDITIONAL HARDWARE

Stk. No.	Type	Description	Each
10F1920	M4721	Mounting Nut	.08
10F1921	M4748	Lock Washer	.08
10F1922	M4761	Hex Lock Nut	.24

10% TOLERANCE

Stk. No.	Type GA2 L040S	MIL-R-94 RV6 LAYSA	Ohms	Price
10F660	101UC	101A	100	A
10F661	251UC	251A	250	A
10F662	501UC	501A	500	A
10F663	102UC	102A	1K	A
10F664	252UC	252A	2.5K	A
10F665	502UC	502A	.5K	A
10F666	103UC	103A	10K	A
10F667	253UC	253A	25K	A
10F668	503UC	503A	50K	A
10F669	104UC	104A	.10M	A
10F670	254UC	254A	.25M	A
10F671	504UC	504A	.50M	A

10% TOLERANCE

Stk. No.	Type WA2-L040S	Ohms	Price
10F680	101UC	100	C
10F681	201UC	200	C
10F682	251UC	250	C
10F683	501UC	500	C
10F684	102UC	1.0K	C
10F685	202UC	2.0K	C
10F686	252UC	2.5K	C
10F687	502UC	50K	C
10F688	103UC	10K	C
10F689	203UC	20K	C
10F690	253UC	25K	C
10F691	503UC	50K	C
10F692	104UC	.10M	C
10F693	204UC	.20M	C
10F694	254UC	.25M	C
10F695	504UC	.50M	C
10F696	105UC	1.0M	C
10F697	205UC	2.0M	C
10F699	505UC	5.0M	C

10% TOLERANCE

Stk. No.	Type GA2 G056S	Mil-R-94 RV6-NAYSD	Ohms	Price
10F636	101UA	101A	100	E
10F637	251UA	251A	250	E
10F638	501UA	501A	500	E
10F639	102UA	102A	1.0K	E
10F640	252UA	252A	2.5K	E
10F641	502UA	502A	5.0K	E
10F642	103UA	103A	10K	E
10F643	253UA	253A	25K	E
10F644	503UA	503A	50K	E
10F645	104UA	104A	.10M	E
10F646	254UA	254A	.25M	E
10F647	504UA	504A	.50M	E
10F648	105UA	105A	1.0M	E
10F649	205UA	205A	2.0M	E
10F650	255UA	255A	2.5M	E
10F651	505UA	505A	5.0M	E

10% TOLERANCE

Stk. No.	Type GD1-G056S	Ohms	Price
10F610	101UA	100	I
10F611	201UA	200	I
10F612	251UA	250	I
10F613	501UA	500	I
10F614	102UA	1.0K	I
10F615	202UA	2.0K	I
10F616	252UA	2.5K	I
10F617	502UA	5.0K	I
10F618	103UA	10K	I
10F619	203UA	20K	I
10F620	253UA	25K	I
10F621	503UA	50K	I
10F622	104UA	.10M	I
10F623	204UA	.20M	I
10F624	254UA	.25M	I
10F625	504UA	.50M	I
10F626	105UA	1.0M	I
10F627	205UA	2.0M	I
10F628	255UA	2.5M	I
10F629	505UA	5.0M	I

10% TOLERANCE

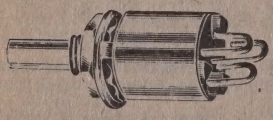
Stk. No.	Type WA2-G056S	Ohms	Price
10F705	101UA	100	G
10F706	201UA	200	G
10F707	251UA	250	G
10F708	501UA	500	G
10F709	102UA	1.0K	G
10F710	202UA	2.0K	G
10F711	252UA	2.5K	G
10F712	502UA	5.0K	G
10F713	103UA	10K	G
10F714	203UA	20K	G
10F715	253UA	25K	G
10F716	503UA	50K	G
10F717	104UA	.10M	G
10F718	204UA	.20M	G
10F719	254UA	.26M	G
10F720	504UA	.50M	G
10F721	105UA	1.0M	G
10F722	205UA	2.0M	G
10F723	255UA	2.5M	G
10F724	505UA	5.0M	G

PRICE CODE

Code Letter	1-9	10-14	25-49	50-99
A	6.00	4.85	4.35	2.90
C	5.00	4.35	3.60	2.70
E	5.50	4.45	3.90	2.63
G	4.20	3.55	3.00	2.30
I	10.45	7.70	7.00	5.80

CERMET VARIABLE RESISTORS

TYPE SP



Type SP — Plain Bushing

TYPE SP. Single turn cermet. Linear taper ±10% tolerance. ¼" plain bushing ⅝" shaft. Supplied with hardware and mounting lugs. Diameter: .375". Shaft length: .625". Panel Depth: .626". .250"-32NEF-2A thread.

TEMP. RANGE	-65° to + 150°C
POWER RATING	1 watt @ 70°C
DERATE TO 0 WATT	@ 150°C
VOLTAGE	300
MOISTURE RESIST.	Less than 2% in total resistance
TEMP. COEFF.	Less than ±150ppm/°C
SHOCK & VIBRATION	Less than 2% in total resistance
TORQUE	½ to 6 in-oz
ENCLOSURE	Immersion sealed or water tight

PRICE CODE

Code	1-9	10-24	25-49	50-99
C	7.60	6.40	5.60	4.60

1/4" PLAIN BUSHING 5/8" SLOTTED SHAFT 10% TOLERANCE

Stock No.	Type SPS-G040S	Ohms	Price Code
10F1500	500U	50	C
10F1501	101U	100	C
10F1502	251U	250	C
10F1503	501U	500	C
10F1504	102U	1K	C
10F1505	252U	2.5K	C
10F1506	502U	5.0K	C
10F1507	103U	10.0K	C
10F1508	252U	25.0K	C
10F1509	503U	50.0K	C
10F1510	104U	.10M	C
10F1511	254U	.25M	C
10F1512	504U	.50M	C

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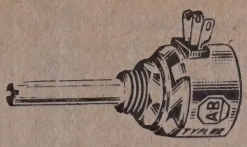
Pots and Multiturn Trimmers

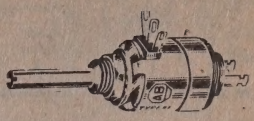
TYPES WRA AND WRS HOT-MOLDED VARIABLE RESISTOR — ½ WATT

Carbon comp. pots. offer behind panel depth of less than ½". Type WRS has 1A line switch actuated at beginning of clockwise rotation. Tol.: ±10%. Linear "U" taper. Power: ½ watt max. at +70°C, at rated voltage. Volt: 350V RMS or DC max. working. Temp: Range: Resistor, −55°C to +120°C; switch, −55°C to +100°C Switch: 1A, 125V, 60 Hz.

PRICES

Type	1-9	10-24	25-49	50-99
WRA	6.34	4.51	3.74	2.96
WRS	10.10	9.00	7.40	5.50





DIMENSIONS (in.)

WRA SERIES
Diameter: .500
Shaft Length: .125 min., 2.38 max.
Panel Depth: .422 max.

WRS SERIES
Diameter: .500
Shaft Length: .125 min., 2.5 max.
Panel Depth: 1.046 max. including terminals

TYPE WRA-LESS SWITCH/TYPE WRS-WITH SWITCH

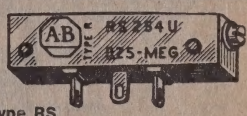
Stock No.	Type	Ohms	Stock No.	Type	Ohms	Stock No.	Type	Ohms	Stock No.	Type	Ohms
10F2300	WRA1G056S101U	100	10F2310	WRA1G056S253U	25K	10F2320	WRS1G056S101U	100	10F2330	WRS1G056S253U	25K
10F2301	WRA1G056S201U	200	10F2311	WRA1G056S503U	50K	10F2321	WRS1G056S201U	200	10F2331	WRS1G056S503U	50K
10F2302	WRA1G056S251U	250	10F2312	WRA1G056S104U	100K	10F2322	WRS1G056S251U	250	10F2332	WRS1G056S104U	100K
10F2303	WRA1G056S501U	500	10F2313	WRA1G056S204U	200K	10F2323	WRS1G056S501U	500	10F2333	WRS1G056S204U	200K
10F2304	WRA1G056S102U	1K	10F2314	WRA1G056S254U	250K	10F2324	WRS1G056S102U	1K	10F2334	WRS1G056S254U	250K
10F2305	WRA1G056S202U	2K	10F2315	WRA1G056S504U	500K	10F2325	WRS1G056S202U	2K	10F2335	WRS1G056S504U	500K
10F2306	WRA1G056S252U	2.5K	10F2316	WRA1G056S105U	1 meg	10F2326	WRS1G056S252U	2.5K	10F2336	WRS1G056S105U	1 meg
10F2307	WRA1G056S502U	5.0K	10F2317	WRA1G056S205U	2 meg	10F2327	WRS1G056S502U	5K	10F2337	WRS1G056S205U	2 meg
10F2308	WRA1G056S103U	10K	10F2318	WRA1G056S255U	2.5 meg	10F2328	WRS1G056S103U	10K	10F2338	WRS1G056S255U	2.5 meg
10F2309	WRA1G056S203U	20K	10F2319	WRA1G056S505U	5 meg	10F2329	WRS1G056S203U	20K	10F2339	WRS1G056S505U	5 meg

TYPES N AND R MULTI-TURN TRIMMERS

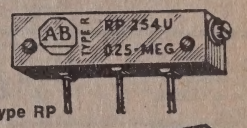
- **300 MAX. WVDC OR RMS WITHIN POWER RATING LIMITS**
- **TYPE "RS" STYLE, "RJ11" MIL-R-22097**
- **TYPE "NP" INDUSTRIAL GRADE**

Hot-molded composition, continuously adjustable 25-turn variable resistors intended primarily for trimmer applications. Immersion sealed enclosure. Corrosion resistant, non-magnetic materials. Sealed; molded, insulating enclosures with "O" ring equipped adjustment screw.
Type "RS." MIL approved. Pin or lug terminals spaced on 0.1" grid system for PC boards. **Type RJ11.**Mil-R-22097. Marked with MIL designation and circuit diagrams if applicable. **Type "N".** Performance similar to Type RP except industrial grade. Available in pin leads only.

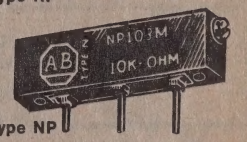
	TYPE "R"	TYPE "N"
TEMP. RANGE	−55°C to +125°C	−55°C to +100°C
POWER RATING	¼ watt @70°C	⅓ watt @50°C
DERATE TO 0 WATT	@125°C	@100°C
ROTATION	25 ±3 turns-5% max. res. change/500 cycles	
TORQUE	0.10 to 8 in. oz +25°C	
RESISTANCE RANGE	100 ohms to 2.5 megohms.	
VOLTAGE	300 Volts max. working voltage (RMS or DC)	
MOISTURE RESISTANCE	Less than 10% temporary change	
VIBRATION	<2% change in tot. res.	<3% change in tot. res.
SHOCK	<2% change in tot. res.	— not tested —
LOAD LIFE	Less than 10% change in total res. after 1000 hrs.	
ENCLOSURE	Immersion sealed	
MARKING	A-B trademark, resistance value	



Type RS



Type RP



Type NP

TYPE R

10% TOLERANCE					10% TOLERANCE			
Stk. No.	Type	MIL-R 22097 RJ11AS	Ohms	Pr.	Stk. No.	Type	Ohms	Pr.
10F1135	RS101U	101	100	A	10F1090	RP101U	100	A
10F1136	RS201U	201	200	A	10F1091	RP201U	200	A
10F1137	RS251U	...	250	A	10F1092	RP251U	250	A
10F1138	RS501U	501	500	A	10F1093	RP501U	500	A
10F1139	RS102U	102	1.0K	A	10F1094	RP102U	1.0K	A
10F1140	RS202U	202	2.0K	A	10F1095	RP202U	2.0K	A
10F1141	RS252U	...	2.5K	A	10F1096	RP252U	2.5K	A
10F1142	RS502U	502	5.0K	A	10F1097	RP502U	5.0K	A
10F1143	RS103U	103	10K	A	10F1098	RP103U	10K	A
10F1144	RS203U	203	20K	A	10F1099	RP203U	20K	A
10F1145	RS253U	253	25K	A	10F1100	RP253U	25K	A
10F1146	RS503U	503	50K	A	10F1101	RP503U	50K	A
10F1147	RS104U	104	100K	A	10F1102	RP104U	100K	A
10F1148	RS204U	...	200K	A	10F1103	RP204U	200K	A
10F1149	RS254U	254	250K	A	10F1104	RP254U	250K	A
10F1150	RS504U	504	500K	A	10F1105	RP504U	500K	A
10F1151	RS105U	105	1.0M	A	10F1106	RP105U	1.0M	A
10F1152	RS205U	...	2.0M	A	10F1107	RP205U	2.0M	A
10F1153	RS255U	...	2.5M	A	10F1108	RP275U	2.5M	A

PRICE CODE

Code Letter	1-9	10-24	25-49	50-99
A	6.16	4.86	4.61	4.37
B	5.25	4.23	4.01	3.80
C	5.00	4.01	3.80	3.58

TYPE N

10% TOLERANCE				20% TOLERANCE			
Stk. No.	Type	Ohms	Pr.	Stk. No.	Type	Ohms	Pr.
10F1173	NP101U	100	B	10F1020	NP101M	100	C
10F1174	NP201U	200	B	10F1021	NP201M	200	C
10F1175	NP251U	250	B	10F1022	NP251M	250	C
10F1176	NP501U	500	B	10F1023	NP501M	500	C
10F1177	NP102U	1.0K	B	10F1024	NP102M	1.0K	C
10F1178	NP202U	2.0K	B	10F1025	NP202M	2.0K	C
10F1179	NP252U	2.5K	B	10F1026	NP252M	2.5K	C
10F1180	NP502U	5.0K	B	10F1027	NP502M	5.0K	C
10F1181	NP103U	10K	B	10F1028	NP103M	10K	C
10F1182	NP203U	20K	B	10F1029	NP203M	20K	C
10F1183	NP253U	25K	B	10F1030	NP253M	25K	C
10F1184	NP503U	50K	B	10F1031	NP503M	50K	C
10F1185	NP104U	100K	B	10F1032	NP104M	100K	C
10F1186	NP204U	200K	B	10F1033	NP204M	200K	C
10F1187	NP254U	250K	B	10F1034	NP254M	250K	C
10F1188	NP504U	500K	B	10F1035	NP504M	500K	C
10F1189	NP105U	1.0M	B	10F1036	NP105M	1.0M	C
10F1190	NP205U	2.0M	B	10F1037	NP205M	2.0M	C
10F1191	NP255U	2.5M	B	10F1038	NP255M	2.5M	C

The Type N dimensions are similar to the RP except the Type N has no holes for stack mounting and N slot depth is .035" x .010-.005 instead of .031". Minimum order 10 pcs. Order in multiples of 10.

Allen-Bradley Trimmers

TYPE S-SINGLE TURN CERMET TRIMMERS

TYPE SH

TYPE SV

Price Code				
Code Letter	1-9	10-24	25-49	50-99
A	3.25	2.25	1.60	1.50
B	3.75	2.75	2.00	1.75

Type S. For applications where severe environmental conditions exist. Have pin terminals for mounting on 0.1" grid circuit boards. **Resistance Range:** 50 ohm to 1 Megohm. **Voltage:** 300 V. **Moisture Resist:** less than 2% total resistance change. **Temp. Coeff:** less than 100ppm/°C. **Load Life:** less than 3% change in total resistance. **Enclosure:** immersion sealed. **Marking:** AB part number and nominal resistance value.

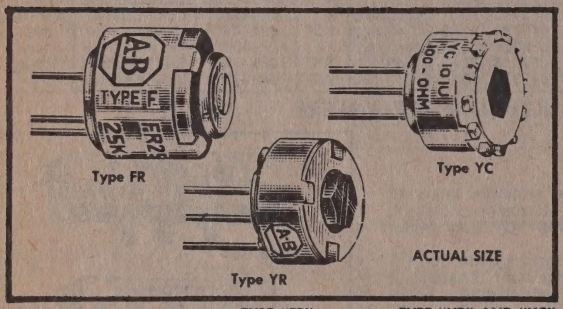
	Type S
TEMP. RANGE	-65°C to +150°C
POWER	½ Watt @ 85°C
DERATE TO	0 Watt @ 150°C
ROTATION	280° ± 10°

10% TOLERANCE

Stk. No.	Type	Ohms	Price	Stk. No.	Type	Ohms	Price
10F870	SV5001	50	A	10F840	SH5001	50	B
10F871	SV7501	75	A	10F841	SH7501	75	B
10F872	SV1011	100	A	10F842	SH1011	100	B
10F873	SV2011	200	A	10F843	SH2011	200	B
10F874	SV2511	250	A	10F844	SH2511	250	B
10F875	SV5011	500	A	10F845	SH5011	500	B
10F876	SV7511	750	A	10F846	SH7511	750	B
10F877	SV1021	1.0K	A	10F847	SH1021	1.0K	B
10F878	SV2021	2.0K	A	10F848	SH2021	2.0K	B
10F879	SV2521	2.5K	A	10F849	SH2521	2.5K	B
10F880	SV5021	5.0K	A	10F850	SH5021	5.0K	B
10F881	SV7521	7.5K	A	10F851	SH7521	7.5K	B
10F882	SV1031	10K	A	10F852	SH1031	10K	B
10F883	SV2031	20K	A	10F853	SH2031	20K	B
10F884	SV2531	25K	A	10F854	SH2531	25K	B
10F885	SV5031	50K	A	10F855	SH5031	50K	B
10F886	SV7531	75K	A	10F856	SH7531	75K	B
10F887	SV1041	.10M	A	10F857	SH1041	.10M	B
10F888	SV2041	.20M	A	10F858	SH2041	.20M	B
10F889	SV2541	.25M	A	10F859	SH2541	.25M	B
10F890	SV5041	.50M	A	10F860	SH5041	.50M	B
10F891	SV7541	.75M	A	10F861	SH7541	.75M	B
10F892	SV1051	1.0M	A	10F862	SH1051	1.0M	B

6

TYPE F AND Y SINGLE TURN TRIMMERS



- **Type FR** for demanding rheostat or potentiometer applications.
- **Type YR** and **YC** for trimmer appl. Low profile.
- **Type YR** has pin type term. **Type YC**, slotted and notched actuator.

Type FR. Hot molded carbon composition single turn trimmers. Designed for demanding rheostat or potentiometer applications in electronic equipment. Small ½" dia. size make them ideal for subminiature assemblies and PC applications. Pin type terminals fit 0.1 printed wiring board standard layout. Enclosure: immersion sealed. Pin type terminals and plastic slotted actuator. Shpg. wt. 4 oz.

Type YR and YC. Hot molded carbon composition single turn adjustable resistor for trimmer application. The low profile design fits into commonly used ⅜" PC board stacking. Enclosure: dust and splash resistant.

Type YR pin type terminals. **Type YC** - slotted and notched actuator. Shpg. wt. 4 oz.

	TYPE "FR"	TYPE "YR" AND "YC"
Temp. Range	-55°C to +120°C	-55°C to + 100°C
Power Rating	¼ Watt @ 70°C	¼ watt @ 50°C
Derate to O Watt	@ 120°C	@ 100°C
Rotation	295° ± 5°	
Resistance Range	100 ohms to 5 megohms	
Voltage	350 max.	
Shock/Vibration	Less than 3% in total resistance	
Load Life	10% max. change after 1000 hrs. operation	
Torque	¼ to 3 in. oz.	
Marking	A-B part # and nom. resistance value	

PRICE CODE				
Code Letter	1-9	10-24	25-49	50-99
A	3.25	2.25	1.60	1.50
B	3.75	2.75	2.00	1.75
C	3.58	2.51	1.98	1.87
D	3.37	2.30	1.77	1.66
E	3.32	2.25	1.71	1.60
F	3.10	2.03	1.50	1.40
G	3.42	2.35	1.82	1.71
H	3.21	2.14	1.61	1.50

10% TOLERANCE

Stk. No.	Type FR	Ohms	Price
10F1045	101U	100	G
10F1046	201U	200	G
10F1047	251U	250	G
10F1048	501U	500	G
10F1049	102U	1.0K	G
10F1050	202U	2.0K	G
10F1051	252U	2.5K	G
10F1052	502U	5.0K	G
10F1053	103U	10K	G
10F1054	203U	20K	G
10F1055	253U	25K	G
10F1056	503U	50K	G
10F1057	104U	.10M	G
10F1058	204U	.20M	G
10F1059	254U	.25M	G
10F1060	504U	.50M	G
10F1061	105U	1.0M	G
10F1062	205U	2.0M	G
10F1063	255U	2.5M	G
10F1064	505U	5.0M	G

20% TOLERANCE

Stk. No.	Type FR	Ohms	Price
10F1065	101M	100	H
10F1066	201M	200	H
10F1067	251M	250	H
10F1068	501M	500	H
10F1069	102M	1.0K	H
10F1070	202M	2.0K	H
10F1071	252M	2.5K	H
10F1072	502M	5.0K	H
10F1073	103M	10K	H
10F1074	203M	20K	H
10F1075	253M	25K	H
10F1076	503M	50K	H
10F1077	104M	.10M	H
10F1078	204M	.20M	H
10F1079	254M	.25M	H
10F1080	504M	.50M	H
10F1081	105M	1.0M	H
10F1082	205M	2.0M	H
10F1083	255M	2.5M	H
10F1084	505M	5.0M	H

10% TOLERANCE

Stk. No.	Type YC	Ohms	Price
10F750	101U	100	C
10F751	201U	200	C
10F752	251U	250	C
10F753	501U	500	C
10F754	102U	1.0K	C
10F755	202U	2.0K	C
10F756	252U	2.5K	C
10F757	502U	5.0K	C
10F758	103U	10K	C
10F759	203U	20K	C
10F760	253U	25K	C
10F761	503U	50K	C
10F762	104U	.10M	C
10F763	204U	.20M	C
10F764	254U	.25M	C
10F765	504U	.50M	C
10F766	105U	1.0M	C
10F767	205U	2.0M	C
10F768	255U	2.5M	C
10F769	505U	5.0M	C

20% TOLERANCE

Stk. No.	Type YC	Ohms	Price
10F770	101M	100	D
10F771	201M	200	D
10F772	251M	250	D
10F773	501M	500	D
10F774	102M	1.0K	D
10F775	202M	2.0K	D
10F776	252M	2.5K	D
10F777	502M	5.0K	D
10F778	103M	10K	D
10F779	203M	20K	D
10F780	253M	25K	D
10F781	503M	50K	D
10F782	104M	.10M	D
10F783	204M	.20M	D
10F784	254M	.25M	D
10F785	504M	.50M	D
10F786	105M	1.0M	D
10F787	205M	2.0M	D
10F788	255M	2.5M	D
10F789	505M	5.0M	D

10% TOLERANCE

Stk. No.	Type YR	Ohms	Price
10F795	101U	100	E
10F796	201U	200	E
10F797	251U	250	E
10F798	501U	500	E
10F799	102U	1.0K	E
10F800	202U	2.0K	E
10F801	252U	2.5K	E
10F802	502U	5.0K	E
10F803	103U	10K	E
10F804	203U	20K	E
10F805	253U	25K	E
10F806	503U	50K	E
10F807	104U	.10M	E
10F808	204U	.20M	E
10F809	254U	.25M	E
10F810	504U	.50M	E
10F811	105U	1.0M	E
10F812	205U	2.0M	E
10F813	255U	2.5M	E
10F814	505U	5.0M	E

20% TOLERANCE

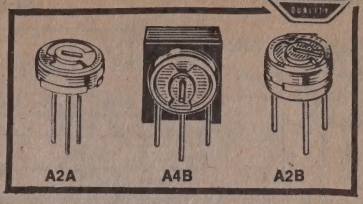
Stk. No.	Type YR	Ohms	Price
10F815	101M	100	F
10F816	201M	200	F
10F817	251M	250	F
10F818	501M	500	F
10F819	102M	1.0K	F
10F820	202M	2.0K	F
10F821	252M	2.5K	F
10F822	502M	5.0K	F
10F823	103M	10K	F
10F824	203M	20K	F
10F825	253M	25K	F
10F826	503M	50K	F
10F827	104M	.10M	F
10F828	204M	.20M	F
10F829	254M	.25M	F
10F830	504M	.50M	F
10F831	105M	1.0M	F
10F832	205M	2.0M	F
10F833	255M	2.5M	F
10F834	505M	5.0M	F

Allen-Bradley Cermet Trimmers

TYPE A SINGLE-TURN TRIMMERS

- .250 inch (6.35 mm) diameter
- 10 ohms to 2.5 megohms.
- Immersion sealed
- Temperature coefficient ±35 ppm/°C typical.

Type A, miniature, single-turn, cermet trimmers for PC board mounting, with extremely long load and wear life. Will maintain setting to give dependable performance in severe environmental conditions. Leads are permanently fastened, anchored, and bonded. All are immersion sealed. Power: 0.5 watt @ 85°C, derate to zero at 150°C. Power derating: linearly with actuator position for rheostat usage. Voltage: 300 volts RMS maximum within power rating limits. Insulation resistance: 1000 megohm minimum. Temperature range: —55°C to +150°C. Total resistance values: 10 ohms to 2.5 megohms. Total resistance tolerances: ±10% standard. Linear taper. End resistance: Less than 2 ohms at either end. Contact resistance variation: typically less than one percent of total resistance or one ohm, whichever is greater. Load life: 1000 hrs at 85°C, 2% maximum change in resistance. Rotational life: 200 cycles, 5% maximum change in total resistance. Rotation: 280° ±5° stop to stop. Immersion sealed per MIL-R-22097. .250 inch (6,35 mm) Diameter. Weight: approximately 0.1 ounce (3 gm).



PRICING INFORMATION

Price Code	1-49	50-99	100-499	500-999
A2A	1.41	1.29	1.17	1.06
A2B	1.41	1.29	1.17	1.06
A4B	1.41	1.29	1.17	1.06
A4D	1.41	1.29	1.17	1.06

VERTICAL ADJUST

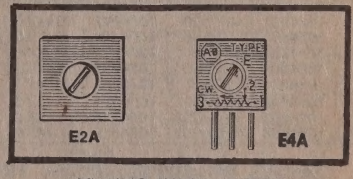
Ohms	.070 Offset Stock No.	Type	Price Code	.100 Offset Stock No.	Type	Price Code
10	10F4321	A2A100	A2A	10F4300	A2B100	A2B
20	10F4322	A2A200	A2A	10F4301	A2B200	A2B
25	10F1192	A2A250	A2A	10F1193	A2B250	A2B
50	10F4323	A2A500	A2A	10F4302	A2B500	A2B
100	10B4324	A2A101	A2A	10F4303	A2B101	A2B
200	10F4325	A2A201	A2A	10F4304	A2B201	A2B
250	10F4326	A2A251	A2A	10F4305	A2B251	A2B
500	10F4327	A2A501	A2A	10F4306	A2B501	A2B
1K	10F4328	A2A102	A2A	10F4307	A2B102	A2B
2K	10F4329	A2A202	A2A	10F4308	A2B202	A2B
2.5K	10F4330	A2A252	A2A	10F4309	A2B252	A2B
5K	10F4331	A2A502	A2A	10F4310	A2B502	A2B
10K	10F4322	A2A103	A2A	10F4311	A2B103	A2B
20K	10F4333	A2A203	A2A	10F4312	A2B203	A2B
25K	10F4334	A2A253	A2A	10F4313	A2B253	A2B
50K	10F4335	A2A503	A2A	10F4314	A2B503	A2B
100K	10F4336	A2A104	A2A	10F4315	A2B104	A2B
200K	10F4337	A2A204	A2A	10F4316	A2B204	A2B
250K	10F4338	A2A254	A2A	10F4317	A2B254	A2B
500K	10F4339	A2A504	A2A	10F4318	A2B504	A2B
1M	10F4340	A2A105	A2A	10F4319	A2B105	A2B
2M	10F4341	A2A205	A2A	10F4320	A2B205	A2B
2.5M	10F4229	A2A255	A2A	10F4230	A2B255	A2B

HORIZONTAL ADJUST

Ohms	.100 Offset Stock No.	Type	Price Code	.100 Offset Stock No.	Type	Price Code
10	10F4342	A4B100	A4B	10F1195	A4D100	A4D
20	10F4343	A4B200	A4B	10F1196	A4D200	A4D
25	10F1194	A4B250	A4B	10F1197	A4D250	A4D
50	10F4344	A4B500	A4B	10F1198	A4D500	A4D
100	10F4345	A4B101	A4B	10F1199	A4D101	A4D
200	10F4346	A4B201	A4B	10F1200	A4D201	A4D
250	10F4347	A4B251	A4B	10F1201	A4D251	A4D
500	10F4348	A4B501	A4B	10F1202	A4D501	A4D
1K	10F4349	A4B102	A4B	10F1203	A4D102	A4D
2K	10F4350	A4B202	A4B	10F1204	A4D202	A4D
2.5K	10F4351	A4B252	A4B	10F1205	A4D252	A4D
5K	10F4352	A4B502	A4B	10F1206	A4D502	A4D
10K	10F4353	A4B103	A4B	10F1207	A4D103	A4D
20K	10F4354	A4B203	A4B	10F1208	A4D203	A4D
25K	10F4355	A4B253	A4B	10F1209	A4D253	A4D
50K	10F4356	A4B503	A4B	10F1210	A4D503	A4D
100K	10F4357	A4B104	A4B	10F1211	A4D104	A4D
200K	10F4358	A4B204	A4B	10F1212	A4D204	A4D
250K	10F4359	A4B254	A4B	10F1213	A4D254	A4D
500K	10F4360	A4B504	A4B	10F1214	A4D504	A4D
1M	10F4361	A4B105	A4B	10F1215	A4D105	A4D
2M	10F4362	A4B205	A4B	10F1216	A4D205	A4D
2.5M	10F4228	A4B255	A4B	10F1217	A4D255	A4D

TYPE E SINGLE-TURN CERMET TRIMMERS

Type E single turn cermet trimmers for PC board mounting. Power: 0.5 watt at +70°C, derate to zero at +125°C. Power derating: linearly with actuator position for rheostat usage. Voltage: 300 volts RMS maximum within power rating limits. Dielectric withstanding voltage: 900 volts at sea level for one second. Insulation resistance: 1000 megohms minimum. Temperature range: —55°C to +125°C. Total resistance tolerances: ±10% standard. Taper: linear, others consult factory. End resistance: less than 2 ohms at both ends. Contact resistance variation: Less than 1 percent of nominal resistance or 2 ohms, whichever is greater. Load life: 1000 hrs at +70°C, 2% maximum change in total resistance or 2 ohms, whichever is greater. Rotational life: 200 cycles, 5% maximum change in total resistance. Rotation: 280° ±5°. Turning torque: 0.1 to 4.0 inch-ounces (0.7 to 28 mN-m) at +25°C. Stop torque. 15 inch ounces (108 mN-m) minimum. Terminals: solderable per method 208, MIL-STD-202. Weight: approximately 0.03 ounce (0.70 gm).



PRICING INFORMATION

Price Code	1-9	10-24	25-49	50-99
E2	.76	.70	.65	.63
E4	.76	.70	.65	.63

VERTICAL ADJUSTMENT — Price Code E2

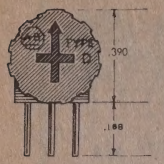
Ohms	.100 Offset Stock No.	Type	.200 Offset Stock No.	Type	.150 Inline Stock No.	Type
10	10F3700	E2A100	10F1230	E2B100	10F4231	E2C100
20	10F3701	E2A200	10F1231	E2B200	10F4232	E2C200
25	10F1218	E2A250	10F1232	E2B250	10F4233	E2C250
50	10F3702	E2A500	10F1233	E2B500	10F4234	E2C500
100	10F3703	E2A101	10F1234	E2B101	10F4235	E2C101
200	10F3704	E2A201	10F1235	E2B201	10F4236	E2C201
250	10F1219	E2A251	10F4224	E2B251	10F4237	E2C251
500	10F3705	E2A501	10F4225	E2B501	10F4238	E2C501
1K	10F3706	E2A102	10F4226	E2B102	10F4239	E2C102
2K	10F3707	E2A202	10F4227	E2B202	10F4240	E2C202
2.5K	10F1220	E2A252	10F1236	E2B252	10F4241	E2C252
5K	10F3708	E2A502	10F1237	E2B502	10F4242	E2C502
10K	10F3709	E2A103	10F1238	E2B103	10F4243	E2C103
20K	10F3710	E2A203	10F1239	E2B203	10F4244	E2C203
25K	10F1221	E2A253	10F1240	E2B253	10F4245	E2C253
50K	10F3711	E2A503	10F1241	E2B503	10F4246	E2C503
100K	10F3712	E2A104	10F1242	E2B104	10F4247	E2C104
200K	10F3713	E2A204	10F1243	E2B204	10F4248	E2C204
250K	10F1222	E2A254	10F1244	E2B254	10F4249	E2C254
500K	10F3714	E2A504	10F1245	E2B504	10F4250	E2C504
1M	10F3715	E2A105	10F1246	E2B105	10F4251	E2C105
2M	10F3716	E2A205	10F1247	E2B205	10F4252	E2C205
2.5M	10F1223	E2A255	10F1248	E2B255	10F4253	E2C255

HORIZONTAL ADJUSTMENT — Price Code E4

Ohms	.100 Offset Stock No.	Type	.150 Inline Stock No.	Type	.100 Offset Stock No.	Type
10	10F3717	E4A100	10F4254	E4C100	10F4277	E4D100
20	10F3718	E4A200	10F4255	E4C200	10F4278	E4D200
25	10F1224	E4A250	10F4256	E4C250	10F4279	E4D250
50	10F3719	E4A500	10F4257	E4C500	10F4280	E4D500
100	10F3720	E4A101	10F4258	E4C101	10F4281	E4D101
200	10F3721	E4A201	10F4259	E4C201	10F4282	E4D201
250	10F1225	E4A251	10F4260	E4C251	10F4283	E4D251
500	10F3722	E4A501	10F4261	E4C501	10F4284	E4D501
1K	10F3723	E4A102	10F4262	E4C102	10F4285	E4D102
2K	10F3724	E4A202	10F4263	E4C202	10F4286	E4D202
2.5K	10F1226	E4A252	10F4264	E4C252	10F4287	E4D252
5K	10F3725	E4A502	10F4265	E4C502	10F4288	E4D502
10K	10F3726	E4A103	10F4266	E4C103	10F4289	E4D103
29K	10F3727	E4A203	10F4267	E4C203	10F4290	E4D203
25K	10F1227	E4A253	10F4268	E4C253	10F4291	E4D253
50K	10F3728	E4A503	10F4269	E4C503	10F4292	E4D503
100K	10F3729	E4A104	10F4270	E4C104	10F4293	E4D104
200K	10F3730	E4A204	10F4271	E4C204	10F4294	E4D204
250K	10F1228	E4A254	10F4272	E4C254	10F4295	E4D254
500K	10F3731	E4A504	10F4273	E4C504	10F4296	E4D504
1M	10F3732	E4A105	10F4274	E4C105	10F4297	E4D105
2M	10F3733	E4A205	10F4275	E4C205	10F4298	E4D205
2.5M	10F1229	E4A255	10F4276	E4C255	10F4299	E4D255

Allen Bradley Cermet Trimmers

SERIES D SINGLE TURN TRIMMERS



PRICES				
Type	1-49	50-99	100-249	250-499
D	.54	.51	.46	.42

Linear taper trimmer potentiometer. Temp. range: −55°C to 125°C. Total res. tolerances: ± 20% standard. End res. less than 2 ohms at both ends. Power: 0.5 watt @ 70°C, derate to zero @ 125°C. Voltage: 300 volts RMS max. in power rating limits. Rotation: 230° ±10° stop to stop. Load life: 1000 hrs. @ 70°C, 2% max. change in total res. or 2 ohms, whichever greater. Rotation life: 200 cycles. 5% max. change in total res. **D2A, D4A, D4B,** — .100 Offset; **D2B,** — .100 x .200 Offset; **D2C, D4D** — .100 Inline.

VERTICAL

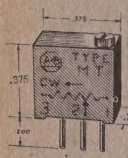
Ohms	Stock No.	Type	Stock No.	Type	Stock No.	Type
10	**10F4900**	D2A100	**10F4944**	D2B100	**10F4909**	D2C100
20	**10F4901**	D2A200	**10F4945**	D2B200	**10F4910**	D2C200
25	**10F4902**	D2A250	**10F4946**	D2B250	**10F4911**	D2C250
50	**10F4903**	D2A500	**10F4947**	D2B500	**10F4912**	D2C500
100	**10F4538**	D2A101	**10F4948**	D2B101	**10F4552**	D2C101
200	**10F4539**	D2A201	**10F4949**	D2B201	**10F4913**	D2C201
250	**10F4904**	D2A251	**10F4950**	D2B251	**10F4914**	D2C251
500	**10F4540**	D2A501	**10F4951**	D2B501	**10F4553**	D2C501
1K	**10F4541**	D2A102	**10F4952**	D2B102	**10F4554**	D2C102
2K	**10F4542**	D2A202	**10F4953**	D2B202	**10F4555**	D2C202
2.5K	**10F4905**	D2A252	**10F4954**	D2B252	**10F4915**	D2C252
5K	**10F4543**	D2A502	**10F4955**	D2B502	**10F4556**	D2C502
10K	**10F4544**	D2A103	**10F4956**	D2B103	**10F4557**	D2C103
20K	**10F4545**	D2A203	**10F4957**	D2B203	**10F4558**	D2C203
25K	**10F4906**	D2A253	**10F4958**	D2B253	**10F4916**	D2C253
50K	**10F4546**	D2A503	**10F4959**	D2B503	**10F4559**	D2C503
100K	**10F4547**	D2A104	**10F4960**	D2B104	**10F4560**	D2C104
200K	**10F4548**	D2A204	**10F4961**	D2B204	**10F4561**	D2C204
250K	**10F4907**	D2A254	**10F4962**	D2B254	**10F4917**	D2C254
500K	**10F4549**	D2A504	**10F4963**	D2B504	**10F4562**	D2C504
1.0 M	**10F4550**	D2A105	**10F4964**	D2B105	**10F4563**	D2C105
2.0 M	**10F4551**	D2A205	**10F4965**	D2B205	**10F4918**	D2C205
2.5 M	**10F4908**	D2A255	**10F4966**	D2B255	**10F4919**	D2C255

HORIZONTAL

Ohms	Stock No.	Type	Stock No.	Type	Stock No.	Type
10	**10F4920**	D4A100	**10F4967**	D4B100	**10F4934**	D4D100
20	**10F4921**	D4A200	**10F4968**	D4B200	**10F4935**	D4D200
25	**10F4922**	D4A250	**10F4969**	D4B250	**10F4936**	D4D250
50	**10F4923**	D4A500	**10F4970**	D4B500	**10F4937**	D4D500
100	**10F4564**	D4A101	**10F4971**	D4B101	**10F4573**	D4D101
200	**10F4924**	D4A201	**10F4972**	D4B201	**10F4574**	D4D201
250	**10F4925**	D4A251	**10F4973**	D4B251	**10F4938**	D4D251
500	**10F4565**	D4A501	**10F4974**	D4B501	**10F4575**	D4D501
1K	**10F4566**	D4A102	**10F4975**	D4B102	**10F4576**	D4D102
2K	**10F4926**	D4A202	**10F4976**	D4B202	**10F4577**	D4D202
2.5K	**10F4927**	D4A252	**10F4977**	D4B252	**10F4939**	D4D252
5K	**10F4567**	D4A502	**10F4978**	D4B502	**10F4578**	D4D502
10K	**10F4568**	D4A103	**10F4979**	D4B103	**10F4579**	D4D103
20K	**10F4928**	D4A203	**10F4980**	D4B203	**10F4580**	D4D203
25K	**10F4929**	D4A253	**10F4981**	D4B253	**10F4940**	D4D253
50K	**10F4569**	D4A503	**10F4982**	D4B503	**10F4581**	D4D503
100K	**10F4570**	D4A104	**10F4983**	D4B104	**10F4582**	D4D104
200K	**10F4930**	D4A204	**10F4984**	D4B204	**10F4941**	D4D204
250K	**10F4931**	D4A254	**10F4985**	D4B254	**10F4942**	D4D254
500K	**10F4571**	D4A504	**10F4986**	D4B504	**10F4583**	D4D504
1.0 M	**10F4572**	D4A105	**10F4987**	D4B105	**10F4584**	D4D105
2.0 M	**10F4932**	D4A205	**10F4988**	D4B205	**10F4585**	D4D205
2.5 M	**10F4933**	D4A255	**10F4989**	D4B255	**10F4943**	D4D255

D2E and **D4F** SERIES are available on special order. Minimum order 25 pieces per value. **Sold only in multiples of 25.**

SERIES MT MULTI-TURN TRIMMERS



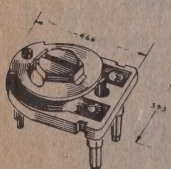
PRICES				
Type	1-49	50-99	100-249	250-499
MT	1.71	1.57	1.42	1.29

Linear taper, 20 turn potentiometer. Multi-fingered wiper. Temp. range: −55°C to 125°C. Total res. tolerance: ±10 standard. End res. less than 2 ohms at both ends. Power: 0.5 watt @ 70°C, derate linearly to zero @ 125°C. Voltage: 300 volts RMS max. in power rating limits. Load life: 1000 hrs. @ 70°C, 2% max. change in total res. Rotational life: 200 cycles, 5% max. change in total res. Immersion sealed construction. MT2W—Vert. adj., 0.100 in-line; MT4X—Hor. adj., 0.100 in-line. MT4P—Hor. adj., 0.100 offset.

Ohms	Stock No.	Type	Stock No.	Type	Stock No.	Type
10	**10F4500**	MT2W100	**10F4996**	MT4X100	**10F5008**	MT4P100
20	**10F4501**	MT2W200	**10F4997**	MT4X200	**10F5009**	MT4P200
50	**10F4502**	MT2W500	**10F4999**	MT4X500	**10F5011**	MT4P500
100	**10F4503**	MT2W101	**10F4517**	MT4X101	**10F4528**	MT4P101
200	**10F4504**	MT2W201	**10F4518**	MT4X201	**10F5012**	MT4P201
500	**10F4505**	MT2W501	**10F5001**	MT4X501	**10F4529**	MT4P501
1K	**10F4506**	MT2W102	**10F4519**	MT4X102	**10F4530**	MT4P102
2K	**10F4507**	MT2W202	**10F4520**	MT4X202	**10F4531**	MT4P202
5K	**10F4508**	MT2W502	**10F4521**	MT4X502	**10F4532**	MT4P502

Ohms	Stock No.	Type	Stock No.	Type	Stock No.	Type
10K	**10F4509**	MT2W103	**10F4522**	MT4X103	**10F4533**	MT4P103
20K	**10F4510**	MT2W203	**10F4523**	MT4X203	**10F4534**	MT4P203
50K	**10F4511**	MT2W503	**10F4524**	MT4X503	**10F4535**	MT4P503
100K	**10F4512**	MT2W104	**10F4525**	MT4X104	**10F4536**	MT4P104
200K	**10F4513**	MT2W204	**10F4526**	MT4X204	**10F5016**	MT4P204
500K	**10F4514**	MT2W504	**10F5005**	MT4X504	**10F5018**	MT4P504
1.0M	**10F4515**	MT2W105	**10F4527**	MT4X105	**10F4537**	MT4P105
2.0M	**10F4516**	MT2W205	**10F5006**	MT4X205	**10F5019**	MT4P205

SERIES 90 SINGLE-TURN TRIMMERS



Standard "U" linear taper single-turn pot. 20% tot. res. tol. Power: 0.5 watts max. at 70°C provided volt. rating is not exceeded. Voltage: 200 volts max. working voltage.

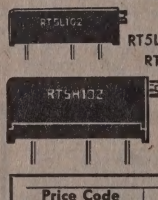
Explanation of **Type** numbers: Horiz. mtg. top adjust. is indicated by an 'H' in the number. Vert. mtg. side adj. is indicated by a 'V' in the number.

PRICES				
Type	1-49	50-99	100-249	250-499
90	.60	.56	.51	.47

Ohms	Stock No.	Horiz. Mtg.	Stock No.	Vert. Mtg.
100	**10F4586**	90H1012	**10F4600**	90V1012
200	**10F4587**	90H2012	**10F4601**	90V2012
500	**10F4588**	90H5012	**10F4602**	90V5012
1K	**10F4589**	90H1022	**10F4603**	90V1022
2K	**10F4590**	90H2022	**10F4604**	90V2022
5K	**10F4591**	90H5022	**10F4605**	90V5022
10K	**10F4592**	90H1032	**10F4606**	90V1032
20K	**10F4593**	90H2032	**10F4607**	90V2032
50K	**10F4594**	90H5032	**10F4608**	90V5032
100K	**10F4595**	90H1042	**10F4609**	90V1042
200K	**10F4596**	90H2042	**10F4610**	90V2042
500K	**10F4597**	90H5042	**10F4611**	90V5042
1M	**10F4598**	90H1052	**10F4612**	90V1052
2M	**10F4599**	90H2052	**10F4613**	90V2052

D2E and D4F Series are available on special order. Minimum order 25 pieces per value. Sold only in multiples of 25.

TYPE RT MULTI-TURN CERMET TRIMMERS



Cermet trimming pots with a 20 turn range. Linear taper. Rated at ¾ watt at 70°C. Temp. range, −65°C to +125°C. Plastic case is immersion sealed. Terms. are .035" x .010" at standoff. Slightly tapered on .100" grid spacing for PC board mounting. Size: Type RT5L, .750" L. x .190" w. x .250" H: Type RT5H, .750" L. x .190" w. x .340" H. Tolerance: ±10%.

PRICING INFORMATION				
Price Code	1-9	10-24	25-49	50-99
RT5H	1.40	1.30	1.21	1.19
RT5L	.96	.94	.90	.85

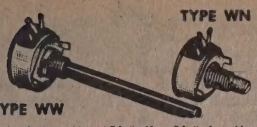
Ohms	Stock No.	Type	Price Code	Stock No.	Type	Price Code
10	**10F3600**	RT5L100	RT5L	**10F3650**	RT5H100	RT5H
20	**10F3601**	RT5L200	RT5L	**10F3651**	RT5H200	RT5H
50	**10F3602**	RT5L500	RT5L	**10F3652**	RT5H500	RT5H
100	**10F3603**	RT5L101	RT5L	**10F3653**	RT5H101	RT5H
200	**10F3604**	RT5L201	RT5L	**10F3654**	RT5H201	RT5H
500	**10F3605**	RT5L501	RT5L	**10F3655**	RT5H501	RT5H
1K	**10F3606**	RT5L102	RT5L	**10F3656**	RT5H102	RT5H
2K	**10F3607**	RT5L202	RT5L	**10F3657**	RT5H202	RT5H
5K	**10F3608**	RT5L502	RT5L	**10F3658**	RT5H502	RT5H
10K	**10F3609**	RT5L103	RT5L	**10F3659**	RT5H103	RT5H
20K	**10F3610**	RT5L203	RT5L	**10F3660**	RT5H203	RT5H
50K	**10F3611**	RT5L503	RT5L	**10F3661**	RT5H503	RT5H
100K	**10F3612**	RT5L104	RT5L	**10F3662**	RT5H104	RT5H
200K	**10F3613**	RT5L204	RT5L	**10F3663**	RT5H204	RT5H
500K	**10F3614**	RT5L504	RT5L	**10F3664**	RT5H504	RT5H
1M	**10F3615**	RT5L105	RT5L	**10F3665**	RT5H105	RT5H
2M	**10F3616**	RT5L205	RT5L	**10F3666**	RT5H205	RT5H

6

Trimmers and Controls

CENTRALAB
Electronics Division
GLOBE-UNION INC.

WW & WN WIREWOUND CONTROLS



Rated 5 watts, 1 13/32" dia. 9/16" depth. WW shaft 1/4" dia. full round, 2 5/8" lg. WN screwdriver slotted, 3/8" lg. from end of bushing. Linear taper. Shpg. wt., 4 oz.

Ohms	Stk. No.	Type WW	Key	Stk. No.	Type WN	Key
1	09F400	010	E	09F433	010	A
2	09F401	020	E	09F434	020	A
3	09F402	030	E	09F435	030	A
4	09F403	040	E	09F436	040	A
5	09F404	050	E	09F437	050	A
6	09F405	060	E	09F438	060	A
8	09F406	080	E	09F439	080	A
10	09F407	100	E	09F440	100	A
15	09F408	150	E	09F441	150	A
20	09F409	200	E	09F442	200	A
25	09F410	250	E	09F443	250	A
30	09F411	300	E	09F444	300	A
40	09F412	400	E	09F445	400	A
50	09F413	500	E	09F446	500	A
60	09F414	600	E	09F447	600	A
75	09F415	750	E	09F448	750	A
100	09F416	101	E	09F449	101	A
200	09F417	201	E	09F450	201	A
250	09F418	251	E	09F451	251	A
300	09F419	301	E	09F452	301	A
400	09F420	401	E	09F453	401	A
500	09F421	501	E	09F454	501	A
750	09F422	751	E	09F455	751	A
1K	09F423	102	E	09F456	102	A
1.5K	90F424	152	E	09F457	152	A
2K	09F425	202	E	09F458	202	A
2.5K	09F426	252	E	09F459	252	A
3K	09F427	302	E	09F460	302	A
4K	09F428	402	E	09F461	402	A
5K	09F429	502	E	09F462	502	A
7.5K	09F430	752	E	09F463	752	A
10K	09F431	103	F	09F464	103	B
15K	09F432	153	F	09F465	153	B
20K	09F683	203	F	09F690	203	B
25K	09F684	253	F	09F691	253	B
30K	09F685	303	F	09F692	303	B
40K	09F686	403	G	09F693	403	C
50K	09F687	503	G	09F694	503	C
75K	09F688	753	H	09F695	753	D
100K	09F689	104	H	09F696	104	D

PRICE CODE

Code	1-24	25-49	50-99	100-Up
A	2.16	1.99	1.86	1.43
B	2.66	2.45	2.29	1.78
C	3.04	2.80	2.61	2.04
D	3.38	3.11	2.91	2.26
E	2.16	1.99	1.86	1.43
F	2.66	2.45	2.29	1.78
G	3.04	2.80	2.61	2.04
H	3.38	3.11	2,91	2.26

0.4 WATT @ +70°C CARBON

SERIES TSC-1 TRIMMER RESISTORS

- RESISTANCES FROM 100 OHMS TO 500 MEGOHMS
- TERMINAL TYPE MOUNTING
- LINEAR TAPER

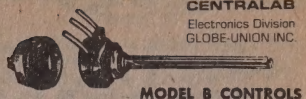
High-quality trimmer pot features include terminal mounting, wide range of resistances to choose from and linear taper. Resistance tolerance on all trimmers is ±30%. Contact resistance varies 1% max. for low values to 3% max. for 1 megohm trimmers. Operating temp. −55°C to +105°C. Watt Derating: 0 watts @ +105°C up to 250K, +95°C 250K and above. Size: .594" wide x .68" high. With blue knob.

Stock No.	Type	Ohms
09F383	TSC1BB101C	100
09F384	TSC1BB151C	150
09F385	TSC1BB251C	250
09F386	TSC1BB501C	500
09F387	TSC1BB102C	1000
00F388	TSC1BB252C	2500
09F389	TSC1BB502C	5000
09F390	TSC1BB103C	10K
09F391	TSC1BB253C	25K
09F392	TSC1BB503C	50K
09F393	TSC1BB104C	100K
09F394	TSC1BB254C	250K
09F395	TSC1BB504C	500K
09F396	TSC1BB105C	1Meg
09F397	TSC1BB225C	2.2Meg
09F398	TSC1BB305C	3Meg
09F399	TSC1BB505C	5Meg

PRICE CHART

1-99	100-999	1000-4999	5000-9999
.47	.37	.17	.16

MODEL B CONTROLS



½ watt, 1 9/16" diam., universal fluted shaft 3" long. Use KR switches. Less switch. C1. Lin. C2. Semi-log (audio) 10% ctr.

Stk. No.	Type	Ohms	Taper
09F824	B-4	500	C1
09F800	B-5	1K	C1
09F825	B-6	2K	C1
09F826	B-7	2.5K	C1
09F801	B-10	5K	C1
09F828	B-11	5K	C2
09F802	B-14	10K	C1
09F835	B-15	10K	C2
09F840	B-22	20K	C1
09F804	B-26	25K	C1
09F805	B-31	50K	C1
09F806	B-32	50K	C2
09F807	B-40	100K	C1
09F808	B-41	100K	C2
09F847	B-50	250K	C1
09F810	B-59	.5 meg.	C1
09F811	B-60	.5 meg.	C2
09F853	B-69	1 meg.	C1
09F812	B-70	1 meg.	C2
09F857	B-75	2 meg.	C1
09F860	B-84	3 meg.	C1
09F814	B-87	5 meg.	C1
09F815	B-98	10 meg.	C1

1-24	25-49	50-99	100-up
2.12	1.95	1.82	1.42

TYPE KR FASTATCH SWITCHES FOR MODEL B CONTROLS

3 Amps — 125 Volts AC

Stk. No.	Type	Circuit	Each
09F466	KR-1	SPST	1.04
09F467	KR-2	DPST	1.04
09F468	KR-3	DP(1 on 1 off)	1.04
15 Amps - 10 Volts DC *With dummy lug.			
09F469	KR-4	SPST	1.04
09F470	KR-6*	SPST	1.04
09F471	KR-7	DPST	1.04

1/10 WATT MINIATURE CONTROLS

Type B16: Dielectric strength 900 VAC-RMS. Tol. ±20%. Audiotaper except (*) which is linear. Wt. 2 oz.

PRICE CHART

1-24	25-49	50-99	100-up
2.28	2.10	1.96	1.53

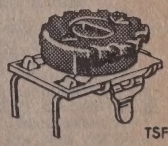
Plain Type Stud Mounted—260° Rotation

Stk. No.	Type	Ohms
09F621	B16-107*	500
09F622	B16-109*	1K
09F623	B16-111*	2.5K
09F624	B16-112	2.5K
09F625	B16-113*	5K
09F627	B16-115*	10K
09F628	B16-116	10K
09F629	B16-117	25K
09F630	B16-119*	50K
09F631	B16-121*	100K
09F633	B16-118	500K
09F634	B16-120	1Meg

TRIMMER RESISTORS

General Specs.: Wattage Rating—Nominal 0.40 watt @ +70°C. Resistance Range—100 ohms to 5 megohms, Resistance Taper—Linear, Tolerance for all TRA1 is ±20%, for all TSF1—±30%. Current Noise—Typically −20dB @ 1000 ohms to +10 dB @ 5 megohms, Operating Voltage—Max. 500 VDC or VRMS, Adjustability—Typically less than 0.05% of total voltage, Operating Temp. Range; −55°C to +105°C. Solvent Resistance: Negligible change in resistance when exposed to commercial solvents.

TRA1


TSF1

TRA1 SERIES HORIZONTAL TERMINAL MOUNT

Stk. No.	Type	Ohms	1-99	100-999	1000-4999	5000-9999
13F3557	TRA1AB101B	100				
13F3558	TRA1AB151B	150				
13F3559	TRA1AB251B	250				
13F3560	TRA1AB501B	500				
13F3561	TRA1AB102B	1000				
13F3562	TRA1AB252B	2500				
13F3563	TRA1AB502B	5000				
13F3564	TRA1AB103B	10K	.50	.40	.20	.17
13F3565	TRA1AB253B	25K				
13F3566	TRA1AB503B	50K				
13F3567	TRA1AB104B	100K				
13F3568	TRA1AB254B	250K				
13F3569	TRA1AB504B	500K				
13F3570	TRA1AB105B	1 Meg				
13F3571	TRA1AB225B	2.2 Meg				
13F3572	TRA1AB305B	3 Meg				
13F3573	TRA1AB505B	5 Meg				

TSF1 SERIES HORIZONTAL BRACKET MOUNT

Stk. No.	Type	Ohms	1-99	100-999	1000-4999	5000-9999
13F3574	TSF1BB101C	100				
13F3575	TSF1BB151C	150				
13F3576	TSF1BB251C	250				
13F3577	TSF1BB501C	500				
13F3578	TSF1BB102C	1000				
13F3579	TSF1BB252C	2500				
13F3580	TSF1BB502C	5000				
13F3581	TSF1BB103C	10K	.49	.39	.19	.17
13F3582	TSF1BB253C	25K				
13F3583	TSF1BB503C	50K				
13F3584	TSF1BB104C	100K				
13F3585	TSF1BB254C	250K				
13F3586	TSF1BB504C	500K				
13F3587	TSF1BB105C	1 Meg				
13F3588	TSF1BB225C	2.2 Meg				
13F3589	TSF1BB305C	3 Meg				
13F3590	TSF1BB505C	5 Meg				

Model 80 Potentiometer

Panel-mount ⅝" square potentiometers. Models 85, 86; single turn w/switch assembly. Models 83 and 84 are precision, 10 turn wirewound type; all others are control type in cement or plastic. **Resistance:** Models 83 and 84: wirewound, ±5%; all others: cermet, ±10%; ±5% available in linear taper; plastic, ±20%, ±10% available in linear taper. **Dielectric Strength:** 1000 V rms at sea level. **Insulation Resistance:** 1000 megohms. **Oper. Temp. Range:** Cermet, −65° to +150°C; plastic, −65°C to +125°C; Models 85 and 86, 0°C to +70°C. **Temp. Coeff.:** plastic, ±1000 ppm/°C; cermet, +150 ppm/°C; wirewound, ±50 ppm/°C. Shaft Torque: any number of sections, 2 to 7 oz. in. **CONTACT NEWARK FOR UP-TO-DATE PRICING. SINCE EACH ORDER IS BUILT TO CUSTOMER SPECIFICATIONS ALL ORDERS WILL BE CONSIDERED NON-CANCELLABLE NON-RETURNABLE WITH A 10 PIECE MINIMUM.**

81	A	2	A — B	28 — A	23 / A	15
A	B	C	D E	F G	H I	J

A Model and Terminal Style
81, 83, 85, 87 = PC pins
82, 84, 86, 88 = Solder lugs

B Bushing Style and Size
A = Plain, ⅜" d. x ⅜" l., available with ½", ⅝" and ⅞" shaft lengths.
B* = Locking, ⅜" d. x ½" l. available with ⅝" shaft length
C = Plain, ¼" d. x ¼" l. available with ⅜", ⅝", ⅞" shaft lengths
D* = Locking, ¼" d. x ½" l. available with ⅝" shaft length

C No. of Section
1 = Single section
2 = Double section
3 = Triple section*
4 = Quad section*■

D Anti-rotation lug options
A§ = Single at .305" r., 90° CW
D = None

E Shaft Type and End Style
B = Single, ¼" dia. slotted w/A or B bushing
E = Single, ⅛" dia. slotted w/A or E bushing

F Shaft Length In 1/32" Increments From Mounting Surface
12* = ⅜" l. x ⅛" d.
16* = ½" l. x ¼" d.
20* = ⅝" l. x ⅛" and ¼" d.
28* = ⅞" l. x ⅛" and ¼" d.

ADDERS FOR BASIC SWITCHES

Type	Description	Type	Description
R50/R51	Switch for Models 85/86	R70/R71	Switch for Models 86/86

G Type of Element, Taper and Tolerance for 1st Section
A = Cermet, Linear, ±10%
B = Plastic, linear, ±20%
J = Wirebound, 10-turn, ±5%
L = Plastic, linear, ±5%
M = Cermet, linear, ±3%

H Resistance Code/Value for 1st Section

03‡† = 50	15 = 10K
05‡† = 100	17§ = 25K
06§ = 200	18 = 50K
07* = 250	20 = 100K
08 = 500	22§ = 250K
10 = 1K	23§ = 500K
11§ = 2K	25§ = 1 meg
12 = 2.5K	26 = 2.5 meg
13 = 5K	27‡ = 5 meg

I Type of Element, Taper and Tolerance for 2nd Section
Same Code Applies

Bourns Type	Resistance, Ohms	No. of Sections
81A, 81C, 82A, 82C,	250, 500, 1K 2.5K, 5K, 10K, 25K, 50K, 100K	1
85A, 85C, 86A, 86C, Plastic		2
81B, 81E, 82B, 82E,	250K, 500K, 1 meg, 2.5 meg, 5 meg	1
85B, 85E, 86B, 86E Plastic		2
81A, 81C, 82A, 82C,	50, 100, 250, 500 1K, 2.5K, 5K, 10K, 25K, 50K, 100K, 250K, 500K, 1 meg, 2.5 meg, 5 meg	1
85A, 85C, 86A, 86C Cermet		2
81B, 81E, 82B, 82E,		1
85B, 85E, 86B, 86E Cermet		2

J Resistance Code/Value for 2nd Section
Same Code Applies

K Switch Code (Models 85/86 only)
R50 = DPST—1 NO/1 NC, CW detent, in-line terms.
R51 = DPST—1 NO/1 NO, CCW detent, in-line terms.
R70 = DPDT—CW detent, in-line terms.
R71 = DPDT—CCW detent, in-line terms.
*Not available on Models 83/84.
‡Available on Models 81/82 and 85/86 only. †Available in cermet only.

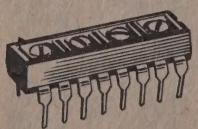
*Not available on Models 83/84.
‡Available on Models 81/82 and 85/86 only. †Available in cermet only.
§Available on Models 83/84 only.
‡Not available on Models 87/88.
■Not available in Models 85/86.

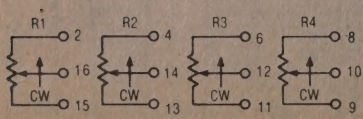
Bourns Type	Resistance, Ohms	No. of Sections
83A, 83C, 84A, 84C Wirebound	200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K	1 or 2
83B, 83E, 84B, 84E Wirebound		
87A, 87C, 88A, 88C Plastic	250, 500, 1K, 2.5K, 5K, 10K, 25K, 50K, 100K 250K, 500K, 1 meg, 2.5 meg	1
87B, 87E, 88B, 88E Plastic		
87A, 87C, 88A. 88C Cermet	250, 500, 1K, 2.5K, 5K, 10K, 25K, 50K, 100K, 250K, 500K, 1 meg, 2.5 meg	1
87B, 87E, 88B, 88E Cermet		

MFT™

MULTI FUNCTION TRIMMER

Bourns has combined technologies used in producing cermet trimmers and cermet fixed resistor networks. The result is **MFT™** multiple trimmer and resistor network combinations packaged in the Dual In-Line Pin (DIP) configuration. Manufacturing costs, PC board space, circuit design time are all reduced. Compatible with auto-insertion and auto-test equipment. Improves reliability, circuit performance. Provides temperature tracking better than discretes.



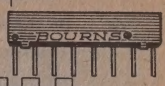


Stock Number	Type	Resistance Detail R1	R2	R3	R4	EACH 1-24	25-49	50-99	100-249
13F9650	7102B-210-101	101	101	—	—				
13F9651	-210-102	102	102	—	—				
13F9652	-210-103	103	103	—	—	**1.55**	**1.43**	**1.37**	**1.31**
13F9653	-210-104	104	104	—	—				
13F9654	-210-504	504	504	—	—				
13F9655	-211-102	102	202	—	—				
13F9656	-211-103	103	203	—	—				
13F9657	-211-104	104	204	—	—	**1.68**	**1.55**	**1.49**	**1.42**
13F9658	-212-102	102	103	—	—				
13F9659	-212-103	103	104	—	—				
						1-14	15-29	30-49	50-99
13F9660	7103C-310-101	101	101	101	—				
13F9661	-310-102	102	102	102	—				
13F9662	-310-103	103	103	103	—	**2.32**	**2.23**	**2.10**	**1.96**
13F9663	-310-104	104	104	104	—				
13F9664	-310-504	504	504	504	—				
13F9665	-312-103	103	203	203	—				
13F9666	-314-102	102	103	202	—				
13F9667	-314-103	103	104	203	—	**2.41**	**2.32**	**2.18**	**2.04**
13F9668	-315-102	102	103	103	—				
13F9669	-322-101	101	104	102	—				
						1-12	13-24	25-49	50-124
13F9670	7104D-410-101	101	101	101	101				
13F9671	-410-102	102	102	102	102				
13F9672	-410-103	103	103	103	103	**3.10**	**2.86**	**2.74**	**2.62**
13F9673	-410-104	104	104	104	104				
13F9674	-410-504	504	504	504	504				
13F9675	-419-102	102	202	202	202				
13F9676	-419-103	103	203	203	203				
13F9677	-420-103	103	104	203	203				
13F9678	-423-103	103	104	103	104	**3.36**	**3.10**	**2.97**	**2.84**
13F9679	-424-102	102	104	102	103				
13F9680	-427-102	102	104	202	103				
13F9681	-437-101	101	104	102	103				

Thick Film Resistor Networks

BOURNS INC

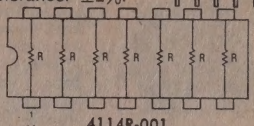
Features reduced PC board space; compatibility with automatic insertion equipment; uniform performance characteristics, compatibility with IC logic circuit environments. Molded epoxy body with tin plated copper alloy leads. Lead solderability meets requirements of MIL-STD-883, Method 2003 and MIL-R-83401. Resistance tolerance: ±2%. Operating temperature range: −55°C to +125°C.



MULTIPLE EQUAL-VALUE RESISTOR NETWORK

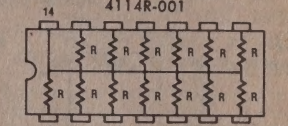
Circuitry and application: Type 4306R, 3 isolated resistors; Type 4308R, 4 isolated resistors; Type 4310R, 5 isolated resistors; Type 4114R, 7 isolated resistors; Type 4116R, 8 isolated resistors. Intended for power gate pull-up, impedance balancing, current limiting, line termination, and ECL output pull-down. **When ordering specify ohms.**

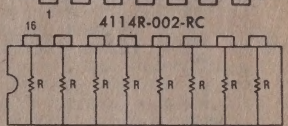
Stock No.	Type	Pkg.	No. Pins	1-99	100-499	500-999	1000-1999
13F9100	4306R-102	SIP	6	.48	.38	.31	.30
13F9300	4308R-102	SIP	8	.50	.40	.34	.31
13F9500	4310R-102	SIP	10	.52	.42	.36	.32
Stock No.	**Type**	**Pkg.**	**No. Pins**	**1-99**	**100-249**	**250-499**	**500-999**
13F170	4114R-001	DIP	14	1.15	.93	.75	.66
13F172	4116R-001	DIP	16	1.20	.95	.77	.68

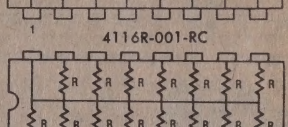


Circuitry and applications: Type 4306R, 5 resistors with pin 1 common; Type 4308R, 7 resistors with pin 1 common; Type 4310R, 9 resistors with pin 1 common; Type 4114R, 13 resistors with pin 13 common; Type 4116R, 15 resistors with pin 16 common. Intended for open collector pull-up, TTL input pull-down, MOS memory pull-up and pull-down, unused gate pull-up and power driver pull-up. **When ordering specify ohms.**

Stock No.	Type	Pkg.	No. Pins	1-99	100-499	500-999	1000-1999
13F9000	4306R-101	SIP	6	.48	.38	.31	.30
13F9200	4308R-101	SIP	8	.50	.40	.34	.31
13F9400	4310R-101	SIP	10	.52	.42	.36	.32
Stock No.	**Type**	**Pkg.**	**No. Pins**	**1-99**	**100-249**	**250-499**	**500-999**
13F171	4114R-002	DIP	14	1.20	.95	.77	.68
13F173	4116R-002	DIP	16	1.25	.98	.79	.70

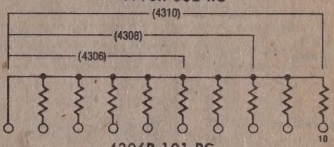






STANDARD AVAILABLE RESISTANCE VALUES

Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms
33	82	220	560	1500	3300	8200	22K	56K	150K
39	100	270	680	1800	3900	10K	27K	68K	180K
47	120	330	820	2000	4700	12K	33K	82K	220K
56	150	390	1000	2200	5600	15K	39K	100K	
68	180	470	1200	2700	6800	18K	47K	120K	

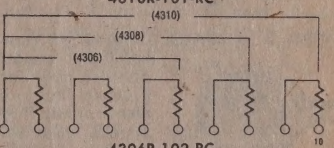


4306R-101-RC
4308R-101-RC
4310R-101-RC

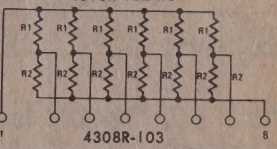
TERMINATING NETWORKS

Application: Provides TTL dual line termination.

Stock No.	Type	Pkg.	No. Pins	1-99	100-499	500-999	1000-1999
13F9619	4308R-103-181/391	SIP	8	1.07	.86	.73	.67
13F9620	4308R-103-221/271	SIP	8				
13F9621	4308R-103-221/331	SIP	8				
Stock No.	**Type**	**Pkg.**	**No. Pins**	**1-24**	**25-99**	**100-249**	**250-499**
13F9605	4116R-003-181/391	DIP	16	2.30	2.14	1.88	1.50
13F9603	4116R-003-221/271	DIP	16				
13F9604	4116R-003-221/331	DIP	16				



4306R-102-RC
4308R-102-RC
4310R-102-RC

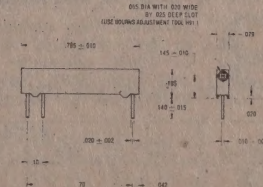


4308R-103

MODEL 20 TRIMPOT® POTENTIOMETER CERMET ELEMENT

Stock No.	Type	Ohms	1-49	50-99	100-499	500-999
13F3410	20P-1-100	10	1.10	1.01	.92	.83
13F3411	20P-1-200	20				
13F3412	20P-1-500	50				
13F3413	20P-1-101	100				
13F3414	20P-1-201	200				
13F3415	20P-1-501	500				
13F3416	20P-1-102	1K				
13F3417	20P-1-202	2K				
13F3418	20P-1-502	5K				
13F3419	20P-1-103	10K				
13F3420	20P-1-203	20K				
13F3421	20P-1-503	50K				
13F3422	20P-1-104	100K				
13F3423	20P-1-204	200K				
13F3424	20P-1-504	500K				
13F3425	20P-1-105	1M				

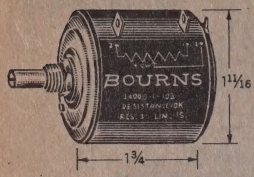
- **Stable Cermet Element**
- **High Power**
- **Cost Savings**
- **Lower Board Profile**
- **Continuous Resolution**



Model 20 sealed SIP potentiometer offers thin package width and machine insertability together with outstanding performance and quality. Lower PC board profile, .185" off board. High density board spacing, fits standard .100" grid. High power rating: 0.50 watt at 70°C. Low temp. coefficient: 100 ppm/°C over −55°C to +125°C temperature range. Sealed to MIL-R-22097 standard; withstands industrial cleaning processes. Weight: 0.40g max.

BUSHING MOUNT PRECISION POTENTIOMETERS

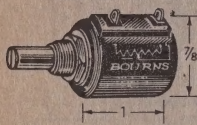
10-TURN 1 13/16" DIAMETER MODEL 3400S-1



Exceeds humidity cycling requirements of MIL-R-12934. Shaft supported front and rear by sleeve bearings. Power rating: 5.0 watts at 40°C. Absolute min. resistance: 1.0 ohms or 0.15%, whichever is greater. Independent linearity: ±0.15% maximum. Max. oper. temp. 105°C. Tolerance: ±3%. Size: 1 13/16" dia. x 1 3/4" lgth.

Stock Number	Ohms	EACH 1-4	5-9	10-24	25-49
12F9766	100 200 500 1K 2K 10K 20K 30K 50K 100K 200K	13.51	11.48	10.81	10.13
12F9787	500K	27.41	23.30	21.93	20.56

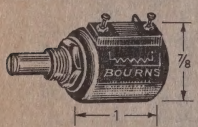
10-TURN 7/8" DIAMETER WIRE-WOUND MODEL 3500S-1



Humidity exceeds requirement MIL-R-12934. Power: 2 watts at 70°C. Absolute min. Resistance: 1 ohm or 0.1%, whichever is greater. Independent linearity: ±0.20%. Oper. temp. 125°C max. Tolerance: ±3%. Size: 7/8" dia. x 1" lgth.

Stock Number	Ohms	EACH 1-4	5-9	10-24	25-49
12F9767	500 1K 2K 5K 10K 20K 50K 100K	15.64	13.29	12.51	11.73

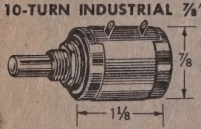
10-TURN 7/8" DIAMETER CONDUCTIVE PLASTIC MODEL 3501S-1



Infinitron® conductive plastic element provides essentially infinite resolution. Exceeds moisture resistance requirements of MIL-R-39023. Power: 2.0 watts at 70°C (325 volts maximum). Independent Linearity: ±.5% maximum. Max. Oper. Temp.: 105°C. Tolerance: ±10%. Size: 7/8" dia. x 1" lgth.

Stock Number	Ohms	EACH 1-4	5-9	10-24	25-49
12F9768	1K 2K 5K 10K 20K 50K 100K 500K	23.30	19.81	18.64	17.48
12F9791	1M	58.82	50.00	47.06	44.12

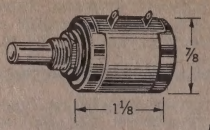
10-TURN INDUSTRIAL 7/8" DIAMETER WIRE-WOUND MODEL 3507S-1



Excellent wiper stability. Power: 2 watts at 25°C. Absolute min. Resistance: 1.0 or 0.25%, whichever is greater. Max. oper. temp.: 105°C. Size: 7/8" dia. x 1 1/8" lg. Screwdriver slot standard.

Stock Number	Ohms	EACH 1-4	5-9	10-24	25-49
12F9769	50 100 200 500 1K 2K 5K 10K 20K 30K 50K 100K	9.63	8.19	7.70	7.22
12F9792	250K	23.52	19.99	18.82	17.64

10-TURN 7/8" DIAMETER WIRE-WOUND MODEL 3509S-1 and 3509S-8



Power: 2 watts at 25°C. Absolute Min.: 1 ohm or .25%, whichever is greater. Independent Linearity: ±25% max. Oper. Temp. Max.: 105° C. Tolerance: ±5%. **3509S-8** has metallic shaft bushing. **3509S-1** has nonmetallic shaft and bushing.

MODEL 3509S-1

Stock Number	Ohms	EACH 1-4	5-9	10-24	25-49
12F9770	100 200 500 1K 2K 5K 10K 20K 50K 100K	8.70	7.40	6.96	6.53

Model 3509S-8

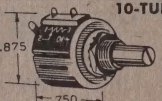
Stock Number	Ohms				
12F9821	100 200 500 1K 2K 5K 10K 20K 50K 100K	9.63	8.19	7.70	7.22

5-TURN 7/8" DIAMETER WIRE-WOUND MODEL 3520S-1

Exceeds humidity cycling requirements of MIL-R-12934. Power: 1.5 w at 70°C. Abs. Min. Resistance: 1.0 ohm or 0.1%, whichever is greater. Independent Linearity: ±0.3% max. Oper. Temp. Max. 125°C. Tolerance: ±3%. Size: 7/8" dia. x .678" lgth.

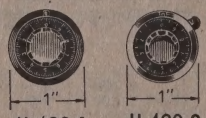
Stock Number	Ohms	EACH 1-4	5-9	10-24	25-49
12F9771	1K 2K 5K 10K 20K 50K	23.43	19.92	18.74	17.57

10-TURN 7/8" DIAMETER MODEL 3540S-1

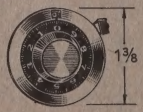


Extends only 3/4" behind panel. Power: 2 watt @ 70°C. Tolerance: ±5%. Linearity ±0.25%. Oper. Temp. Range: −55° to +125°C. Absolute Min.: 1.0 ohm or 0.1% whichever is greater. .875" dia. x 1 15/16" lgth.

Stock Number	Ohms	EACH 1-9	10-24	25-49	50-99
12F9587	100 200 500 1K 2K 5K 10K 20K 50K 100K	6.25	5.65	5.35	5.05



H-490-1 H-490-2



H-510-2

TURNS COUNTING DIALS

For use with precision potentiometers or other rotating devices up to 30 turns. Mounts directly to pot shaft. 0.30 turns. 100 dial div. per turn. Oper. Temp. Range: −15° to +85°C.

Stock No.	Bourns No.	Finish	Shaft Dia.	Brake	EACH 1-4	5-9	10-24	25-49
12F9665	H-491-1	Clear	3/32"	No	10.65	9.05	8.52	7.99
12F9668	H-494-1	Black	3/32"	Yes	11.50	9.78	9.20	8.63
12F9416	H-492-2	Clear	1/8"	Yes	10.65	9.05	8.52	7.99
12F9418	H-494-2	Black	1/8"	Yes	11.50	9.78	9.20	8.63
12F9669	H-491-3	Clear	1/4"	No	10.00	8.50	8.00	7.50
12F9670	H-492-3	Clear	1/4"	Yes	10.00	8.50	8.00	7.50
12F9671	H-493-3	Black	1/4"	No	10.83	9.21	8.66	8.12
12F9672	H-494-3	Black	1/4"	Yes	10.83	9.21	8.66	8.12
12F9674	H-510-2	Clear	1/4"	Yes	12.00	10.20	9.60	9.00

Potentiometers

BOURNS INC

CERMET CONTROLS

MODEL 3852A

⅜" Plain bushing; ¼" shaft dia.

3852A-162 ½" shaft lgth. Stock No.	3852A-282 ⅞" shaft lgth. Stock No.	Ohms	
12F9675	12F9903	50 to 5M	
	1-4	5-9	10-24	25-49
Price	3.25	3.09	2.89	2.69

MODEL 3852B

⅜" Locking bushing; ¼" shaft dia.

3852B-202 ⅝" shaft lgth. Stock No.	Ohms	1-4	5-9	10-24	25-49
12F9676	1K to 100K	3.55	3.37	3.16	2.94

MODEL 3852C

¼" Plain bushing; ⅛" shaft dia.

3852C-122 ⅜" shaft lgth. Stock No.	3852C-282 ⅞" shaft lgth. Stock No.	Ohms	
12F9677	12F9985	1K to 2.5M	
	1-4	5-9	10-24	25-49
Price	3.25	3.09	2.89	2.69

MODEL 3852E

¼" dia. locking bushing; ⅛" shaft dia.

3852E-162 ½" shaft lgth. Stock No.	Ohms	1-4	5-9	10-24	25-49
12F9678	1K to 100K	3.55	3.37	3.16	2.94

Ohms	Ohms	Ohms	Ohms
50	1K	25K	500K
100	2.5K	50K	1M
250	5K	100K	2.5M
500	10K	250K	5M

MODEL 3859A

⅜" Plain bushing; ¼" shaft dia.

3859A-162 ½" shaft lgth. Stock No.	3859A-282 ⅞" shaft lgth. Stock No.	Ohms	
12F9679	12F9904	50 to 5M	
	1-4	5-9	10-24	25-49
Price	2.60	2.47	2.31	2.15

MODEL 3859B

⅜" snap-in bushing; ¼" shaft dia.

3859B-122 ⅜" shaft lgth. Stock No.	Ohms	1-4	5-9	10-24	25-49
12F9680	1K to 100K	2.60	2.47	2.31	2.15

MODEL 3862C

¼" Plain bushing; ⅜" shaft dia.

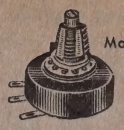
3862C-122 ⅜" shaft lgth. Stock No.	3862C-282 ⅞" shaft lgth. Stock No.	Ohms	
12F9681	12F9905	1K to 2.5M	
	EACH		
	1-9	10-24	25-49	50-99
Price	4.95	4.35	4.01	3.08

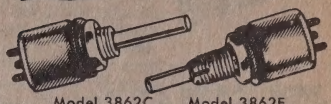
MODEL 3862E

¼" Locking bushing; ⅛" shaft dia.

3862E-202 ⅝" shaft lgth. Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9686	1K to 100K	5.24	4.60	4.25	3.26

Ohms	Ohms	Ohms	Ohms
100	2.5K	50K	1M
250	5K	100K	2.5M
500	10K	250K	5M
1K	25K	500K	

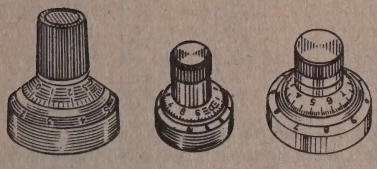




CERMET ELEMENT PANEL MOUNTED POTENTIOMETERS

Single turn potentiometers for panel mount have improved adjustability and low noise for outstanding performance. Thin ¾" diameter case has extremely high power rating: 2 watts at +70°C. Resistance tolerance: ±10%. Tapers: Linear, 10% CW or 10% CCW. Contact resistance variation: ±3% maximum of total resistance. Temperature coefficient: ±150 ppm/°C. High Performance Models meet or exceed applicable requirements of MIL-R-94 or MIL-R-23285. **High Performance Model 3852:** Housing ¾" dia. x ¼" length. Resistance range: 50 ohms to 5 megs, linear taper; 1K to 2.5 megs, CW and CCW taper. Power rating: 2 watts at 70°C, linear; 1 watt, CW and CCW taper. Operating temperature: −65° to +150°C. **Commercial Model 3859:** Same as model 3852 except operating temperature range −65°C to +125°C. **High Performance Model 3862:** Housing ½" dia. by 0.453" length. Resistance range: 100 ohms to 5 megs, linear taper; 500 ohms to 2.5 megs, CW and CCW tapers. Power rating: 1 watt at 125°C, linear taper; 0.5 watt, CW and CCW taper. Operating temperature range: −65°C to +175°C. **All models supplied with hardware; other shaft lengths available. Types with locking bushings supplied with locking nut. All models have lug terminals and slotted shaft end. Specify ohms rating desired when ordering.**

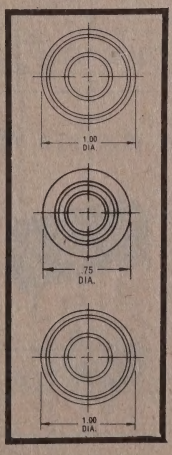
TURNS COUNTING DIALS



H-1400 H-700 H-400

- **Molded and filled markings**
- **Cam detent for positive lock**
- **Corrosion-resistant**
- **Plastic and metal construction**

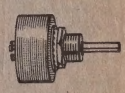
For use with precision potentiometers or other rotating devices up to 10 turns. Mounts directly to pot shaft. Model H-1400 plastic and metal construction. Models H-400, H-700 stainless steel and aluminum. Oper. temp. −15°C to +85°C, except H-1400 −15°C to +70°C.



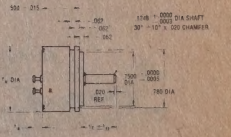
Stock No.	Type	Finish	Brake	Shaft dia.	1-4	5-9	10-24	25-49
13F3400	H-411	Black	No	¼"	8.77	8.04	7.64	7.24
13F3401	H-412	Black	Yes	¼"	9.44	8.66	8.22	7.80
13F3402	H-461	Clear	No	¼"	8.77	8.04	7.64	7.24
13F3403	H-462	Clear	Yes	¼"	9.44	8.66	8.22	7.80
13F3404	H-721	Black	No	⅛"	10.52	9.65	9.16	8.69
13F3405	H-771	Clear	No	⅛"	10.52	9.65	9.16	8.69
13F3406	H-1411	Black	No	¼"	6.97	6.39	6.07	5.76
13F3407	H-1412	Black	Yes	¼"	7.65	7.02	6.66	6.32
13F3408	H-1461	Grey	No	¼"	6.97	6.39	6.07	5.76
13F3409	H-1462	Grey	Yes	¼"	7.65	7.02	6.66	6.32

SINGLE TURN, ⅞" DIAM., MODEL 6637

Low cost, high quality, single turn, precision potentiometer. Conductive plastic element with ±1.0% linearity. Res. tol. ±10%. Power rating @ 70°C. 1 W. Oper. temp. rng. −65°C to +125°C. Rear terminals, turret type.

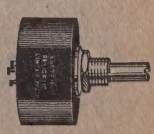


Stk. No.	Type	Ω	1-4	5-9	10-24	25-49
12F7100	6637S-1-102	1K				
12F7101	6637S-1-202	2K				
12F7102	6637S-1-502	5K				
12F7103	6637S-1-103	10K	9.85	9.40	8.95	8.50
12F7104	6637S-1-203	20K				
12F7105	6637S-1-503	50K				
12F7106	6637S-1-104	100K				

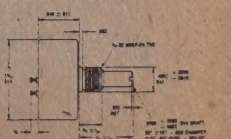


SINGLE TURN, 1⅝ DIAM., MODEL 6657

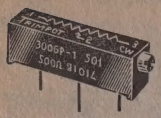
Low cost, high quality, single turn, precision potentiometer. Conductive plastic element with ±1.0% linearity. Res. tol. ±10%. Power rating @ 70°C 1.5 W. Oper. temp. rng. −65°C to +125°C. Rear terminals, turret type.



Stk. No.	Type	Ω	1-4	5-9	10-24	25-49
12F7107	6657S-1-102	1K				
12F7108	6657S-1-202	2K				
12F7109	6657S-1-502	5K				
12F7110	6657S-1-103	10K	9.85	9.40	8.95	8.50
12F7111	6657S-1-203	20K				
12F7112	6657S-1-503	50K				
12F7113	6657S-1-104	100K				



CERMET TRIMPOT® MODEL 3006

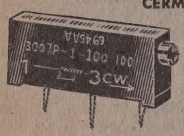


Low cost, low profile with high power rating: 0.75 watt at 70°C. 15 turns. Sealed to MIL-R-22097, withstands industrial cleaning process. Maximum operating temperature: 125°C. Tolerance: ±10%. Temperature coefficient: ±100 ppm/°C. Size: 0.190" w. x .250" h. x .75" lgth. **When ordering specify ohms.**

3006P Stk. No.	3006W Stk. No.	3006Y Stk. No.	Ohms	EACH 1-49	50-99	100-499	500-999
12F9805	12F9806	12F9450	100 200 500 1K 2K 5K 10K 20K 50K 100K 200K 500K 1M	.96	.88	.80	.72

6

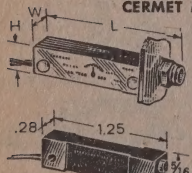
CERMET E-Z TRIM® MODEL 3009



Wiper assembly idles at both ends of trave . 20 turns nominal adjustment. Power rating; 0.75 watt at 25°C. Absolute min. res.; 2.0% or 1 ohm, whichever is greater. Max. oper. temp.: 125°C. Tolerance: 10%, Temp. coefficient: ±100 ppm/°C. Size; .19" w. x .35" h. x .75" lgth. **When ordering specify ohms.**

3009P Stk. No.	3009Y Stk. No.	Ohms	EACH 1-49	50-99	100-499	500-999
12F9610	12F9611	10 20 50 100 200 500 1K 2K 5K 10K 20K 50K 100K 200K 500K 1M 2M	1.65	1.51	1.37	1.24

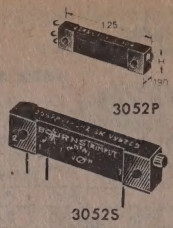
CERMET MODEL TRIMPOT® 3012



Requirements of MIL-R-22097 met or exceeded. Power rating: 1.0 watt or 500 volts max. at 70°C. End setting: 2 ohms maximum all resistances. Nominal adjustment: 22 turns. Operating temperature: −65° to +175°C. Tolerance: 10%. 0.280" w. x .31 x 1.25". **When ordering specify ohms.**
Suggested replacement: Model 3059

3012L Stk. No.	3012P Stk. No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9661	12F9662	100 200 500 1K 2K 5K 10K 20K 50K 100K 200K 500K 1M	7.18	6.65	5.98	5.68

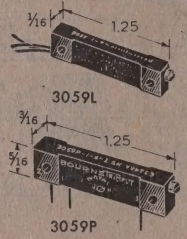
CERMET TRIMPOT® MODEL 3052



Meets all specifications of MIL-R-22097. High operating temp. maximum; 175°C. Power rating: 1.0 watt at 70°C. Idling wiper assembly. End setting: 2 ohms maximum all resistances. Nom. adjustment: 22 turns. Oper. temp.: −65°C to −175°C. .190" w. x .325" x 1.25". **When ordering specify ohms.**
Suggested replacement: Model 3059

3052P Stk. No.	3052S Stk. No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9659	12F9660	100 200 500 1K 2K 5K 10K 200K 50K 100K 200K 500K .1M	6.53	6.05	5.44	5.17

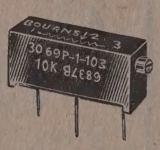
CERMET MODEL 3059 (RJ12)



Meets or exceeds MIL 22097 characteristic C & F, Style RJ12. Solderable pins for compatibility with automated and hand soldering methods. Temperature Coefficient: ±100 ppm/°C max. over entire resistance and temperature range. Power Rating: 1.0 watt or 400 volts max. at 70°C. Abs. Min. Res.: 2 ohms, max. Mechanical Adjustment: 22±5 turns. Oper. Temp.: −55°C to +150°C. Size: 3/16" w x 5/16" h x 1¼" lg. **When ordering specify ohms.**

3059J Stk. No.	3059L Stk. No.	3059P Stk. No.	3059Y Stk. No.	Ohms	EACH 1-49	50-99	100-499	500-999
12F9633	12F9634	12F9635	12F9636	100 200 500 1K 2K 5K 10K 20K 50K 100K 200K 500K 1M	3.32	3.04	2.77	2.49

CERMET E-Z TRIM® MODEL 3069P



MIL Spec immersion seal gives trouble-free operation after P.C. board processes. Tinned pins for compatibility with automated and hand soldering methods. 20 turns nominal adjustment. Power rating: 0.75 watt at 25°C. Absolute minimum resistance: 2% or 1 ohm whichever is greater. Operating maximum temperature: 125°C. Tolerance: ±10%. Temperature coefficient: ±100 ppm/°C. Size: 0.25" w. x 0.35" h. x 0.75" lgth. **When ordering specify ohms.**

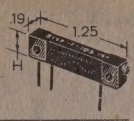
Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9616	20 50 100 200 500 1K 2K 5K 10K 20K 50K 100K 200K 500K 1M 2M	2.13	2.02	1.92	1.87

Potentiometers

BOURNS INC

MICROMINIATURE TRIMPOT® CERMET MODEL 3082P

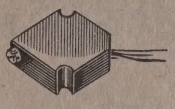
Temp. coefficient: ±100 ppm/°C max. over entire temp. and resistance range. Power: 0.6 watt at 25°C. Abs. min. resist.: 2 ohms max. Mechanical adjustment through entire range: 10 turns nominal. Oper. temp.: −65° to +150°C. Size: 0.100″ w. x 0.500″ lgth. x 0.150″ h. **When ordering specify ohms.**



Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9716	200 500 1K 2K 5K 10K 20K 50K 100K	7.70	7.13	6.42	6.09

½″ SQUARE CERMET TRIMPOT® MODEL 3252 (RJ22)

Meets requirements of MIL-R-22097. Style RJ22, Char. C & F. Temp. Coeff.: ±100 ppm/°C max. over entire temp. and resist. range. Power: 1.0 watt or 400 volts max. at 70°C. Abs. Min. Resist.: 1 ohm, all values. Mechanical Adjustment: 22 turns nominal. Oper. Temp. Range: −65°C to +150°C. Size: ½″ sq. x 3/16″ t. (L): 7/32″ t. (P, W and X). **When ordering specify ohms.**



3252P Stk. No.	3252W Stk. No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9692	12F9693	100 200 500 1K 2K 5K 10K 20K 25K 50K 100K 500K 1M	5.90	5.62	5.31	5.01

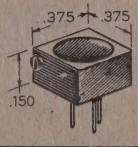
CERMET MULTI-TURN COMMERCIAL MODEL 3279

Meets MIL-R-22097. Mechanical adjustment: 13 turns nominal. Power: 0.3 W at 70°C. Size (HWL): .19″ x .31″ x .31″. Oper. Temp. range −55°C to +150°C.

3279W Stk. No.	3279X Stk. No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9451	12F9460	1K	5.09	4.63	4.16	3.97
12F9452	12F9461	2K				
12F9453	12F9462	5K				
12F9454	12F9463	10K				
12F9455	12F9464	20K				
12F9456	12F9465	50K				
12F9457	12F9466	100K				
12F9458	12F9467	200K				
12F9459	12F9468	500K				

⅜″ SQUARE CERMET TRIMPOT® MODEL 3292 (RJ24)

Meets MIL-R-22097. Char. C and F, Style RJ24. Temp. Coeff.: ±100 ppm/°C over entire temp. and resist. range. Power: 0.5 watt or 400 volts max. at 85°C. Abs. Min. Resist: 1 ohm, all values. Mechanical Adjustment: 22 turns nominal. Oper. Temp. Range: −65°C to +150°C. Size: 0.375″ sq. x 0.150″ thk. **When ordering specify ohms.**



3292P Stk. No.	3292W Stk. No.	3292X Stk. No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9708	12F9709	12F9710	200 500 1K 2K 5K 10K 20K 50K 100K 1M	6.83	6.49	6.15	6.01

CERMET DUAL IN-LINE TRIMPOT® MODEL 3099P

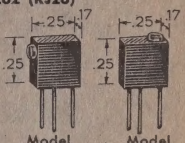
Sealed to meet MIL-R-22097 immersion requirements. Standard DIP size (TO-116) compatible with DIP automatic insertion equipment. Temp. Coeff.: ±100 ppm/°C max. over entire temp. and resist. range. Power: 1.0 watts @ 70°C. Abs. Min. Res.: 2% or 1 ohm, whichever is greater. Mechanical Adjustment: 20 turns nominal. Oper. Temp.: −55°C to +150°C. Size: 0.250″w. x 0.190″h. x 0.750″ lg. **When ordering specify ohms.**

.25x.19x.75

Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9626	100 200 500 1K 2K 5K 10K 20K 50K 100K 200K 500K 1M	3.75	3.35	3.00	2.80

¼″ SQUARE CERMET MODEL 3262 (RJ26)

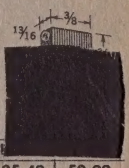
Meets MIL-R-22097, style RJ26 Char. C & F. Temp. coeff.: ±100 ppm/°C max. over entire temp. and resist. range. Power: .25 watt at 85°C. Abs. min. resist.: 1 ohm, all resistances. Mechanical adjustment: 12 ±2 turns. Oper. temp. range: −65° to +175°C. Size: 0.250″ sq. x 0.170″ thk. **When ordering specify ohms.**



3262W Stk. No.	3262X Stk. No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9713	12F9714	100 200 500 1K 2K 5K 10K 20K 25K 50K 100K 1M	7.35	6.83	6.13	5.83

⅜″ SQUARE CERMET TRIMPOT® MODEL 3282

Meets requirements of MIL-R-22097. Power: 0.5 watt at 85°C. Abs. Min. Res: 0.1% or 1.0Ω whichever is greater. Mechanical Adjustment: 25 turns nominal. Temp. Coeff.: ±100 ppm/°C max. at all Resistances. Oper. Temp. Range: −65°C to +175°C. Size: ⅜″ sq. x 13/64″ thk. **When ordering specify ohms.** Sug Replacement Model 3292



3282P Stk. No.	3282W Stk. No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9701	12F9702	100 200 500 1K 2K 5K 10K 20K 50K 100K	8.94	8.49	8.05	7.87

SQUARE MULTI-TURN MODEL 3299

Commercial TRIMPOT Cermet potentiometer. Meets MIL-R-22097. Power Rated at 0.5W at 70°C. Mechanical Adjustment: 25 turns nominal. Max. Oper. Temp.: 125°C. Size (HWL): .39″ x .37″x.25″. 100 ppm Temp. Coeff.

.39x.37x.25

3299P Stk. No.	3299W Stk. No.	3299X Stk. No.	Ohms	EACH 1-49	50-99	100-499	500-999
12F9565	12F9545	12F9555	100	1.71	1.57	1.42	1.28
12F9566	12F9546	12F9556	500				
12F9567	12F9547	12F9557	1K				
12F9568	12F9548	12F9558	2K				
12F9569	12F9549	12F9559	5K				
12F9570	12F9550	12F9560	10K				
12F9571	12F9551	12F9561	20K				
12F9572	12F9552	12F9562	50K				
12F9573	12F9553	12F9563	100K				
12F9574	12F9554	12F9564	1M				

6

COMMERCIAL SINGLE-TURN AND MULTI-TURN POTENTIOMETERS

Model 3329H

MODEL 3329 CERMET TRIMPOT® SINGLE-TURN

Meets MIL-R-22097. Positive sealed to withstand wave soldering and immersion cleaning. Rated 0.5W @ 85°C. Min. resistance 2 ohms. Max. operating temp. 150°C. Tolerance ±10%. Size: (H & P). 250″ dia. x .180″ H; (W) .290″ W x 0.245″ dia. x .360″ H.

Stk. No.					Stk. No.		
3329H	3329P	1-49	50-99	Ohms	3329W	1-49	50-99
12F9604	12F9605	1.41	1.29	10* 20* 50* 100 200 500 1K 2K 5K 10K 20K 50K 100K 200K 500K 1M	12F9606	1.41	1.29

(*) Not available in 3329W.

Model 3339P

MODEL 3339 CERMET MULTI-TURN

Precise wiper setting. Sealed to withstand wave soldering and immersion cleaning. Humidity characteristics meet MIL-STD-202. Four turns. 0.5 watt at 85°C. Operating temp. max.: 150°C. Tol.: +10%. Temp. coef.; ±100 ppm/°C. Size: 0.30″ dia. x 0.25″ H, except (W) .312″W x .315″ T x .375″ H.

Stk. No.					Stk. No.		
3339H	3339P	1-9	10-24	Ohms	3339W	1-9	10-24
12F9823	12F9607	2.50	2.32	100 200 500 1K 2K 5K 10K 20K 50K 100K 200K† 500K† 1M†	12F9434	3.50	3.25

(†) Not available in 3339H or 3339P.

MODEL 3386 COMMERCIAL CERMET

Meets military specifications for humidity. Nominal adjustment turns 280°. Power rating 0.5 watt at 85°C. Maximum operating temperature 125°C. Resistance Tolerance ±10%. Size .375″ H x .375″ W x .19″ L.

Stk. No.				Stock No.					
3386F	1-49	50-99	Ohms	3386P	3386R	3386S	3386W	1-49	50-99
13F015 13F016 13F017 13F018 13F019 13F020 13F021 13F022 13F023 13F024 13F025 13F026 13F027	.72	.66	100 200 500 1K 2K 5K 10K 20K 50K 100K 200K 500K 1M	12F168	13F028 13F029 13F030 13F031 13F032 13F033 13F034 13F035 13F036 13F037 13F038 13F039 13F040	12F167	12F169	.72	.66

TRIMMING POTENTIOMETER PART NUMBERING SYSTEM

3 0 0 6 P - 1 - 1 0 2 M

MODEL

TERMINAL TYPE see key

RESISTANCE CODE see right

CATALOG ITEM 2 or 3 digits indicate a special

PANEL MOUNT if applicable

KEY TO TERMINAL TYPES

S —Solder Lugs
P —Printed Circuit Pins (flat mounting)
H —Printed Circuit Pins
W —Printed Circuit Pins (edge mounting)

Model 3386 only:
H, S, W—Printed Circuit Pins (edge mounting)
P, R, F*—Printed Circuit Pins (flat mounting)*

MODEL 3352 COMMERCIAL SINGLE-TURN CERMET

Meets military specifications for humidity. Power rating 0.75 watt at 40°C. Nominal adjustment turns 230°. Maximum operating temperature 125°. Resistance tolerance ±20%. Size .415″ H x .365″ W x .145″ L.

Stk. No.				Stk. No.		
3352P	1-49	50-99	Ohms	3352W	1-49	50-99
12F9992 12F9993 12F9994 12F9995 12F9996 12F9997 12F9998 12F9999 13F001 13F002 13F003	.54	.51	100 200 500 1K 2K 5K 10K 20K 50K 100K 1M	13F004 13F005 13F006 13F007 13F008 13F009 13F010 13F011 13F012 13F013 13F014	.54	.51

3359P

MODEL 3359 CERMET SINGLE-TURN

Resistance stability under humid conditions. Mech. rotation: 270°. Rated 0.5 watt at 70°C. Max. operating temp.: 125°C. Tolerance: ±20%. Size: 0.395″ max. dia., thickness (P) .228″, (W) .236″. Temp. coef.: to 1K, 0 to +300 ppm/°C; 1K and up, 0 to +200 ppm/°C.

Stk. No.				Stk. No.		
3359P	1-9	10-24	Ohms	3359W	1-9	10-24
12F9600	1.05	.94	100 200 500 1K 2K 5K 10K 20K 50K 100K 200K 500K 1M	12F9601	1.08	.97

RESISTANCES

The following values are standard if they fall within limits listed for individual models.

WIREWOUND	CERMET	CARBON	CODE
10	10		100
20	20		200
50	50		500
100	100		101
200	200		201
500	500		501
1K	1K		102
2K	2K		202
5K	5K	5K	502
10K	10K	10K	103
20K	20K	20K	203
50K	50K	50K	503
100K	100K	100K	104
	200K	200K	204
	500K	500K	504
	1 Meg.	1 Meg.	105

NOTE All models except 3352, 3353, 3359 are sealed against sand and dust.

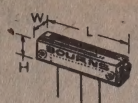
Phone Your NEWARK Branch For Quotes On Larger Quantities

BOURNS INC

HIGH-PERFORMANCE SINGLE- AND MULTI-TURN POTENTIOMETERS

GENERAL PURPOSE WIRE-WOUND MODEL 200

Exceeds steady-state humidity requirements of MIL-STD-202. 25-turns nominal adjustment. Power rating: 0.5 watt at 70°C. Absolute minimum resistance: 0.7% or 0.5 ohm, whichever is greater, 10 ohms to 50K; 5% for 100K. Operating temperature maximum: 105°C. Tolerance: ±10%. Size: 0.280" w. x .313" h. x 1.25" lgth. Suggested replacement: Model 3057.

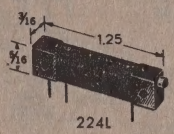


200P

Stock No.							
200L	200P	200S	Ohms	1-9	10-24	25-49	50-99
12F9641	12F9642	12F9643	100	7.36	6.82	6.13	5.82
12F9641	12F9642	12F9643	200	7.36	6.82	6.13	5.82
12F9641	12F9642	12F9643	500	7.36	6.82	6.13	5.82
12F9641	12F9642	12F9643	1K	7.36	6.82	6.13	5.82
12F9641	12F9642	12F9643	2K	7.36	6.82	6.13	5.82
12F9641	12F9642	12F9643	5K	7.36	6.82	6.13	5.82
12F9641	12F9642	12F9643	10K	7.36	6.82	6.13	5.82
12F9880	12F9882	12F9884	20K	9.80	9.07	8.17	7.75
12F9880	12F9882	12F9884	25K	9.80	9.07	8.17	7.75
12F9881	12F9883	12F9698	50K	11.44	10.59	9.54	9.05
12F9841	.....	.....	100K	13.89	12.86	11.58	10.99

WIREWOUND TRIMPOT® MODEL 224 (RT12)

Meets MIL-R-27208 requirements. Maximum operating temp.: 175°C. Power dissipation: 1.0 watt at 70°C. 22 turn screwdriver adjustment. Absolute min. resistance: 10 to 200 ohms, the greater of 0.25% or 1 ohm; 500 to 2K, 0.2%; 5K to 50K, 0.1%; Tolerance: ±5%. Operating temp. range: −65 to +175°G. 0.19" w. x .32" x 1.25". Suggested replacement: Model 3057.



224L

Stock No.							
224L	224P	224S	Ohms	1-9	10-24	25-49	50-99
12F9653	12F9655	12F9654	100				
12F9653	12F9655	12F9654	200				
12F9653	12F9655	12F9654	500	8.49	7.86	7.08	6.72
12F9653	12F9655	12F9654	1K				
12F9653	12F9655	12F9654	2K				
12F9653	12F9655	12F9654	5K	8.49	7.86	7.08	6.72
12F9653	12F9655	12F9654	10K	8.49	7.86	7.08	6.72
12F9893	12F9897	12F9895	20K	10.45	9.68	8.71	8.27
12F9894	12F9898	12F9896	50K	11.11	10.29	9.26	8.79

WIREWOUND TRIMPOT® MODEL 260P

Stable against shock, vibration and acceleration. Surpasses steady state humidity requirements of MIL-STD-202. Power rating: 1.0 watts at 70°C. Absolute min., resistance: 10 ohms to 1K, 0.2% or 0.5 ohm, whichever is greater; 2K to 50K, 0.1%; Max. oper. temp.: 175°C. Tolerance ±10%, 0.280" w x .312" x 1.25". Suggested replacement: Model 3057.

260P

Stk. No.	Ohms	1-9	10-24	25-49	50-99
12F9651	100				
12F9651	200				
12F9651	500	7.18	6.65	5.98	5.68
12F9651	1K				
12F9651	2K				
12F9651	5K	7.18	6.65	5.98	5.68
12F9651	10K	7.18	6.65	5.98	5.68
12F9891	20K	9.15	8.47	7.63	7.24
12F9892	50K	9.80	9.07	8.17	7.75

WIRE-WOUND TRIMIT® MODELS 271, 273, 275

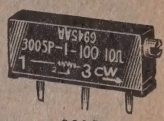
Ideal for industrial controls and lab type applications. Self-locking adjustment shaft for stable electrical settings; wiper assembly idles at both ends. 25-turn screwdriver adjustment. Power rating: 0.5 watt at 25°C. Absolute minimum resistance: 2.0%. Operating temperature range: −55°C to +105°C. Temperature coefficient of wire: 20 ppm/°C max. Size: 0.25"w. x .923"h. x 1.25"lgth. Suggested replacement: Model 3057.

271

Stock Nos.							
271	273	275	Ohms	1-9	10-24	25-49	50-99
12F9617	12F9809	12F9812	100				
12F9617	12F9809	12F9812	200				
12F9617	12F9809	12F9812	500	3.86	3.57	3.22	3.05
12F9617	12F9809	12F9812	1K				
12F9617	12F9809	12F9812	2K				
12F9617	12F9809	12F9812	5K	3.86	3.57	3.22	3.05
12F9617	12F9809	12F9812	10K	3.86	3.57	3.22	3.05
12F9873	12F9899	12F9901	20K	5.23	4.84	4.36	4.14
12F9874	12F9900	12F9902	50K	6.53	6.05	5.44	5.17

WIREWOUND E-Z TRIM® MODEL 3005P

Sealed to prevent contamination. Humidity meets MIL-STD-202. Method 103. 20-turn screwdriver adjustment. Rated 1.0 watt at 40°C. Min. resistance: 0.5% or 1.0 ohms, whichever is greater. Max. operating temp. 125°C. Tolerance: ±10%. Temp. coefficient: ±100 ppm/°C. Size: .17"W x .31"H x .75"L.

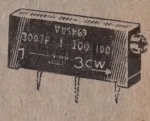


3005P

Stk. No.	Ohms	1-9	10-24	25-49	50-99
12F9608	10				
12F9608	20				
12F9608	50				
12F9608	100	2.33	2.16	2.04	2.00
12F9608	200				
12F9608	500				
12F9608	1K				
12F9608	2K				
12F9608	5K				
12F9608	10K	2.33	2.16	2.04	2.00
12F9608	20K				
12F9608	25K				
12F9935	50K	2.80	2.59	2.45	2.41

WIRE-WOUND E-Z TRIM® MODEL 3007P

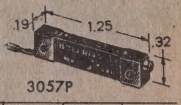
Wiper assembly idles at both ends. Humidity meets MIL-STD-202C, . Method 103. 20-turns nom. adj.; welded terminations. Rated 1.0 watt at 40°C. Min. resistance: 0.5% or 1.0 ohm, whichever is greater. Operating temperature max.: 125°C. Tolerance: ±10%. Temp. coefficient: ±100 ppm/C°. Size: .17"W x .31"H x .75"L. Suggested replacement: Model 3005.



Stock No.	Ohms	1-9	10-24	25-49	50-99
12F9609	10				
12F9609	20				
12F9609	50				
12F9609	100	2.33	2.16	2.04	2.00
12F9609	200				
12F9609	500				
12F9609	1K				
12F9609	2K				
12F9609	5K				
12F9609	10K	2.33	2.16	2.04	2.00
12F9609	20K				
12F9609	25K				
12F9936	50K	2.80	2.59	2.45	2.41

WIREWOUND MODEL 3057

Meets military specifications for humidity. Resistance tolerance ±5%. Maximum operating temperature 150°C. 22 nominal adjustment turns. Power 1.0 watt at 70°C. Low temperature coefficient. Size: .32"H x .19"W x1.25"L.

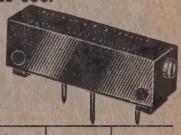


3057P

Stock No.							
3057L	3057P	3057Y	Ohms	1-9	10-24	25-49	50-99
12F9638	12F9639	12F9640	100				
12F9638	12F9639	12F9640	200				
13F9638	12F9639	12F9640	500	6.84	6.05	5.20	4.68
12F9638	12F9639	12F9640	1K				
12F9638	12F9639	12F9640	2K				
12F9638	12F9639	12F9640	5K	6.84	6.05	5.20	4.68
12F9638	12F9639	12F9640	10K	6.84	6.05	5.20	4.68
12F9796	12F9875	12F9877	20K	7.54	6.67	5.78	5.16
12F9797	12F9876	12F9878	50K	8.22	7.27	6.29	5.62
12F9940	12F9928	12F9879	100K	10.40	9.19	7.96	7.48

WIRE-WOUND E-Z TRIM® MODEL 3067

Wiper assembly idles at both ends of travel preventing forced adjustment. 15 turn screwdriver adjustment. Power rating: 0.5 watt at 25°C. Absolute min. resistance: 0-2.0%. Operating temperature maximum: 85°C. Tolerance: ±10%. Size: .28" w. x .36" h. x 1.00" lgth.



Stock No.							
3067S	3067P	Ohms	1-9	10-24	25-49	50-99
12F9612	12F9613	50	2.13	1.97	1.78	1.68
12F9612	12F9613	100	2.13	1.97	1.78	1.68
12F9612	12F9613	200	2.13	1.97	1.78	1.68
12F9612	12F9613	500	2.13	1.97	1.78	1.68
12F9612	12F9613	1K	2.13	1.97	1.78	1.68
12F9612	12F9613	2K	2.13	1.97	1.78	1.68
12F9612	12F9613	5K	2.13	1.97	1.78	1.68
12F9612	12F9613	10K	2.13	1.97	1.78	1.68
12F9612	12F9613	20K	2.13	1.97	1.78	1.68

6

WIREWOUND MODEL TRIMPOT® 3250 (RT22)

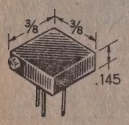
3250L

Humidity-proof; sealed in high-temperature plastic case. Power Rating: 1.0 watt at 70°C. Absolute Minimum Resistance: 0.1% or 1.0 ohm, whichever is greater. Max. Oper. Temp. 175°C. Tolerance: ±5%. Size: ½"sq. x 3/16" thick (L); 7/32" thick (P, W or W66).

Type 3250L	Ohms	Each 1-9	10-24	25-49	50-99
12F9683	100 200 1K 2K 5K 10K	7.75	7.18	6.46	6.13
12F9684	20K	8.74	8.09	7.28	6.91
12F9685	50K	11.55	10.71	9.63	9.14

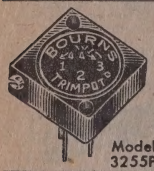
Type 3250P	Type 3250W	Type 3250W-66	Ohms	Each 1-9	10-24	25-49	50-99
12F9686	12F9840	12F9834	100 200 1K 2K 5K 10K	8.35	7.73	6.95	6.59
12F9813	12F9839	12F9835	20K	9.21	8.53	7.67	7.28
12F9814	12F9838	12F9836	50K	12.16	11.26	10.14	9.62

3/8" SQUARE WIREWOUND MODEL 3290 (RT24)



Meets or exceeds MIL-R-27208. All plastic case provides sealing against liquids and potting; positive end stops; reliable moisture resistance. Power Rating: 1.0 watt @ 70°C. Absolute Minimum Resistance: 0.1% or 1.0 ohm, whichever is greater. Maximum Operating Temperature: 175°C. Tolerance: ±5%. Size: 3/8" sq. x 0.150" thk. (L) 0.150" thk.

Type 3290H	Type 3290L	Type 3290P	Type 3290W	Ohms	EACH 1-9	10-24	25-49	50-99
12F9703	12F9704	12F9705	12F9706	100 200 500 1K 2K 5K 10K	8.87	8.21	7.40	7.02
12F9910	12F9980	12F9912	12F9914	20K	10.59	9.81	8.83	8.38
12F9911	12F9981	12F9913	12F9915	50K	12.22	11.32	10.19	9.67



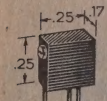
Model 3255P

TRIMPOT® MODEL 3255

High temperature all-plastic cases; 25-turn screwdriver adjustment. Power rating: 1.0 watt at 50°C. End settings: 0.1% or 1.0 ohm, whichever is greater. Operating Temp.: 150°C max. Temp. Coefficient: 70 ppm/°C. Tolerance: ±5%. Size: ½" square x 3/16" thick (L) 7/32" thick (P or W).

Type 3255L	Type 3255P	Type 3255W	Ohms	EACH 1-9	10-24	25-49	50-99
12F9623	12F9624	12F9625	100 200 500 1K 2K 5K 10K	3.86	3.57	3.22	3.05
12F9868	12F9869	12F9871	20K	5.23	4.84	4.36	4.14
12F9944	12F9870	12F9872	50K	5.79	5.36	4.83	4.58

1/4" SQUARE WIREWOUND MODEL 3260 (RT26)



Model 3260H

All plastic case provides positive end stops at both ends of travel; sealing against liquids and potting compounds. Clutch action wiper. Power Rating: 0.2 watt at 70°C. Abs. Min. Res.: 0.1% or 1.0 ohm, whichever is greater. Operating Temperature: 175°C max. Tolerance: ±5%. Size: 1/4" square x 1/16" high.

Type 3260H	Type 3260W	Ohms	EACH 1-9	10-24	25-49	50-99
12F9711	.... 12F9712 12F9712	50 100 200 500 1K	9.08	8.41	7.57	7.18
12F9785 12F9785	12F9786 12F9786	2K 5K	9.99	9.25	8.33	7.90
12F9924 12F9924	12F9925 12F9925	10K 20K	12.71	11.77	10.59	10.05

SPECIFY RESISTANCE WHEN ORDERING

WIREWOUND MODEL 3300P

Meets applicable portions of MIL-R-27208, MIL-R-5272C. Single-turn adjustment. Power Rating: 0.5 watt at 70°C. Abs. Min. Res.: 0.5 ohm or 1.0%, whichever is greater. Operating Temperature: 175°C max. Tolerance: 5%. Size: 5/16" diameter x 3/16" height. (P); 1/4" width x 3/8" height.

Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9627	100 200 500 1K 2K 5K	7.90	7.32	6.58	6.25
12F9627	10K	7.90	7.32	6.58	6.25
12F9982	20K	10.07	9.32	8.39	7.97

Model 3305P

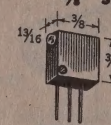
WIREWOUND SINGLE-TURN MODEL 3305

Sealed to prevent contamination from fluxing, soldering and cleaning. Stops provided at each end of travel. Power: 0.5 watt at 70°C. Abs. min. res.: 0.5 ohm to 1.0%. Oper. temp.: 125°C max. Tolerance: ±5%. Size: (P) 5/16" dia. x 3/16" thk. (W) 5/16" w. x 1/4" d. x 3/8" h.

Type 3305P	Ohms	EACH 1-9	10-24	25-49	50-99
12F9602	100 200 500 1K 5K	2.32	2.23	2.13	2.06
12F9775	10K	2.64	2.53	2.43	2.35
12F9776	20K	3.30	3.17	3.04	2.94

Type 3305W	Ohms	EACH 1-9	10-24	25-49	50-99
12F9603	500 1K 2K 5K	2.98	2.86	2.74	2.65
12F9777	10K	3.30	3.17	3.04	2.94
12F9778	20K	3.96	3.80	3.64	3.52

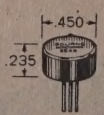
3/8" SQUARE WIREWOUND TRIMPOT® MODEL 3280



3280W

Meets or exceeds requirements of MIL-R-27208. All plastic case provides sealing against liquids and potting compounds plus reliable moisture resistance. Power Rating: 1.0 watt at 70°C. Absolute Minimum Resistance: 0.1% or 1.0 ohm, whichever is greater. Max. op. temp: 175°C. Tolerance: ±5%. Size: 3/8" sq. x 13/16" thk. Suggested replacement 3290.

Type 3280P	Type 3280W-1	Ohms	EACH 1-9	10-24	25-49	50-99
12F9696	12F9697	200 500 1K 2K 5K 10K	10.07	9.32	8.39	7.97
12F9906	12F9908	20K	12.22	11.32	10.19	9.67
12F9907	12F9909	50K	12.94	11.98	10.79	10.24



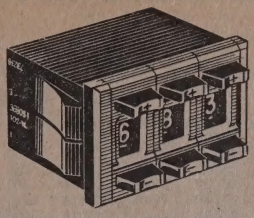
WIREWOUND MODEL 3345P

Single-turn adjustment. Power 1.0 watt at 70°C. Abs. Min. Res.: 1.0% or .5Ω whichever is greater. Tolerance: ±5% standard. Oper. Temp: —55 to +150°C. Temp. Coefficient: per MIL-R-27208, 70 ppm/°C. Mechanical Adjustment: 280° nominal. Size: .450" diameter x .235" thick.

Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9400	10 20 50 100 200 500 1K 2K 5K 10K	2.58	2.34	2.11	1.91
12F9401	20K	2.83	2.57	2.31	2.10
12F9401	50K				

BOURNS INC

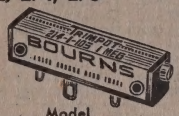
PUSHBUTTON DIGITAL KNOBPOT MODEL 3683



Selectable resistance range from 1K to 1Meg with ±1% tolerance. Power consumption is 2 watts at 25°C and 0 watts at 85°C. Dielectric strength is 1000 VAC. Life expectancy is 100,000 button operations/decade within operating temperature range of −25°C to +85°C. Size: 1.45"L x 1.00"W 0 .80"H.

Stk. No.	Part No.	Ohms	1-9	10-24	25-49	50-99
13F041	3683-1-102	1K	16.00	15.62	14.18	13.32
13F042	3683-1-202	2K				
13F043	3683-1-502	5K				
13F044	3683-1-103	10K				
13F045	3683-1-203	20K				
13F046	3683-1-503	50K				
13F047	3683-1-104	100K				
13F048	3683-1-504	500K				
13F049	3683-1-105	1M				

CARBON TRIMIT® MODELS 272, 274, 276



Model 274

Infinite resolution Resistaloy® carbon element. Self-locking shaft; 25-turn adjustment. Power Rating: 0.2 watt at 50°C. End setting: 0-5.0% voltage ratio. Operating Temperature: 105°C maximum. Tolerance: ±20%. Size: ¼" width x 5/16" height x 1¼" length. Suggested replacement 3059.

Type 272	Type 274	Type 276	Ohms	EACH 1-9	10-24	25-49	50-99
12F9620	12F9621	12F9622	5K 10K 20K 50K 100K 200K 500K 1M	4.16	3.85	3.47	3.29

CARBON E-Z TRIM® MODEL 3068

Model 3068P

Stable infinite resolution carbon element. Self-locking adjustment screw; 15 turn screwdriver adjustment. Power: 0.2 watt at 25°C. End setting: 0-5% voltage ratio. Operating temp.: 85°C maximum. Tolerance: ±20%. Operating temp. range: −55°C to +85°C. Size: .28" w x .36" h. x 1.00" lgth. Suggested replacement 3006.

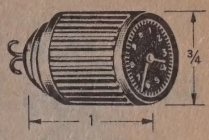
Type 3068S	Type 3068P	Ohms	EACH 1-9	10-24	25-49	50-99
12F9614	12F9615	20K 50K 100K 200K 500K 1M	2.34	2.17	1.95	1.85

SINGLE-TURN CONDUCTIVE PLASTIC MODEL 3355

Economy trimmer with power rating of ¼W @ 40°C. Maximum operating temperature 100°C with resistance tolerance of ±20%. Load life of 100 hrs. @ 70°C, ¼W. Meets U.L. 94V-1 requirements for flammability. Model X; vertical mounting. Model U; horizontal mounting. Size: .59" diameter adjustment wheel. **Specify ohms when ordering.**

Type 3355X	Type 3355U	Ohms	1-49	50-99	100-499	500-999
12F9469	12F9481	100	.40	.38	.30	.25
12F9472	12F9484	1000				
12F9474	12F9486	10K				
12F9477	12F9489	100K				
12F9480	12F9492	1M				
12F9470	12F9482	250				
12F9475	12F9487	25K				
12F9478	12F9490	250K				
12F9471	12F9483	500				
12F9473	12F9485	5000				
12F9476	12F9488	50K				
12F9479	12F9491	500K				

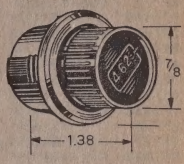
10-TURN ¾" DIAMETER KNOBPOT® MODEL 3600S-1



Phasing of dial readout to potentiometer performed at factory with accuracy of ±0.5% (including linearity). Power Rating: 1.5 watts at 25°C. Absolute Minimum Resistance: 1.0 ohm or 0.1%, whichever is greater. Maximum Operating Temp. 85°C. Tolerance: ±5%. Size: ¾" dia. x 1" lgth.

Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9774	500 1K 2K 5K 10K 20K 50K 100K	21.79	21.27	19.31	18.15

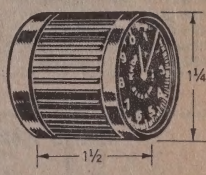
10-TURN ⅞" DIAMETER KNOBPOT® MODEL 3610S-1



Integral digital readout, knob and potentiometer. Recessed lens. Snap-in mounting cup. ⅞" diameter. Behind panel extension less than ⅞". Power Rating: 1.5 watt at 25°C. Tolerance: ±5%. Accuracy: ±0.5% voltage ratio. Absolute Min. Resistance: 1 ohm or or 0.1% whichever is greater. Oper. Temp. Range: −25° to +85°C. Temp. Coefficient of Wire Res.: 20 ppm/°C max. ⅞" dia. x 1⅜" lgth.

Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9575	100 200 500 1K 2K 5K 10K 20K 50K 100K	22.26	21.73	19.72	18.54

10-TURN 1¼" DIAMETER KNOBPOT® SENIOR MODEL 3640S-1



Clock face readout provides excellent readability and setting accuracy. Phasing adjusted to ±0.1%. Repeatability to ±.05% voltage ratio. Power rating: 2.5 watts at 25°C. Abs. min. res.: 1.0 ohm or or 0.1%, whichever is greater. Max. oper. temp.: 85°C. Tolerance: ±3%. Extends 9/16" behind panel. 1¼" diameter, 1½" out from panel. Requires two holes in panel: 0.413" and .0785".

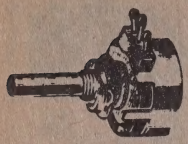
Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9663	1K 2K 5K 10K 20K 50K 100K	34.50	31.95	28.75	27.28

10-TURN 1¼" DIAMETER DIGITAL KNOBPOT® MODEL 3650S-1

Digital readout, knob and potentiometer in one unit requires less front panel space than most dials alone. Readability of 1 part in 10,000. 0.05% repeatability of total applied voltage. Output accuracywithin 0.1% of total applied voltage (including linearity). Power 2.5 watts at 25°C. Absolute min. resistance: 1.0 ot m or 0.1%, whichever is greater. Max. oper. temp.: 85°C. Tolerance: ±3%. Knob dia.: 1¼". Extends total of 1.58" behind panel front.

Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9664	1K 2K 5K 10K 20K 50K 100K	49.17	45.53	40.98	38.88

SERIES RV4—2 WATT THICK FILM CONDUCTIVE PLASTIC Meets Mil. Spec.—MIL-R-94B



For tolerance see last letter in type number (A) ±10% (B) ±20%. Linear resistance taper. 1⅛" diameter. Shpg. wt. 7 oz.

Type RV4LAYSA: ½" long locking bushing. Slotted shaft ¼" dia., ⅝" lg. FMS.

Stk. No.	Type	Ohms	1-9	10-49	50-99	100-249
9F1431	RV4LAYSA500A	50				
8F715	RV4LAYSA101A	100				
8F716	RV4LAYSA251A	250				
9F1435	RV4LAYSA351A	350				
8F717	RV4LAYSA501A	500				
9F1437	RV4LAYSA751A	750				
8F718	RV4LAYSA102A	1000				
9F1439	RV4LAYSA152A	1500				
8F719	RV4LAYSA252A	2500				
8F720	RV4LAYSA502A	5000				
8F721	RV4LAYSA103A	10K	2.48	2.09	1.74	1.46
9F1445	RV4LAYSA153A	15K				
8F722	RV4LAYSA253A	25K				
8F723	RV4LAYSA503A	50K				
8F724	RV4LAYSA104A	100K				
9F1451	RV4LAYSA154A	150K				
8F725	RV4LAYSA254A	250K				
9F1453	RV4LAYSA354A	350K				
8F726	RV4LAYSA504A	500K				
8F727	RV4LAYSA105A	1 Meg				
9F1458	RV4LAYSA205B	2 Meg				
8F728	RV4LAYSA255B	2.5 Meg				
8F729	RV4LAYSA505B	5 Meg				

Type RV4LAYSD. Carbon type "pots" with ½" locking type bushing. Shaft ¼" dia. ⅝" lg. FMS. Maximum temperature: 120°C.

8F685	RV4LAYSD101A	100 ohms				
8F686	RV4LYASD251A	250 ohms				
8F687	RV4LAYSD501A	500 ohms				
8F688	RV4LAYSD102A	1000 ohms				
8F690	RV4LAYSD502A	5000 ohms				
8F691	RV4LAYSD103A	10K				
8F692	RV4LAYSD253A	25K				
8F693	RV4LAYSD503A	50K	2.48	2.09	1.74	1.46
8F694	RV4LAYSD104A	100K				
8F695	RV4LAYSD254A	250K				
8F696	RV4LAYSD504A	500K				
8F697	RV4LAYSD105A	1 Meg				
8F698	RV4LAYSD255B	2.5 Meg				
8F699	RV4LAYSD505B	5 Meg				

Type RV4NAYSD: ⅜" long standard bushing. Slotted shaft ¼" diameter, ⅞" long FMS.

Stk. No.	Type	Ohms	1-9	10-49	50-99	100-249
9F1400	RV4NAYSD500A	50				
8F700	RV4NAYSD101A	100				
9F1402	RV4NAYSD151A	150				
8F701	RV4NAYSD251A	250				
8F702	RV4NAYSD501A	500				
9F1406	RV4NAYSD751A	750				
8F703	RV4NAYSD102A	1000				
9F1408	RV4NAYSD152A	1500				
8F704	RV4NAYSD252A	2500				
9F1410	RV4NAYSD352A	3500				
8F705	RV4NAYSD502A	5000				
9F1412	RV4NAYSD752A	7500				
8F706	RV4NAYSD103A	10K				
9F1414	RV4NAYSD153A	15K	2.15	1.76	1.65	1.38
8F707	RV4NAYSD253A	25K				
8F708	RV4NAYSD503A	50K				
9F1418	RV4NAYSD753A	75K				
8F709	RV4NAYSD104A	100K				
9F1420	RV4NAYSD154A	150K				
8F710	RV4NAYSD254A	250K				
9F1422	RV4NAYSD354A	350K				
8F711	RV4NAYSD504A	500K				
9F1424	RV4NAYSD754A	750K				
8F712	RV4NAYSD105A	1 Meg				
8F713	RV4NAYSD255B	2.5 Meg				
9F1429	RV4NAYSD355B	3.5 Meg				
8F714	RV4NAYSD505B	5 Meg				

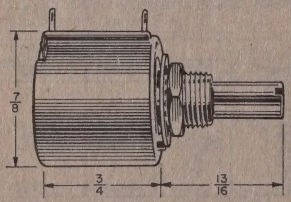
Type RV4NAYSK. Maximum operating temperature: 120°C. Maximum resistance change due to humidity test: 100 megs. Slotted operating shaft ¼" diameter, 2½" long.

9F1467	RV4NAYSK502A	5000				
9F1468	RV4NAYSK103A	10K				
9F1470	RV4NAYSK503A	50K	2.15	1.76	1.65	1.38
9F1471	RV4NAYSK104A	100K				
9F1472	RV4NAYSK254A	250K				
9F1474	RV4NAYSK105A	1 Meg				

Type RV4NAYSB. Same as above except with ¼" diameter, ½" long, slotted shaft, FMS.

9F1477	RV4NAYSB101A	100				
9F1480	RV4NAYSB102A	1000				
9F1482	RV4NAYSB502A	5000				
9F1485	RV4NAYSB503A	50K				
9F1486	RV4NAYSB104A	100K	2.15	1.76	1.65	1.38
9F1488	RV4NAYSB504A	500K				
9F1489	RV4NAYSB105A	1 Meg				
9F1490	RV4NAYSB255B	2.5 Meg				

SERIES 73JA 10-TURN POT



Specs. Electrical: Resis. Range: 25 to 200K ohms. Resis. Tol.: ±5%. Power Rating @ 20°C: 2 watts. Op. temp. range: −55°C to +105°C. T. Coeff.: ±20 ppm °C max. Insulation Resis.: 1000 megohms @ 500 VDC. Dielectric Strength: 1000 volts RMS. Mechanical: Torque: 1.5 oz. in. max. Environmental: Rotational Life: 500,000. Dimensions: ⅞" dia. x ¾" L.

Stk. No.	Type	Ohms	1-9	10-24	25-49	50-99
9F1850	73JA-100	100				
9F1851	73JA-200	200				
9F1852	73JA-500	500				
9F1853	73JA-1K	1K				
9F1854	73JA-2K	2K				
9F1855	73JA-5K	5K	4.92	4.75	4.57	4.21
9F1856	73JA-10K	10K				
9F1857	73JA-20K	20K				
9F1858	73JA-25K	25K				
9F1859	73JA-50K	50K				
9F1860	73JA-100K	100K				

THICK FILM CONDUCTIVE PLASTIC POTENTIOMETERS

RV6L

RV6N

MIL-R-94 STYLE RV6: High-resolution, highly stable for applications requiring miniaturization and reliability. Rated 0.5 W @ 70°C, derated to zero power @ 120°. Working voltage 350 VDC across end terminals. Mechanical and electrical rotation 295° ±3°. Voltage breakdown 750 VAC between terminals and ground for 1 minute. Available with standard or locking type bushing. RV6L Locking Bushing. RV6N Standard Bushing. Diameter: ½". Shipping weight, 5 oz.

SERIES RV6L

Stk. No.	RV6L/AYSA Type	Ohms
9F2000	101A	100
9F2001	251A	250
9F2002	501A	500
9F2003	102A	1000
9F2004	252A	2500
9F2005	502A	5000
9F2006	103A	10,000
9F2007	153A	15,000
9F2008	253A	25,000
9F2009	503A	50,000
9F2010	104A	100K
9F2011	154A	150K
9F2012	254A	250K
9F2013	504A	500K
9F2014	105A	1 Meg

Price	1-9	10-49	50-99	100-249
	5.00	3.88	2.33	2.02

SERIES RV6N

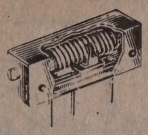
Stk. No.	RV6N/AYSD Type	Ohms
9F2015	101A	100
9F2016	251A	250
9F2017	501A	500
9F2018	102A	1000
9F2019	252A	2500
9F2020	502A	5000
9F2021	103A	10,000
9F2023	253A	25,000
9F2024	503A	50,000
9F2025	104A	100K
9F2027	254A	250K
9F2028	504A	500K
9F2029	105A	1 Meg

Price	1-9	10-49	50-99	100-249
	5.00	3.65	2.19	1.90

POTENTIOMETERS

CLAROSTAT

SERIES 76-JA-3 PC TRIMMER



Super setability. 10 times the resolution. 15 times greater winding length. Mech. travel: 14 turns, Eff. Travel: 11 turns, ±¼. Res. range: 100-20,000. Res. tol.: 5%. Power: .75 W @ 85°C – derated linearly to 0 power @ 150°C.

Stock No.	Res. (Ω)	Resolution
09F1389	100	0.1
09F1390	200	0.09
09F1392	1K	0.075
09F1393	2K	0.06
09F1394	5K	0.05
09F1395	10K	0.04
09F1396	20K	0.03

Prices	1-24	25-49	50-99	100-249
	10.19	9.06	8.49	7.93

58C1 WIRE-WOUND POTENTIOMETERS

Standard bushings; wire wound. Rated 4 watts. Electrical tolerance is 5%. Shaft 2" FMS plain. Diam. $1\frac{23}{32}$" x 1" depth. Shpg. wt.: 4 oz.

Stk. No.	Type	Ohms	NET
08F434	58C1-10	10	
08F435	58C1-15	15	
08F439	58C1-50	50	
08F442	58C1-100	100	
08F443	58C1-200	200	
08F444	58C1-300	300	
08F445	58C1-400	400	
08F446	58C1-500	500	
08F447	58C1-750	750	
08F448	58C1-1000	1K	
08F449	58C1-1500	1.5K	**2.86**
08F450	58C1-2000	2K	
08F451	58C1-2500	2.5K	
08F452	58C1-3000	3K	
08F453	58C1-5000	5K	
08F455	58C1-10K	10K	
08F457	58C1-20K	20K	**3.25**
08F458	58C1-25K	25K	
08F461	58C1-50K	50K	3.82

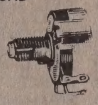
10-TURN POTENTIOMETERS—SERIES 62-JA

Res. Tol.: 5%. Linearity: 25%. 500-100K. Power dissipation: .2W @ 25°C. Rotation 360° nom. Ins. Res: 100 megohms. Max rotation speed: 60 RPM. Dielectric strength: 1000 VAC.

Stk. No.	Res.	Stk. No.	Res.	Stk. No.	Res.
08F570	100	08F573	1K	08F577	20K
08F569	200	08F574	2K	08F578	30K
08F571	250	08F575	5K	08F579	50K
08F572	500	08F576	10K	08F580	100K

Prices	1-9	10-99	100-up
	8.25	7.15	6.60

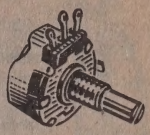
43C 2-WATT WIRE WOUND



2 watt, wire wound control. Tolerance 5%. ⅛ lg. screwdriver slotted shaft. Dia. $1\frac{5}{32} \times \frac{5}{8}$" deep. Fabricated in accordance with MIL-R-19. Style RA20L. Shpg. wt., 4 oz.

Stk. No.	Type	Ohms	NET
08F400	43C2-5	5	
08F401	43C2-10	10	
08F402	43C2-20	20	
08F403	43C2-25	25	
08F404	43C2-30	30	
08F406	43C2-50	50	
08F407	43C2-75	75	
08F408	43C2-100	100	
08F409	43C2-150	150	
08F410	43C2-200	200	**3.18**
08F411	43C2-300	300	
08F413	43C2-500	500	
08F414	43C2-750	750	
08F415	43C2-1000	1K	
08F416	43C2-1500	1.5K	
08F417	43C2-2000	2K	
08F418	43C2-2500	2.5K	
08F419	43C2-3000	3K	
08F420	43C2-4000	4K	
08F421	43C2-5000	5K	
08F423	43C2-10K	10K	
08F424	43C2-15K	15K	
08F425	43C2-20K	20K	**3.58**
08F426	43C2-25K	25K	
08F429	43C2-50K	50K	4.20

SERIES SC380-3 SLIP-CLUTCH POTENTIOMETER

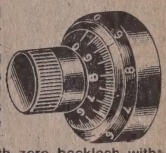


- **Linear Taper**
- **100,000 Cycle Rotational Lifetime**

2 Watt conductive plastic Potentiometer with Slip-Clutch action to prevent damage due to excessive torque. Res. Tol: 5k to 1 M ±10%, above 1 M ±20%. Lin. ±5%. ⅞" screwdriver slotted shaft fms. ⅜" x ⅜" bushing. ¼" shaft.

Stock No.	Res.	1-249
13F3340	5K	
13F3341	10K	**3.50**
13F3342	25K	
13F3343	1Meg	
13F3344	2Meg	

"CLARODIAL" 10 TURN SCALE DIALS



Calibrated dials designed for multiturn potentiometers up to 10 turns. Requires 1 inch of panel space. The knob attaches directly to the shaft and the body of the dial is mounted rigidly to the panel. Ratio of 1000 to 1 for 10 turns provided with zero backlash with reading error ¼" shaft.

*With Lock

Stock No.	Type	Color	1-24	25-49	50-99	100-Up
08F585	412	Black*	8.20	7.65	7.35	6.80
08F586	411	Black	7.60	7.10	6.80	6.40
08F587	462	Clear*	8.20	7.65	7.35	6.80
08F588	461	Clear	7.60	7.10	6.80	6.40

SERIES RA20—2 WATT WIRE WOUND Meets Mil. Spec.—MIL-R-19A

Linear resistance taper. ± 10% tolerance. $1\frac{17}{64}$" dia. Shpg. wt. 7 oz. **RA20NASD:** Standard bushing ⅜" long. Slotted shaft ¼" diameter, ⅞" long. FMS. **RA20LASB:** Locking bushing ½" long. Slotted shaft ¼" diameter ⅝" long FMS.

Stock No.	Type	Ohms	Key
08F735	RA20NASD6R0A	6	A
08F736	RA20NASD8R0A	8	A
08F737	RA20NASD100A	10	A
08F738	RA20NASD150A	15	A
08F739	RA20NASD200A	20	A
08F740	RA20NASD250A	25	A
08F741	RA20NASD350A	35	A
08F742	RA20NASD500A	50	A
08F743	RA20NASD101A	100	A

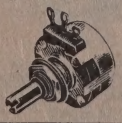
Stock No.	Type	Ohms	Key
08F744	RA20NASD151A	150	A
08F745	RA20NASD201A	200	A
08F746	RA20NASD251A	250	A
08F747	RA20NASD351A	350	A
08F749	RA20NASD751A	750	A
08F750	RA20NAAD102A	1K	A
08F751	RA20NASD152A	1.5K	A
08F752	RA20NASD202A	2K	A
08F753	RA20NASD252A	2.5K	A
08F754	RA20NASD352A	3.5K	A
08F755	RA20NASD502A	5K	A
08F756	RA20NASD103A	10K	A
08F757	RA20NASD153A	15K	A
08F758	RA20LASB3R0A	3	B
08F759	RA20LASB6R0A	6	B
08F760	RA20LASB8R0A	8	B
08F761	RA20LASB100A	10	B
08F762	RA20LASB150A	15	B
08F763	RA20LASB200A	20	B

Stock No.	Type	Ohms	Key
08F764	RA20LASB250A	25	B
08F765	RA20LASB350A	35	B
08F766	RA20LASB500A	50	B
08F767	RA20LASB101A	100	B
08F769	RA20LASB201A	200	B
08F770	RA20LASB251A	250	B
08F772	RA20LASB501A	500	B
08F773	RA20LASB751A	750	B
08F774	RA20LASB102A	1K	B
08F777	RA20LASB252A	2.5K	B
08F778	RA20LASB352A	3.5K	B
08F779	RA20LASB502A	5K	B
08F780	RA20LASB103A	10K	B
08F781	RA20LASB153A	15K	B

Code	1-9	10-49	50-99	100-249
A	3.15	2.11	1.48	1.22
B	3.15	2.19	1.56	1.30

SERIES RA30 — 4 WATT WIRE WOUND

* Meets Mil. Spec.—MIL-R-19A



Linear resistance taper. 10% tolerance. $1\frac{17}{32}$" dia. Shpg. wt. 7 oz. **TYPE RA30NASD:** ⅜" long standard bushing. Slotted shaft ¼" diameter, ⅞" long FMS.

Stk. No.	Type	Ohms	Stk. No.	Type	Ohms
08F788	RA30NASD100A	10	08F796	RA30NASD151A	150
08F789	RA30NASD150A	15	08F797	RA30NASD251A	250
08F791	RA30NASD250A	25	08F798	RA30NASD351A	350
08F793	RA30NASD500A	50	08F799	RA30NASD501A	500
08F794	RA30NASD750A	75	08F800	RA30NASD102A	1K
08F795	RA30NASD101A	100	08F802	RA30NASD202A	2K

Prices	1-9	10-49	50-99	100-249
	3.15	2.30	1.67	1.41

Stk. No.	Type	Ohms	Stk. No.	Type	Ohms
08F803	RA30NASD252A	2.5K	08F807	RA30NASD103A	10K
08F804	RA30NASD352A	3.5K	08F808	RA30NASD203A	20K
08F805	RA30NASD502A	5.0K	08F809	RA30NASD253A	25K
08F806	RA30NASD752A	7.5K	....	.....	...

Prices	1-9	10-49	50-99	100-249
	3.15	2.30	1.67	1.41

Type RA30LASB: ½" locking bushing. Slotted shaft ¼" dia., ⅝" L FMS.

09F1493	RA30LASB3R0A	3	08F819	RA30LASB102A	1K
08F812	RA30LASB150A	15	08F821	RA30LASB202A	2K
08F814	RA30LASB350A	35	08F823	RA30LASB502A	5K
08F816	RA30LASB101A	100	08F824	RA30LASB103A	10K
08F817	RA30LASB151A	150	....	.....	...

Prices	1-9	10-49	50-99	100-249
	3.15	2.38	1.75	1.49

OHMITE Wire Wound Power Rheostats

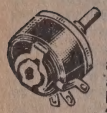
ALL RHEOSTATS SUPPLIED LESS KNOBS - SEE NEXT PAGE FOR KNOB LISTING

MODEL C—7½ WATT MINIATURE RHEOSTATS

Compact power rheostats for limited space applications. For high temperature applications; operates at maximum hot spot temperature of 340°C. Rugged ceramic and metal construction. Only .515 diameter ⅞" behind panel. Mounts with ¼-32 bushing, ⅛" dia. shaft, ⅝" long. Less knob. Wt. .27 oz. Solder terminals also fit EIA Type TS-E3R100 transistor socket.

Stock No.	Type	Ohms ±10%	1-4	5-9	10-Up
11F201	4908	10			
11F202	4909	15			
11F203	4910	25			
11F204	4912	50	19.48	16.56	13.05
11F206	4914	100			
11F207	4916	200			
11F208	4918	350			
11F234	4919	500			

MODEL E—12½ WATT MINIATURE RHEOSTATS



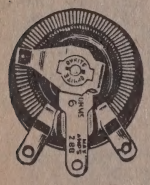
12½-Watt miniature Rheostat. Rugged all-ceramic and metal construction. Use where 12½ watts dissipation is needed but space is limited. Operation at a maximum hot spot temperature rise of 300°C at an ambient of 40°C, but also useful for operating at high military ambients, derated linearly to zero at 340°C. Specifications. Overall diam: ⅞". Shaft diam: ⅛". Resistance range: Up to 5000 ohms with vitreous enamel; higher values available with Ohmicone silicone-ceramic coating. Resistance tol: ±10@. Standard Mounting: for panels up to ⅛", ¼-32 threaded bushing. With non-turn lug. Rotation: 300° ±5%. Shpg. Wt., 0.6 oz. (†) Silicone-ceramic coating.

6

Stock No.	Type	Ohms	Max. Amps.	1-4	5-9	10-24	25-49
09F965	0101	1	3.53				
09F966	0102	2	2.50				
09F967	0103	3	2.04	7.73	6.58	5.19	4.25
09F968	0104	6	1.44				
09F969	0105	8	1.25				
09F970	0106	10	1.12				
09F971	0107	15	.91				
09F972	0108	25	.71				
09F973	0109	35	.60				
09F974	0110	50	.50	7.51	6.39	5.04	4.13
09F975	0111	75	.41				
09F976	0112	100	.35				
09F977	0113	125	.32				

Stock No.	Type	Ohms	Max. Amps.	1-4	5-9	10-24	25-49
09F978	0114	175	.27				
09F979	0115	250	.22				
09F980	0116	350	.19	7.51	6.39	5.04	4.13
09F981	0117	500	.16				
09F982	0118	750	.13				
09F983	0119	1,000	.11				
09F984	0120	1,500	.091	7.73	6.58	5.19	4.25
09F985	0121	2,500	.071				
09F986	0122†	3,500	.061	9.32	7.93	6.25	5.12
09F987	0123†	5,000	.050	9.32	7.93	6.25	5.12
09F988	4190†	7,500	.041	9.98	8.48	6.69	5.49
09F989	4191†	10,000	.035	9.98	8.48	6.69	5.49
09F991	4193†	15,000	.029	10.85	9.23	7.28	5.97

MODEL H—25 WATT UL LISTED



All ceramic vitreous enameled construction. Wire wound over ceramic core. Shunt pigtail carries current to slip-ring. High strength ceramic hub insulates the shaft and bushing. Tempered steel contact arm. Models H, J, K, L, N, when made without additional features are listed by UL and are marked series A except (†) Silicone Ceramic Coating are not UL listed. Aver. shpg. Wt.: 0.19 lbs. Mounts on panels up to ¼" by ⅜"—32 Bushing with No. 5050 Non-turn washer. Shaft Dia. ¼". 300° rotation. Dia. 1⅜".

Stock No.	Type	Ohms	1-4	5-9	10-24	25-49
11F000	0140	1				
11F001	0141	2				
11F002	0142	3	8.13	6.92	5.45	4.46
11F003	0143	6				
11F004	0144	8				
11F005	0145	10				

Stk. No.	Type	Ohms	1-4	5-9	10-24	25-49
11F006	0146	15				
11F007	0147	25				
11F008	0148	35				
11F009	0149	50				
11F010	0150	75				
11F011	0151	100	7.89	6.72	5.29	4.35
11F012	0152	125				
11F013	0153	175				
11F014	0154	250				
11F015	0155	350				
11F016	0156	500				
11F017	0157	750				
11F018	0158	1,000				
11F019	0159	1,500	8.13	6.92	5.45	4.46
11F020	0160	2,500				
11F021	0161	3,500	9.16	7.78	6.13	5.04
11F022	0162	5,000	9.16	7.78	6.13	5.04
11F027	4201†	10,000	9.80	8.34	6.57	5.40
11F029	4203†	20,000	11.14	9.45	7.47	6.11
11F030	4204†	25,000	12.19	10.36	8.17	6.72

OHMITROL SOLID STATE POWER AND MOTOR SPEED CONTROLS

Adaptable to a wide variety of applications by simple turn of screwdriver! Adjustment of integral trimmer sets starting point of control voltage within stated trimmer adjust range. Panel mount.

Stock No.	Type No.	Input V	Input Freq.	Voltage Adj.	Max. Ratings	1-9	10-24	25-Up
13F051	PCA-1000	120 VAC	60Hz	0-120 VAC	1KW, 8.3 Amps AC	29.87	26.90	23.90
13F052	PCA-1050	120 VAC	60Hz	0-120 VAC	15 Amps AC	41.17	37.04	32.94
13F053	PCA-1100	120 VAC	50Hz	0-120 VAC	1KW, 8.3 Amps AC	29.87	26.90	23.89
13F054	PCA-1020	240 VAC	60Hz	0-240 VAC	2KW, 8.3 Amps AC	37.60	33.86	30.08
13F055	PCA-1120	240 VAC	50Hz	0-240 VAC	2KW, 8.3 Amps AC	37.59	33.85	30.07
13F056	PCD-1000	120 VAC	60Hz	0-120 VDC	*	58.19	52.37	46.55
13F057	PCD-1100	120 VAC	50Hz	0-120 VDC	*	60.96	54.86	48.77
13F058	PCD-1020	240 VAC	60Hz	0-240 VDC	*	66.50	59.85	53.21

(*) 6.0 Amps. DC-Resistive, 3.5 Amps. DC Motor Load

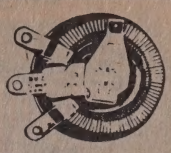
Wire Wound Power Rheostats OHMITE

Model J—50 WATT—UL LISTED

Mounts on panels up to ¼" by ⅜" -32 bushing with No. 5050 Non-turn washer. Shaft dia. ¼" 300° rotation. Dia. 2⅝₁₆

Stk. No.	Type	Ohms	1-4	5-9	10-24	25-49
11F040	0308	0.5				
11F041	0309	1.0				
11F042	0310	2.0	9.54	8.12	6.39	5.24
11F043	0311	4.0				
11F044	0312	6.0				
11F045	0313	8.0				
11F046	0314	12.0				
11F047	0315	16.0				
11F048	0316	22.0				
11F049	0317	35.0				
11F050	0318	50.0	8.51	7.22	5.69	4.68
11F051	0319	80.0				
11F052	0320	125.0				
11F053	0321	150.0				
11F054	0322	225.0				
11F055	0323	300				
11F056	0324	500				
11F057	0325	800				
11F058	0326	1000	9.02	7.68	6.05	4.96
11F059	0327	1600				
11F060	0328	2500				
11F061	0329	3500				
11F062	0330	5000	9.54	8.12	6.39	5.24
11F064	0332	10000				
11F071	4215	50000	19.48	16.57	13.06	10.73

All ceramic vitreous enamel construction. High strength ceramic hub insulates the shaft and bushings. Mounts on panels up to ¼" by ⅜"—32 bushing with non-turn washer. Shaft Dia. ¼". 300° rotation. Dia. 1-⁹⁄₁₆". Avg. shpg. wt. Models H, J, K: 8 oz. Models L, N: 3 lbs—Model R: 4 lbs.



MODEL L—150 WATT—UL LISTED

Mounts on panels up to ¼", by two 10-32 screws. Shaft dia. ¼". 300° Rotation. Dia. 6".

Stk. No.	Type	Ohms	1-4	5-9	10-24	25-Up
11F100	0524	0.5	19.68	16.73	13.19	10.83
11F101	0525	1				
11F102	0528	5	17.21	14.64	11.53	9.48
11F103	0530	10				
11F104	0532	25				
11F105	0534	50				
11F106	0536	100				
11F107	0537	150	15.97	13.60	10.70	8.80
11F108	0538	200				
11F109	0539	250				
11F110	0541	500				
11F111	0543	1,250	18.46	14.64	11.53	9.48
11F112	0545	2,250	19.82	15.70	12.36	10.15
11F113	0547	4,500	21.99	16.84	13.27	10.90
11F114	0549	10,000	26.93	22.90	18.05	14.82

MODEL K—100 WATT—UL LISTED

Mounts on panels up to ¼" by ⅜"-32 Bushing with No. 5050 Non-turn washer. Shaft Diameter ¼". 300° rotation. Rheostat diameter 3⅛"

Stk. No.	Type	Ohms	1-4	5-9	10-24	25-Up
11F076	0440	0.5	17.76	15.08	11.89	9.75
11F077	0441	1				
11F078	0442	2				
11F079	0443	3	16.53	14.06	11.08	9.08
11F080	0444	5				
11F081	0445	7.5				
11F082	0446	10				
11F083	0447	16				
11F084	0448	25				
11F085	0449	50				
11F086	0450	75	13.86	11.77	9.28	7.62
11F087	0451	100				
11F088	0452	200				
11F089	0453	300				
11F090	0454	400				
11F091	0455	500				
11F093	0457	1,000	16.53	14.06	11.08	9.08

MODEL N—300 WATT—UL LISTED

Mounts on panels up to 1", by two ¼"—20 by 1½" flat head screws supplied. Shaft dia. ⅜". 320° Rotation. Dia. 6".

Stk. No.	Type	Ohms	1-2	3-Up
11F130	0650	1		
11F136	0656	10		
11F137	0657	15		
11F138	0658	25		
11F139	0659	50		
11F140	0660	75	30.39	25.83
11F141	0661	100		
11F145	0665	400		
11F146	0666	700		
11F147	0667	900		
11F148	0668	1,200		
11F149	0669	1,500		
11F151	0671	2,500		

MODEL R—500 WATT

Mounts on panels up to 1", by two ¼"—20 screws. Shaft diameter ⅜". 325° Rotation. Dia. 8"

Stk. No.	Type	Ohms	1-2	3-Up
11F176	0855	5		
11F177	0856	8		
11F178	0857	12.5		
11F179	0858	16	36.11	30.69
11F180	0859	25		
11F181	0860	40		
11F182	0872	50		
11F183	0861	80		

Stk. No.	Type	Ohms	1-2	3-Up
11F184	0862	125		
11F185	0863	175		
11F186	0864	250		
11F187	0865	325		
11F188	0866	500	36.11	30.69
11F189	0867	750		
11F190	0868	1,000		
11F191	0869	1,500		
11F193	0871	2,500		

KNOBS FOR OHMITE RHEOSTATS

5105 5104 5150 5151

5105—Handwheel without pointer. For models N & R. **5104**. Same but with pointer. **5150** for models H, J, K, L "AB" pots, except CLU. Model **5151** for Model E.

Stock No.	Type	1-9	10-49	50-Up
11F023	5105	4.53	3.84	2.94
11F200	5104	4.91	4.17	3.19
11F024	5150	.83	.71	.54
11F025	5151	.92	.79	.61

TANDEM COUPLING KITS

Type **6532** for models H and J; couple models K, H, J, or L in rear position. Type **6533** for models K and L; couple models H, J, K, or L in rear position. Type **6591** for model E rheostats. Shpg. wt., 5 oz.

Stock No.	Type	1-4	5-9	10-24	25-Up
11F196	6532	7.32	6.22	4.89	4.02
11F197	6533	9.36	7.96	6.27	5.15
11F195	6591	4.92	4.19	3.30	2.71

DIAL PLATES

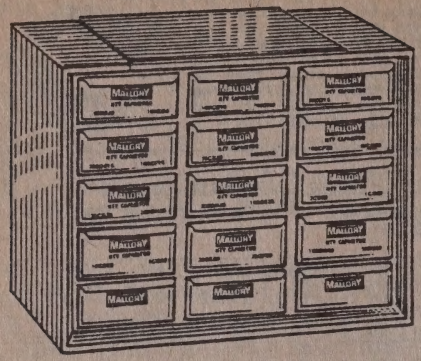
5000 5001

Finished dials for rheostats and other apparatus. Bright figures and lines on etched black backgrounds. Divisions O-100 indicate percentage of resistance in circuits. **5007** for use with C, E, 1¼" dial dia. **5000** for use with H, J, G, K, L 2⅝₁₆" dial dia. **5001** for use with P, R, N, T, U. Dial dia. 5½".

Stock No.	Type	1-9	10-49	50-Up
11F199	5000	.44	.37	.29
11F198	5001	1.52	1.28	.98
11F194	5007	.44	.37	.29

MALLORY Mallory Controls

LAB SAMPLE KIT



MTC 15-1 Mallobin. Contains assortment of subminiature carbon trimmer controls designed for printed circuitry. MTC-1 for vertical mounting and MTC-4 for horizontal mounting. All are packed in compact, easy to stack case. "Mallobin" contains one each of the following values:

MTC-1—PC Vertical Mount				MTC-4—PC Horizontal Mount			
22L1	12L1	153L1	14L1	22L4	12L4	153L4	14L4
152L1	13L1	184L1	124L1	152L4	13L4	184L4	124L4
682L1	63L1	26L1	16L1	682L4	63L4	26L4	16L4
15L1	54L1	751L1	52L1	15L4	54L4	751L4	52L4
55L1	454L1	53L1	33L1	55L4	454L4	53L4	33L4
32L1	251L1	253L1	24L1	32L4	251L4	253L4	254L4
252L1	23L1	3253L1	254L1	252L4	23L4	3253L4	355L4

60 F 2293. Type MTC 15-1. NET.....28.05

SUBMINIATURE TRIMMERS

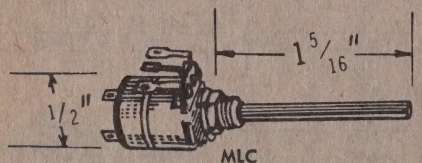
MTC-1

All items contained in MTC-15-1 Mallobin may be purchased separately. Refer to table below for stock numbers and type numbers.

Resis. Ohms	Vertical Mount		PC Horizontal Mount	
	Stock No.	Type	Stock No.	Type
100	60F2187	MTC-12L1	60F2229	MTC-12L4
200	60F2188	MTC-22L1	60F2230	MTC-22L4
250	60F2189	MTC-251L1	60F2231	MTC-251L4
300	60F2190	MTC-32L1	60F2232	MTC-32L4
500	60F2191	MTC-52L1	60F2233	MTC-52L4
1K	60F2193	MTC-13L1	60F2235	MTC-13L4
2K	60F2195	MTC-23L1	60F2237	MTC-23L4
3K	60F2196	MTC-33L1	60F2238	MTC-33L4
5K	60F2197	MTC-53L1	60F2239	MTC-53L4
6K	60F2198	MTC-63L1	.....	MTC-63L4
6.8K	60F2199	MTC-682L1	.....	MTC-68214
10K	60F2200	MTC-14L1	60F2242	MTC-14L4
15K	60F2201	MTC-153L1	60F2215	MTC-153L4
20K	60F2202	MTC-24L1	60F2216	MTC-24L4
25K	60F2203	MTC-253L1	60F2217	MTC-253L4
50K	60F2204	MTC-54L1	60F2218	MTC-54L4
100K	60F2205	MTC-15L1	60F2219	MTC-15L4
180K	60F2207	MTC-184L1	60F2221	MTC-184L4
250K	60F2208	MTC-254L1	60F2222	MTC-254L4
325K	60F2209	MTC-3253L1	60F2223	MTC-3253L4
500K	60F2211	MTC-55L1	60F2225	MTC-55L4
1M	60F2212	MTC-16L1	60F2226	MTC-16L4
2M	60F2213	MTC-26L1	60F2227	MTC-26L4
3.5M	60F2214	MTC-355L1	60F2228	MTC-355L4

Type	1-24	25-49	50-99	100-249
MTC	.47	.42	.39	.35

SUBMINIATURE MINITROLS



MLC

Only ½" diameter. Rated ¼ watt linear, watt audio. ¼" 32x¼" bushing with nut. Shaft: ⅛" diameter x 1⅞" FMS, MLC (steel); MLCN (nylon). (*) Indicates an SPST switch rated 3 amperes at 125VAC, UL approved. Tolerance ±20%.

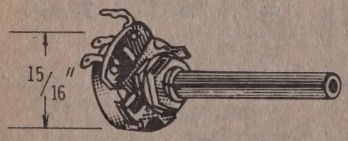
Taper No. 1: Logarithmic used in audio circuits where percent of change is small at start of rotation.

Taper No. 2: Reverse logarithmic used where percent of change must be large at start of rotation.

Taper No. 4: Linear taper where percentage of resistance change is directly proportional to rotational change on a straight line.

BUSHING MOUNT

Stk. No.	Type MLC	Resis. Ohms	Taper	1-24	25-49	50-99	100-249
60F2164	13L	1K	4	1.52	1.38	1.26	1.15
60F2165	222LS*	2.2K	4	2.59	2.35	2.14	1.96
60F2166	252A	2.5K	1	1.52	1.38	1.26	1.15
60F2167	252AS*	2.5K	1	2.59	2.35	2.14	1.96
60F2168	53A	5K	1	1.52	1.38	1.26	1.15
60F2169	53AS*	5K	1	2.59	2.35	2.14	1.96
60F2170	53L	5K	4	1.52	1.38	1.26	1.15
60F2171	53LS*	5K	4	2.59	2.35	2.14	1.96
60F2172	14AS*	10K	1	2.59	2.35	2.14	1.96
60F2173	14L	10K	4	1.52	1.38	1.26	1.15
60F2174	54L	50K	4	1.52	1.38	1.26	1.15
60F2175	15A	100K	1	1.52	1.38	1.26	1.15
60F2176	15L	100K	4	1.52	1.38	1.26	1.15
60F2177	25L	200K	4	1.52	1.38	1.26	1.15
60F2178	254L	250K	4	1.52	1.38	1.26	1.15
60F2180	55AS*	500K	1	2.59	2.35	2.14	1.96
60F2181	55LS*	500K	4	2.59	2.35	2.14	1.96
60F2182	N55L	500K	4	1.52	1.38	1.26	1.15
60F2183	16AS*	1M	1	2.59	2.35	2.14	1.96
60F2184	16LS*	1M	4	2.59	2.35	2.14	1.96
60F2185	N16A	1M	1	1.52	1.38	1.26	1.15
60F2186	N16L	1M	4	1.52	1.38	1.26	1.15



Standard universal replacement 1⅜₁₆" dia. carbon control. ¼" dia. round brass shaft w/adapters for knurled, slotted or flatted knobs. Hex nut incl. ⅜" 32x⅜" bushing. 1 watt linear taper, ½ watt Audio taper.

Stk. No.	Type No.	Resist. Ohms	Taper	1-24	25-49	50-99	100-249
09F073	U1	100	4				
09F074	U2	500	4				
09F077	U3	1K	2	1.34	1.22	1.11	1.02
09F078	U4	1K	4				
09F079	U5	1.5K	2				

TYPE U METAL SHAFT MIDGETROLS

Stk. No.	Type No.	Resist. Ohms	Taper	Stk. No.	Type No.	Resist. Ohms	Taper
09F081	U6	2K	4	09F223	U41	100K	4
09F083	U8	3K	4	09F224	U415	125K	4
09F085	U12	5K	1	09F225	U42	150K	1
09F086	U14	5K	4	09F227	U44	250K	1
09F087	U18	10K	1	09F229	U46	250K	4
09F089	U20	10K	4	09F230	U48	500K	1
09F092	U24	20K	1	09F231	U50	500K	4
09F094	U28	25K	2	09F233	U52	1M	2
09F095	U28A	25K	1	09F234	U53	1M	1
09F096	U29	25K	4	09F235	U54	1M	4
09F098	U33	50K	1	09F237	U155	1.5M	4
09F099	U34	50K	2	09F238	U56	2M	4
09F219	U35	50K	4	09F241	U59	3M	4
09F221	U39	100K	1	09F243	U65	5M	1
09F222	U40	100K	2	09F245	U82	10M	4

PRICE CODE

Type	1-24	25-49	50-99	100-249
U	1.34	1.22	1.11	1.02

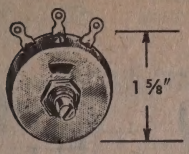
SWITCHES FOR TYPE U CONTROLS

Can be added to Type U and other controls to make them more flexible and versatile. Fits on back of Type U, & TA Midgetrols. Uses common shaft.

Stk. No.	Type	Description	1-24	25-49	50-99	100-249
9F246	US26	SPST 6 amp @ 125V	.77	.69	.64	.58
9F248	US27	DPST 6 amp @ 125V	.85	.77	.70	.64
9F249	US28	SPDT 3 amp @ 125V	.85	.77	.70	.64

MALLORY

M WIRE WOUND POTENTIOMETERS



Used as bias control and voltage dividers; also for replacement of positioning, hold focus & other controls of TV sets. Compact high wattage controls rated 4 watts. Arm insulated from shaff. 275° electrical rotation. 294° mechanical rotation. 1⅝" dia. x 5/16"W. ¼" shaft, slotted 3/64x1/16" deep, extended ⅜" from bushing. Mounts in ⅜" hole. Wt. 4 oz.

Stk. No.	Type	Ohms	1-9	10-49	50-99	100-249
9F300	M1PK	1				
9F337	M3PK	3				
9F303	M10PK	10	3.09	2.77	2.59	2.34
9F304	M15PK	15				
9F330	M20PK	20	3.09	2.77	2.59	2.34
9F306	M25PK	25				
9F309	M50PK	50				
9F312	M100PK	100				
9F313	M200PK	200				
9F331	M300PK	300				
9F314	M400PK	400				
9F315	M500PK	500				
9F317	M1MPK	1K	3.09	2.77	2.59	2.34
9F332	M1.5MPK	1.5K				
9F318	M2MPK	2K				
9F333	M2.5MPK	2.5K				
9F319	M3MPK	3K				
9F321	M5MPK	5K				
9F322	M10MPK	10K				
9F323	M15MPK	15K				
9F324	M20MPK	20K				
9F325	M25MPK	25K	3.61	3.24	3.03	2.74
9F326	M50MPK	50K				
9F327	M70MPK	70K				
9F335	M100MPK	100K				

T AND L LOW IN IMPEDANCE LEVEL CONTROLS

Control level of low impedance audio circuits DC rating, 4 W; 15 watts audio. With dial-plate, washer and nuts. "L" pad 1⅝" dia. x 1⅛" deep. "T" pad, 1 1/16" deep. 7 oz.

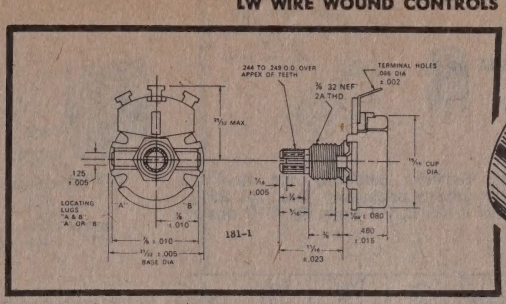
"T" PADS

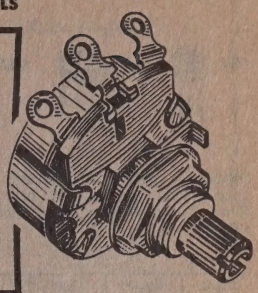
Stk. No.	Type	Ohms	1-9	10-24	25-49	50-99
9F251	T4	4				
9F253	T8	8				
9F254	T15	15				
9F255	T-50	50				
9F258	T250	250	6.77	6.40	6.03	5.67
9F259	T500	500				
9F260	T600	600				
9F261	T1000	1K				
9F262	T2000	2K				
9F263	T3000	3K				

"L" PADS

Stk. No.	Type	Ohms	1-9	10-24	25-49	50-99
9F281	L4	4				
9F283	L8	8	6.60	6.28	5.96	5.50
9F284	L15	15				
9F285	L50	50				
9F288	L250	250				
9F289	L500	500	6.73	6.41	6.08	5.61
9F290	L600	600				
9F291	L1000	1K				
9F293	L3000	3K				

LW WIRE WOUND CONTROLS



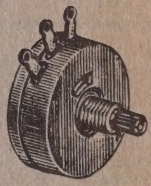


Type "LW". Fully enclosed. Highest quality wire is wound on filled Teflon strips. End terminals are steel w/tin coating. Center terminal is copper alloy w/silver plating. Provides 5 watt capabilities 25°C and derated to 4 watt at 55°C in a case of 1 1/16" dia. Supplied standard with a ⅜-32" x ⅜" bushing and a ¼" x 1 1/16" FMS, hollow, knurled, screwdriver slotted shaft. Use DS36 shaft extension. Controls with SPST push-pull switch are available on special order. Shafts are ¼" dia. flatted, slotted, or knurled. Specify shaft type & length. Linear taper. Res. Range; 1-25 K ohm. Tol. ±10% standard, ±5% on special order. Life: 10,000 cycles. Torque; .5-6" ounce, 2" ounce nominal.

Stk. No.	Type	Ohms	1-9	10-49	50-99	100-249
27F1100	LW1	1				
27F1106	LW3	3				
27F1121	LW5	5				
27F1103	LW8	8				
27F1119	LW10	10				
27F1123	LW15	15	1.45	1.30	1.21	1.09
27F1108	LW20	20				
27F1122	LW25	25				
27F1111	LW50	50				
27F1114	LW75	75				
27F1117	LW100	100				
27F1101	LW250	250				

Stk. No.	Type	Ohms	1-9	10-49	50-99	100-249
27F1116	LW500	500	1.48	1.33	1.23	1.11
27F1118	LW750	750	1.48	1.33	1.23	1.11
27F1113	LW1K	1K	1.48	1.33	1.23	1.11
27F1120	LW1P5K	1.5K	1.74	1.56	1.45	1.31
27F1104	LW2P5K	2.5K	1.74	1.56	1.45	1.31
27F1109	LW5K	5K	1.74	1.56	1.45	1.31
27F1107	LW7P5K	7.5K	1.74	1.56	1.45	1.31
27F1115	LW10K	10K	1.74	1.56	1.45	1.31
27F1105	LW20K	20K	2.44	2.19	2.03	1.83
27F1102	LW25K	25K	3.25	3.01	2.79	2.52

WIREWOUND MG CONTROLS 12 ½ WATT



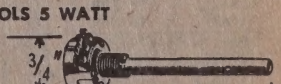
Have continuous DC rating at 12.5 watts at 35°C (ambient). Volume is 1.1 cubic inches and outside control diameter is only slightly larger than the standard knob rotation arc at 1⅝". Mechanical rotation: 294°; electrical rotation: 275°; peak audio rating at 50 watts. Voltage breakdown at 900V RMS. Contact arm insulated.

Stk. No.	Ohms	1-9	10-49	50-99	100-249
9F1700	1				
9F1701	3				
9F1703	10				
9F1704	15	3.36	3.02	2.80	2.53
9F1706	25				
9F1708	50				
9F1709	100				
9F1710	200				

Stk. No.	Ohms	1-9	10-49	50-99	100-249
9F1713	500	3.36	3.02	2.80	2.53
9F1720	4K				
9F1721	5K	3.76	3.38	3.13	2.83
9F1724	20K				
9F1725	25K	3.93	3.53	3.27	2.96
9F1727	100K	6.14	5.51	5.12	4.62

TYPE VW WIREWOUND CONTROLS 5 WATT

Subminiature industrial 5 watt potentiometer. Ideal for limited space applications. Case size only ¾" diameter by 15/32" deep. Bushing ⅜" x ⅜" in diameter and length. Has ¼" plain round shaft 2½" from mounting surface.



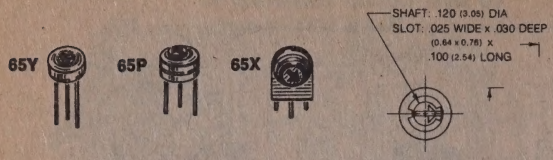
Stk. No.	Type	Ohms	1-9	10-49	50-99	100-249
9F033	VW-1	1				
9F034	VW-2	2				
9F035	VW-3	3				
9F036	VW-5	5				
9F039	VW-10	10				
9F040	VW-15	15	2.46	2.19	2.05	1.85
9F041	VW-20	20				
9F042	VW-25	25				
9F043	VW-30	30				
9F044	VW-40	40				
9F045	VW-50	50				
9F048	VW-100	100				

Stk. No.	Type	Ohms	1-9	10-49	50-99	100-249
9F049	VW-200	200				
9F055	VW-250	250				
9F056	VW-300	300				
9F058	VW-500	500				
9F059	VW-600	600	2.46	2.19	2.05	1.85
9F061	VW-1K	1K				
9F063	VW-2K	2K				
9F064	VW2P5K	2.5K				
9F067	VW-5K	5K				
9F069	VW-10K	10K				
9F071	VW-20K	20K	2.75	2.46	2.29	2.07
9F072	VW-25K	25K				

Spectrol

Trimming Potentiometers

MODEL 65 ¼" SINGLE TURN CERMET

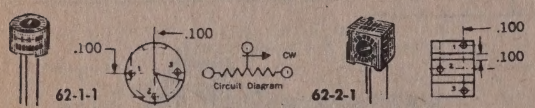


Industrial grade PC mount. Superior setability and stability. Low profile designed for high density packaging. Res. Tol. 20%. Oper. Temp. Range —55°C to +125°C. 0.5 watts @ 70°C power rating.

Type 65P	Type 65Y	Type 65X	Ohms	Type 65P	Type 65Y	Type 65X	Ohms
67F6000	67F6019	67F6038	10	67F6010	67F6029	67F6048	20K
67F6001	67F6020	67F6039	20	67F6011	67F6030	67F6049	25K
67F6002	67F6021	67F6040	50	67F6012	67F6031	67F6050	50K
67F6003	67F6022	67F6041	100	67F6013	67F6032	67F6051	100K
67F6004	67F6023	67F6042	200	67F6014	67F6033	67F6052	200K
67F6005	67F6024	67F6043	500	67F6015	67F6034	67F6053	250K
67F6006	67F6025	67F6044	1000	67F6016	67F6035	67F6054	500K
67F6007	67F6026	67F6045	2000	67F6017	67F6036	67F6055	1 Meg
67F6008	67F6027	67F6046	5000	67F6018	67F6037	67F6056	2 Meg
67F6009	67F6028	67F6047	10K				

PRICE				
Type	1-9	10-24	25-49	50-99
65P	1.77	1.65	1.55	1.44
65Y	1.53	1.43	1.34	1.24
65X	2.07	1.93	1.81	1.68

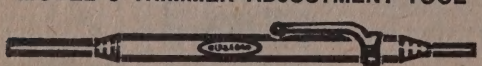
MODEL 62 ¼" Round & Cube Single-Turn



Single turn sub-miniature, PC mount trimmers meet MIL-H-22097 environmental specs. Fully sealed, suitable for automatic soldering. Elect. Adjust.: 215 min. End stops. 6.0 oz.-in. stop strength. Oper. temp. —55°C to 125°C. ¾ Watt @25°C. Size: .250. Wt.: 1.0 Gm. max.

Type 62-1-1	Type 62-2-1	Ohms	1-9	10-24	25-49	50-99
12F4204	12F4220	10				
12F4205	12F4221	20				
12F4206	12F4222	50				
12F4207	12F4223	100				
12F4208	12F4224	200				
12F4209	12F4225	500				
12F4210	12F4226	1K				
12F4211	12F4227	2K	1.70	1.60	1.50	1.45
12F4212	12F4228	5K				
12F4213	12F4229	10K				
12F4214	12F4230	20K				
12F4215	12F4231	50K				
12F4216	12F4232	100K				
12F4217	12F4233	200K				
12F4218	12F4234	500K				
12F4219	12F4235	1 meg.				

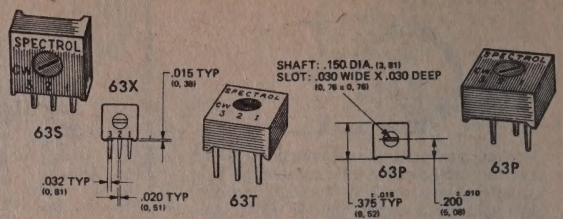
MODEL 8 TRIMMER ADJUSTMENT TOOL



Glass filled nylon body with corrosion resistant stainless steel blades. Extended as well as recessed blade for critical adjustments. Designed to adjust Trimmers of all sizes. Overall length is 5", diameter is .255".

67F5795 NET **$1.00**

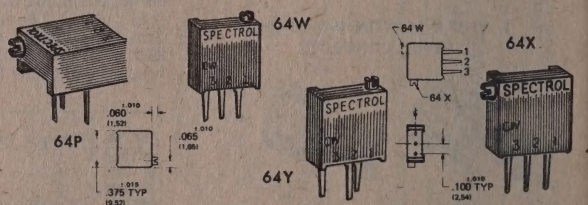
MODEL 63 ⅜" SQ. SINGLE-TURN CERMET



Industrial grade. Positive soldered terminations. +100PPM/°C tempco. Res. Tol: 20%. —55°C to +125°C oper. temp. range. 0.5 watts @70°C power rating. CRV of 3% or 3 ohms. Brush contact. 63S. Side adjust. 63P: Top adjust.

Type 63S	Type 63P	Type 63X	Type 63T	Ohms	1-9	10-24	25-49
67F5719	67F5700	67F5738	67F5800	10			
67F5720	67F5701	67F5739	67F5801	20			
67F5721	67F5702	67F5740	67F5802	50			
67F5722	67F5703	67F5741	67F5803	100			
67F5723	67F5704	67F5742	67F5804	200			
67F5724	67F5705	67F5743	67F5805	500			
67F5725	67F5706	67F5744	67F5806	1K			
67F5726	67F5707	67F5745	67F5807	2K	.99	.89	.80
67F5727	67F5708	67F5746	67F5808	5K			
67F5728	67F5709	67F5747	67F5809	10K			
67F5729	67F5710	67F5748	67F5810	20K			
67F5730	67F5711	67F5819	67F5811	25K			
67F5731	67F5712	67F5749	67F5812	50K			
67F5732	67F5713	67F5750	67F5813	100K			
67F5733	67F5714	67F5751	67F5814	200K			
67F5734	67F5715	67F5820	67F5815	250K			
67F5735	67F5716	67F5752	67F5816	500K			
67F5736	67F5717	67F5753	67F5817	1 Meg			
67F5737	67F5718	67F5754	67F5818	2 Meg			

MODEL 64 ⅜" SQ. MULTI-TURN CERMET



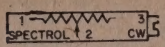
Industrial grade. +100PPM/°C tempoco. CRV of 3% or 3 ohms. 25 turns nom. Res. Tol: 10%. 0.5 watts 70°C power rating. —55°C to +125°C oper. temp. range. 2 lbs. min. terminal strength. 64P: Side adjust, horizontal mount. 64X: Side Adjust, vertical mount.

Type 64P	Type 64X	Type 64W	Type 64Y	Ohms	1-9	10-24	25-49
67F5755	67F5774	67F5821	67F5840	10			
67F5756	67F5775	67F5822	67F5841	20			
67F5757	67F5776	67F5823	67F5842	50			
67F5758	67F5777	67F5824	67F5843	100			
67F5759	67F5778	67F5825	67F5844	200			
67F5760	67F5779	67F5826	67F5845	500			
67F5761	67F5780	67F5827	67F5846	1K			
67F5762	67F5781	67F5828	67F5847	2K			
67F5763	67F5782	67F5829	67F5848	5K			
67F5764	67F5783	67F5830	67F5849	10K	1.79	1.68	1.57
67F5765	67F5784	67F5831	67F5850	20K			
67F5766	67F5785	67F5832	67F5851	25K			
67F5767	67F5786	67F5833	67F5852	50K			
67F5768	67F5787	67F5834	67F5853	100K			
67F5769	67F5788	67F5835	67F5854	200K			
67F5770	67F5789	67F5836	67F5855	250K			
67F5771	67F5790	67F5837	67F5856	500K			
67F5772	67F5791	67F5838	67F5857	1 Meg			
67F5773	67F5792	67F5839	67F5858	2 Meg			

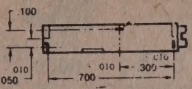
Rectangular Multi-turn Trimmers

Spectrol

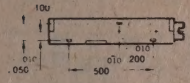
MODEL 43



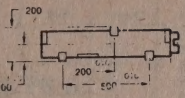
43P



43Y



43P

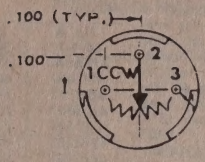


43W

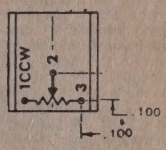
Designed for general use where cost and space are factors. Has 20 turn screw-driver adjustment with idling and stops. Operating temp. range: -65°C to 125°C. Fully sealed, suitable for automatic soldering. Wedge shaped pins make automatic insertion practical. Choice of 3 pin grids. Perfect for new or replacement purposes. Res. tol.: ±10%. ¾ watt @ 25°C. Size: .750x.25x.19.

Type 43P	Type 43W	Type 43Y	Ohms	1-9	10-24	25-49	50-99
12F4400	12F4418	12F4436	10				
12F4401	12F4419	12F4437	20				
12F4402	12F4420	12F4438	50				
12F4403	12F4421	12F4439	100				
12F4404	12F4422	12F4440	200	1.35	1.25	1.20	1.15
12F4405	12F4423	12F4441	500				
12F4406	12F4424	12F4442	1K				
12F4407	12F4425	12F4443	2K				
12F4408	12F4426	12F4444	5K				
12F4409	12F4427	12F4445	10K				
12F4410	12F4428	12F4446	20K				
12F4411	12F4429	12F4447	50K				
12F4412	12F4430	12F4448	100K				
12F4413	12F4431	12F4449	200K	1.35	1.25	1.20	1.15
12F4414	12F4432	12F4450	250K				
12F4415	12F4433	12F4451	500K				
12F4416	12F4434	12F4452	1 Meg				
12F4417	12F4435	12F4453	2 Meg				

MODEL 53 11/32" Round & Cube Single Turn



53-1-1

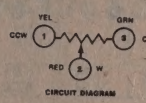


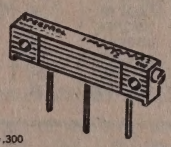
53-2-1

Single turn, PC mount trimmers meet environ sects. of MIL-R-22097. Fully sealed, suitable for automatic soldering. Stop strength of 10 oz. in. Oper. temp.: -65° to 125°. Tol. : ± 20%. ½ watt @ 85°C. Size: .343 dia. Wt.: 1.5 grams max.

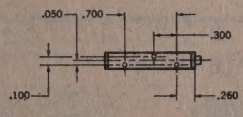
Type 53-1-1	Type 53-2-1	Ohms	1-9	10-24	25-49	50-99
12F3029	12F3045	10				
12F3030	12F3046	20				
12F3031	12F3047	50				
12F3032	12F3048	100				
12F3033	12F3049	200				
12F3034	12F3050	500				
12F3035	12F3051	1K				
12F3036	12F3052	2K	1.95	1.82	1.70	1.59
12F3037	12F3053	5K				
12F3038	12F3054	10K				
12F3039	12F3055	20K				
12F3040	12F3056	50K				
12F3041	12F3057	100K				
12F3042	12F3058	200K				
12F3043	12F3059	500K				
12F3044	12F3060	1 meg				

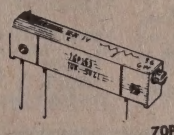
MODEL 70 1¼" RECTANGULAR MULTI-TURN





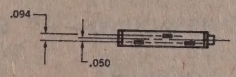
70Y

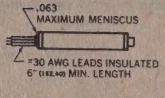




70P

70L





- 1000 hr. operating life
- 200 cycle min. rotational life (loaded circuit)
- Will withstand 30 G's 10 to 2000 Hz vibrations

For use where higher operating wattage and temperature is desired. Resistance to humidity, shock and vibration. 20 turn screwdriver adjustment with idling end stops. Insulated wire lead or PC pin models. Body mounting holes: .093" on 1" centers. Operating temp. range is .55°C to 150°C. Tolerance: 10% 1 Watt 85°C Size: 1.250 x .315 x .190. Net wt. 3.3 Gms. Maximum.

Type 70P	Type 70Y	Ohms	1-9	10-24	25-49	50-99	100-249
67F3515	67F3534	10					
67F3516	67F3535	20					
67F3517	67F3536	50					
67F3518	67F3537	100					
67F3519	67F3538	200					
67F3520	67F3539	500					
67F3521	67F3540	1K					
67F3522	67F3541	2K					
67F3523	67F3542	5K	2.21	2.06	1.93	1.79	1.68
67F3524	67F3543	10K					
67F3525	67F3544	20K					
67F3527	67F3546	50K					
67F3528	67F3547	100K					
67F3529	67F3548	200K					
67F3530	67F3549	250K					
67F3531	67F3550	500K					
67F3532	67F3551	1 Meg					
67F3533	67F3552	2 Meg					

Type 70L	Ohms	1-9	10-24	25-49	50-99	100-249
67F3553	10					
67F3554	20					
67F3555	50					
67F3556	100					
67F3557	200	2.66	2.48	2.32	2.16	2.02
67F3558	500					
67F3559	1K					
67F3560	2K					
67F3561	5K					
67F3562	10K					
67F3563	20K					
67F3565	50K					
67F3566	100K					
67F3567	200K	2.66	2.48	2.32	2.16	2.02
67F3568	250K					
67F3569	500K					
67F3570	1 Meg					
67F3571	2 Meg					

6

Spectrol

Trimmers

MODEL 50 WIRE WOUND RES. ELEMENTS FOR TEMP. STABILITY

FIG. A

FIG. B

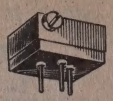


FIG. C

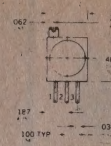
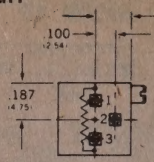
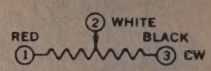


FIG. D



3/8" SQUARE MULTI-TURN METAL CASE



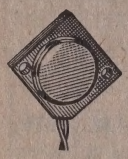
Features an exceptional size/power factor, for service where space is limited. Can be integrated into almost any layout. See mounting arrangements illustrated above. Screw adjustment of 23 turns ±5. Stops/clutch feature. Tempco is 50 PPM/°C. Figure A has 6" Teflon leads and 0.075" diameter mounting holes on 0.375" centers. Resistance tolerance ±5%. .75 watt @ 85°C. Size: .375 x .405 × .190" Nominal. Weight: Figure A, 2.0 Grams; others 1.5 Grams maximum.

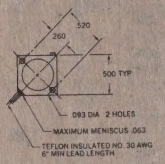
Model 50-3-11. Sug. Replacement for Model RT-24C2

Fig. A 50-1-11	Fig. B 50-2-11	Fig. C 50-4-11	Fig. D 50-3-11	Ohms	1-9	10-24	25-49	50-99
67F3646	67F3656	67F3676	67F3666	50				
67F3647	67F3657	67F3677	67F3667	100				
67F3648	67F3658	67F3678	67F3668	200				
67F3649	67F3659	67F3679	67F3669	500				
67F3650	67F3660	67F3680	67F3670	1K	6.89	6.43	6.01	5.60
67F3651	67F3661	67F3681	67F3671	2K				
67F3652	67F3662	67F3682	67F3672	5K				
67F3653	67F3663	67F3683	67F3673	10K				
67F3654	67F3664	67F3684	67F3674	20K	7.77	7.25	6.79	6.32
67F3655	67F3665	67F3685	67F3675	50K	8.30	7.74	7.24	6.75

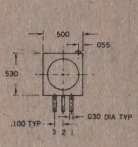
6

MODEL 55, ½" SQUARE MULTI-TURN METAL CASE

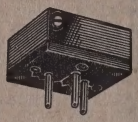


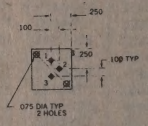


55-1-X



55-3-X





55-4-X

Provides higher wattage in a package only 0.500" square for demanding circuits. Temperature stable to 50 PPM/°C maximum. Screw adjusted with 23 turns ±3. Has idler at stops to prevent damage. Operating temperature range: -65°C to 150°C. Figure A, has 6" Teflon leads and 0.093" diameter mounting holes on 0.520" centers. Circuit diagram above, except red, green and yellow leads from left to right. Resistance tolerance is ±5% 1.5 watt @ 70°C. Size: 0.500x0.500x0.190. Nominal. Weight: 2.5 Grams maximum.

Fig. A 55-1-8	Fig. C 55-4-8	Fig. B 55-2-8	Fig. D 55-3-8	Ohms	1-9	10-24	25-49	50-99
...	12F3011	67F3749	12F3015	20				
12F2622	12F2632	67F3750	12F2791	50				
12F2625	12F2635	67F3751	12F2794	500				
...	12F2636	67F3752	12F2795	1K	6.89	6.43	6.01	5.60
12F2627	12F2637	67F3753	12F2796	2K				
...	12F2638	67F3754	12F2797	5K				
12F2629	12F2639	67F3755	12F2798	10K				
12F2630	12F2640	67F3756	12F2799	20K	7.77	7.25	6.79	6.32
12F2631	12F2641	67F3757	12F2800	50K	8.30	7.74	7.24	6.75

MODEL 84 WIREWOUND—½" DIA. ROUND SINGLE-TURN

Higher power miniature trimmers for Military and industrial circuits. Designed to meet applicable portions of MIL-R-27208. Tempco of 50 PPM/°C maximum. Choice of 3 packages above. Effective adjustment 300° nominal. Temperature range: —65 to 175°C. Tolerance ±5% 1.5 watt @ 70°C. Weight: 1.7 Grams maximum.

84-3-8

84-3-10

TYPE 84-3-8—SCREWDRIVER ADJUST PC PINS

Stk. No.	Ohms	1-9	10-24	25-49	50-99
12F2958	10				
12F2959	20				
12F2680	50	3.62	3.37	3.16	2.94
12F2681	100				
12F2682	200				
12F2683	500				

Stk. No.	Ohms	1-9	10-24	25-49	50-99
12F2684	1K				
12F2685	2K	3.62	3.37	3.16	2.94
12F2686	5K				
12F2687	10K				
12F2688	20K	4.06	3.79	3.55	3.30

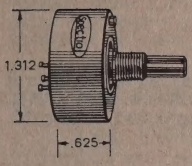
TYPE 84-3-10—SCREWDRIVER ADJUST PC PINS

Stk. No.	Ohms	1-9	10-24	25-49	50-99
12F2932	10				
12F2933	20				
12F2934	50	4.41	4.12	3.85	3.59
12F2935	100				
12F2936	200				
12F2937	500				

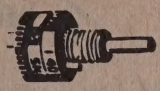
Stk. No.	Ohms	1-9	10-24	25-49	50-99
12F2938	1K				
12F2939	2K	4.41	4.12	3.85	3.59
12F2940	5K				
12F2941	10K				
12F2942	20K	4.94	4.60	4.30	4.01

Spectrol Precision Potentiometers

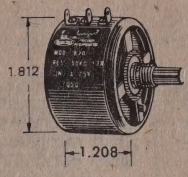
PRECISION LINEAR WIREWOUND



MODEL 132

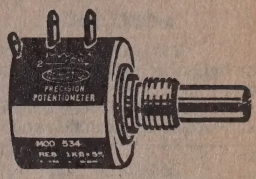


MODEL 140



MODEL 830

MODEL 162



Model 533

6

SINGLE-TURN MODEL 132 WIRE WOUND 2.75 WATTS @ 40°C. SIZE: 0.625" x 1.312 DIAMETER

Precision potentiometer for general purpose industrial-use. Independent linearity: Up to 200 ohms, ±1%; above 200 ohms, ±0.5%. Electrical rotation: 352° ±2°. Temperature range: -55°C to +125°C. Shaft length including bushing: 0.875" x 0.250" diameter. Bushing: ⅜-32x⅜". Resistance Tol. ±3% Weight: 1.0 oz.

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F4043	100	8.75	8.15	7.65	7.10
67F3513	200				
12F4044	500				
12F4045	1K				
12F4046	2K				

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F4047	5K	8.75	8.15	7.65	7.10
12F4048	10K				
12F4049	20K				
.....	.....				
.....	.....				

SINGLE-TURN MODEL 140 WIREWOUND 2.0 WATTS @ 40°C SIZE: 0.305" x 0.500" DIAMETER

Precision miniature potentiometer. Independent linearity: ±1.0%. Has stops. Electrical rotation: 320° ±5°. Shaft length including bushing: 0.700" x 0.1248" diameter maximum. Bushing: ¼-32×5/16." Resistance Tolerance: ±5%. Weight: 0.1 oz. maximum.

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F2698	50	7.70	7.15	6.70	6.20
12F2699	100				
12F2700	200				
12F2701	500				
12F2702	1K				

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F2703	2K	7.70	7.15	6.70	6.20
12F2704	5K				
12F2705	10K				
12F2706	20K				
12F2707	50K				

3-TURN MODEL 830 WIREWOUND 3.0 WATTS @ 40°C SIZE: 1.218" x 1.812" DIAMETER

Extra rugged design for machine controls and industrial test instruments. Independent linearity: ±0.25%. Has stops. Electrical rotation: 1080° +4° to -0°. Temperature range: -55°C to +125°C. Shaft length including bushing: 0.812" x 0.2497" diameter. Bushing: ⅜-32x5/16." Resistance Tolerance: ±3%. Weight: 3.0 oz. maximum.

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F2746	100	10.50	10.20	10.00	9.45
12F2747	500				
12F2748	1K				
12F2749	2K				
12F2750	5K				

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F2751	10K	10.50	10.20	10.00	9.45
12F2752	20K				
12F2754	50K				
.....	.....				
.....	.....				

3-TURN MODEL 533 WIREWOUND 1.0 WATT @ 70°C SIZE: .750" x .875" DIAMETER

Low cost ⅞" industrial wirewound pot. linearly ±.25%. Elec. rotation 1080° +10° —0°. Power rating: 1.0W @ 70°C. Standard tol. ±5%. Oper temp.: —55°C to +125°C. Size: .750" x .875" dia.

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F4499	50	7.25	6.90	6.50	6.15
12F4454	100				
12F4455	200				
12F4456	500				
12F4457	1K				

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F4458	2K	7.25	6.90	6.50	6.15
12F4459	5K				
12F4460	10K				
12F4461	20K				

10-TURN MODEL 162 WIREWOUND 2.0 WATTS @ 40°C SIZE: 1.000" x 0.500" DIAMETER

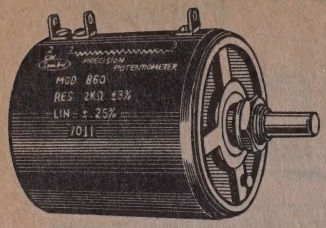
Precision potentiometer for limited panel space. Independent linearity: ±0.3%. Has stops. Electrical rotation: 3600° +15° to -0°. Temperature range: -55°C to +125°C. Shaft length including bushing: 0.687" x 0.935" diameter. Bushing: ¼-32x0.281" Resistance Tolerance: ±5%. Weight: 1.0 oz. maximum.

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F2899	100	13.40	12.55	11.75	10.90
12F2900	200				
12F2901	500				
12F2902	1K				
12F2903	2K				

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F2904	5K	13.40	12.55	11.75	10.90
12F2905	10K				
12F2906	20K				
12F2908	50K				
.....	.....				

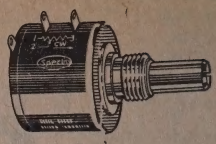
Precision Pots & Turns Counting Dials

Spectrol



MODEL 860

- Wide Temperature Range
- Independent Linearity
- Excellent Stop Strength



MODEL 534

10-TURN MODEL 534

Low cost industrial wirewound precision potentiometer available as three turn (533), five turn (535) and dual gang units as well as 10-turn (534) standard. Choose between bushing and servo-mounting styles. Rugged construction and superior stop strength inherent in design. Resistance tolerance ±5%. Max. power 2.0 watts at 70°C. Operating temp. −55 to 125°C. Linearity tolerance ±.25%. Shaft revolutions 1 million. Temperature coefficient 20 ppm/°C. Size: .750" x .875" dia.

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F4463	100	5.95	5.80	5.65	5.35
12F4464	200				
12F4465	500				
12F4466	1K				
12F4467 *	2K				

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F4468	5K	5.95	5.80	5.65	5.35
12F4469	10K				
12F4470	20K				
12F4471	50K				
12F4472	100K				

10-TURN MODEL 860

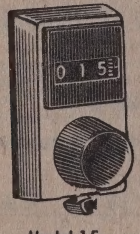
High power model for wide service. Independent linearity: ±0.25%. Has stops. Electrical rotation: 3600° +4° to 0°. Temperature range: −55°C to 125°C. Shaft length including bushing: 0.812" x 0.2497 diameter. Bushing: ⅜-32 x 5/16". Resistance Tolerance: Up to 200 ohms, ±5%; above, ±3%. 8.0 watts @ 40°C. Size: 2.000" x 1.812" diameter. Weight: 4.5 oz. maximum.

Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F2755	20	10.50	10.20	10.00	9.45
12F2756	50				
12F2757	100				
12F2758	200				
12F2759	500				
12F2760	1K				
12F2761	2K				

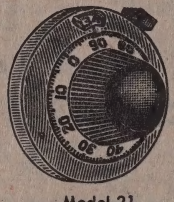
Stk. No.	Ohms	1-4	5-9	10-24	25-49
12F2762	5K	10.50	10.20	10.00	9.45
12F2763	10K				
12F2764	20K				
12F2765	30K				
12F2766	50K				
12F2767	100K				
12F2768	200K				

TURNS COUNTING DIALS

Model 11



Model 15



Model 21

Model 11. Eleven turns. Counts to 1099. Satin body finish. Black knob and brake lever. Black numerals. 1" diameter. For ¼" shaft. Order by stock number. Weight: 0.7 oz. maximum.

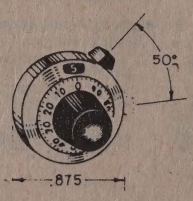
Stk. No.	Type	Shaft Dia.	1-4	5-9	10-24	25-49
12F2773	11-1-11	¼"	9.65	9.00	8.40	7.85

Model 15. Ten turns. Counts to 999. Satin body finish. Black removable knob, for shaft access after mounting. Smooth operating mechanism and positive brake. Size: 1.750" H x 1.0" W x 1.0" Lg. Weight 1.6 ozs.

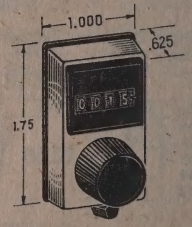
Stk. No.	Type	Shaft Dia.	1-4	5-9	10-24	25-49
12F4492	15-1-11	¼"	13.40	12.50	11.75	10.90

Model 21. Fifteen turns. Counts to 1499. Satin body finish; black knob and brake lever. Black numerals. 1 13/16" diameter. For ¼" shaft. Order by stock number. Weight: 3.0 oz. maximum.

Stk. No.	Type	Shaft Dia.	1-4	5-9	10-24	25-49
8F898	21-1-11	¼"	9.30	8.70	8.10	7.55



Model 16-1-11



Model 15-2-11

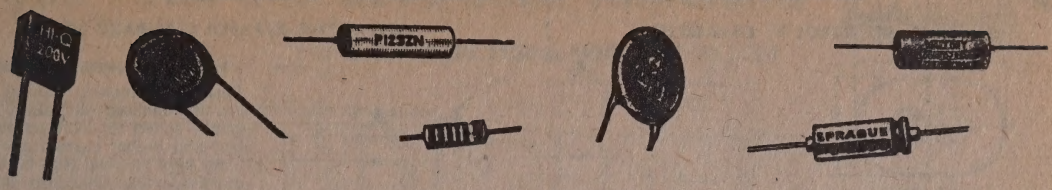
Model 16-1-11. Fifteen turns. Counts to 1499. Clear anodize body finish. Black turning and brake lever knobs. Size: .875" deep, .875" diameter, .250" shaft bore. Wt. .7 oz.

Stk. No.	Type	Shaft Dia.	1-4	5-9	10-24	25-49
12F4498	16-1-11	¼"	6.95	6.75	6.55	6.40

Model 15-2-11. 100 turns. Counts to 9999. Satin chrome body finish. Knobs, bezel, and base are matte black plastic. White numerals on black background. Size: 1.75H x 1.00W x 1.00 Lg. Weight: 1.6 ounces.

Stk. No.	Type	Shaft Dia.	1-4	5-9	10-24	25-49
12F4497	15-2-11	¼"	16.85	14.75	13.80	12.85

HANDY INDEX TO CAPACITORS



Newark carries a complete line of top quality capacitors. Our expert merchandising staff has carefully selected these capacitors to fill your electronic needs.

Contact Newark for all your capacitor needs, whether or not they are listed in this catalog.

MIL SPEC NUMBER AND TYPE NUMBER CONVERSIONS

FROM MILITARY SPEC NUMBER

Specification	Type
MIL-C-5	CD
MIL-C-5	DM
MIL-C-20	8100
MIL-C-11015	8100
MIL-C-26655	CS13
MIL-C-39003	CSR
MIL-STD-202	MTP

FROM TYPE NUMBER

Type	Specifications
CD	MIL-C-5
CSR	MIL-C-39003
CS13	MIL-C-26655
DM	MIL-C-5
MTP	MIL-STD-202
8100	MIL-C-20
8100	MIL-C-11015

MANUFACTURER'S INDEX

Manufacturer's Type	Page
ARCO	
CCD	212
DM5	213
DM-10	213
DM-15	213
DM-19	213
NPO	212
TCA	212
TCD	212
TCP	212
X7R	212
Z5U	212
CENTRALAB	
C22	217
C33	217
CE	214
CF	214
CK	214
CN	217
CW	216
CY	217
DC	214
DD	214
DDA	214
DD6	214
DD30	215
DD60	215
SFT	216
UK	214
60D, Kit	215
829	216
850S	216
853, 854, 855	216
857	216
858S	216
CORNELL-DUBILIER	
APF (Power Line Filters)	211
CD6	207
CD7	206
CD10-CM04	206
CD15-CM05	206
CD19-CM06	206
CD30-CM-07	206
DMT	207
DPMS	207
FAH	208
CD (decade boxes)	208
RD (decade boxes)	208
LMT	209
MMW	211
NLW	208
PC	208
WBR	209
WBR, Kit	208
WMF	210
CORCOM	
B	222
EF	223
EP	221
K	222
R	223
S	222
SP	221

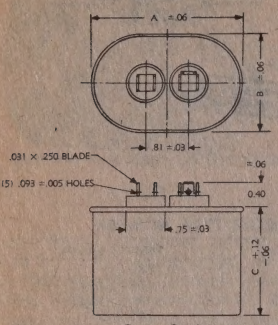
Manufacturer's Type	Page
CORCOM (Con't)	
W	222
V	222
ERIE	
300	219
503 (trimmers)	219
518	219
538	219
557	219
801, 811, 831, 841, 851, 871	218
1200	219
1250	219
2400	219
3192 (trimmers)	219
5600, 5800	218
8100	218
9051	219
GENERAL ELECTRIC	
21L	170
26F	170
JOHANSON	
5000	740
7200	740
9300	740
JOHANSON DIELECTRIC	
S900	740
S905	740
S910	740
MALLORY	
BP (Hardware)	202
CE (Hardware)	202
CG	199
CGR	204
CGS	199
CK05, CK06	194, 195
CMT	197
CTL	197
FP	202
HC	200
MP (Hardware)	202
MTP	197
NP	200
PS (Hardware)	202
QIA	205
SFC	205
SX	203
SXK	203
SXL	203
SXM	203
SX301, Kit	203
TAC	196
TC	202
TCG	198
TCX	198
TDC	196
TH (Hardware)	202
THF	205
TT	201
TT, Kit	200
VPR	204
VR (Hardware)	202
VTT	200
VTT, Kit	200
WP	202

Manufacturer's Type	Page
MEPCO	
AE	192
TA	192
61F	191
62F	193
69F	193
75F	192
86F	191
PLASTIC CAPACITOR	
HV	220
LK	220
OF	220
SPRAGUE	
CS13	171, 172
CSR13	172, 173
HY	185
J141, Kit	190
J150, Kit	190
JX5100, Filters	188
TE	182
TG	184
TO6A	190
TVL	184
TVLU	184
2DF	184
2PS	187
3C	185
4PS	187
5C	185
5GA	185
6PS	187
7C	185
10PS	187
20DK	184
30DK	184
36D	176
36DX	177
39D	178
150D	171, 172
162D	174
192P	189
196D	174
199D	175
225P	187
292C	186
416P	190
431P	189
500	180
501D	181
503D	180
600D	178
604D	181
622D	179
630D	189
672D	179
715P	186
930 (DIP)	186
935D	175
936D	175
936Z	175
939D	175
939Z	175

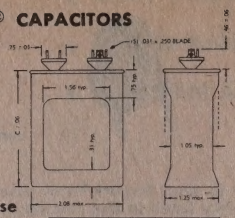
7

AC/DC Paper-Oil Capacitors

21L SERIES DIELEKTROL I® CAPACITORS



Case Styles A, B, C, D



Case Style E

Case Style	Base Dimensions A	B
A	2.16	1.31
B	2.68	1.56
C	2.91	1.91
D	3.66	1.97
G	4.56	2.89

Designed to replace 45F series and 26F1000 series. Provides performance comparable to PCB units without significant increases in case size. Capacitance rating is nominal 25°C value. Standard tolerance is ±10%. Operating temperature range is −55°C to +70°C. Will provide 60,000 hours life when operated within rated voltage and temperature limits.

330 VAC

Stock No.	Type	Cap., µF	Case Style	Case Height C	Net Each 1-9	10-24	25-49
47F1250	21L3305	5.0	A	2.38	6.76	4.39	3.72
47F1251	21L3306	6.0	A	2.62	7.24	4.71	3.98
47F1252	21L3307	7.5	A	3.12	8.00	5.20	4.40
47F1253	21L3310	10.0	A	4.25	9.24	6.01	5.08
47F1254	21L3312	12.5	A	5.50	11.00	7.15	6.05
47F1255	21L3316	15.0	C	3.50	13.52	8.79	7.44
47F1256	21L3317	17.5	C	3.88	15.24	9.91	8.38
47F1257	21L3321	20.0	C	4.25	16.76	10.89	9.22
47F1258	21L3325	25.0	C	5.25	20.00	13.00	11.00
47F1259	21L3330	30.0	C	6.25	22.76	14.79	12.52
47F1260	21L3336	35.0	C	8.00	26.52	17.24	14.59
47F1261	21L3340	40.0	D	6.75	31.76	20.64	17.47
47F1262	21L3345	45.0	D	7.50	34.52	22.44	18.99

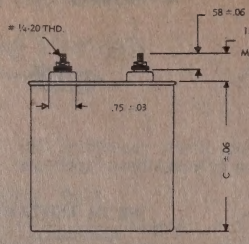
370 VAC

Stock No.	Type	Cap., µF	Case Style	Case Height C	Net Each 1-9	10-24	25-49
47F1263	21L3002	2.0	A	2.12	6.00	3.90	3.30
47F1264	21L3003	3.0	A	2.12	6.24	4.06	3.43
47F1265	21L3004	4.0	A	2.12	6.52	4.24	3.59
47F1266	21L3005	5.0	A	2.62	7.00	4.55	3.85
47F1267	21L3006	6.0	A	2.88	7.52	4.89	4.14
47F1268	21L3007	7.5	A	3.50	8.24	5.36	4.53
47F1269	21L3010	10.0	A	4.75	9.76	6.34	5.37
47F1270	21L3012	12.5	A	6.12	11.25	7.31	6.18
47F1271	21L3115	15.0	C	3.50	14.00	9.10	7.70
47F1272	21L3117	17.5	C	4.25	15.76	10.24	8.67
47F1273	21L3120	20.0	C	4.50	17.24	11.21	9.48
47F1274	21L3125	25.0	C	5.75	20.52	13.34	11.29
47F1275	21L3130	30.0	C	6.75	23.24	15.11	12.78
47F1276	21L3235	35.0	D	6.75	29.00	18.85	15.95
47F1277	21L3240	40.0	D	7.25	32.24	20.96	17.73
47F1278	21L3245	45.0	D	9.00	35.00	22.75	19.25
47F1279	21L3250	50.0	D	9.50	37.52	24.39	20.64

440 VAC

Stock No.	Type	Cap., µF	Case Style	Case Height C	Net Each 1-9	10-24	25-49
47F1280	21L3402	2.0	A	2.12	6.76	4.39	3.72
47F1281	21L3403	3.0	A	2.38	7.00	4.55	3.85
47F1282	21L3404	4.0	A	2.62	7.25	4.71	3.98
47F1283	21L3405	5.0	A	3.50	7.76	5.04	4.27
47F1284	21L3406	6.0	A	3.83	8.40	5.46	4.62
47F1285	21L3407	7.5	A	4.50	9.00	5.85	4.95
47F1286	21L3410	10.0	A	6.12	10.52	6.84	5.79
47F1287	21L3512	12.5	C	4.25	15.24	9.91	8.38
47F1288	21L3515	15.0	C	4.75	16.76	10.89	9.22
47F1289	21L3517	17.5	C	5.75	18.52	12.04	10.19
47F1290	21L3520	20.0	C	6.25	20.00	13.00	11.00
47F1291	21L3522	22.5	C	7.25	21.44	13.94	11.79
47F1292	21L3525	25.0	C	8.00	23.00	14.95	12.65
47F1293	21L3630	30.0	D	6.75	29.24	19.01	16.08
47F1294	21L3635	35.0	D	8.00	33.00	21.45	18.15
47F1295	21L3640	40.0	D	9.00	36.24	23.56	19.93

POLYPROPYLENE/PAPER STANDARD LINE



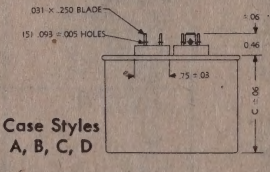
Case Style G

• For SCR Commutation Applications

Designed to replace 28F5100 series. Impregnated with GENOCOL, ideally suited for SCR commutation and higher current applications. May be used with both AC and DC voltage. Standard voltage ratings range from 500 to 1500 volts peak. Temperature range is −55°C to +75°C.

Stock No.	Type	Volts Peak	Cap., µF	Case Style	Case Ht. C	Net Each 1-9	10-24	25-49
47F798	26F6810FC	500	2	A	2.12	16.51	10.78	9.15
47F799	26F6811FC	500	3	A	2.62	17.75	11.59	9.83
47F800	26F6812FC	500	5	A	4.25	20.75	13.54	11.48
47F801	26F6813FA	500	10	C	3.88	28.71	18.71	15.86
47F802	26F6815FA	500	20	C	6.25	37.59	24.49	20.74
47F803	26F6816FA	500	30	D	7.25	48.67	31.69	26.84
47F804	26F6817FC	500	40	G	5.18	74.31	48.35	40.94
47F805	26F6818FC	500	50	G	6.25	89.07	57.95	49.06
47F806	26F6819FC	600	1	A	2.12	17.19	11.23	9.52
47F807	26F6820FC	600	2	A	2.38	17.91	11.69	9.92
47F808	26F6822FC	600	5	A	4.75	22.11	14.42	12.23
47F809	26F6823FA	600	10	C	4.50	29.11	18.97	16.08
47F810	26F6825FA	600	20	D	6.25	40.95	26.67	22.59
47F811	26F6827FC	600	30	G	5.88	73.03	47.52	40.23
47F812	26F6828FC	600	40	G	7.38	83.19	54.13	45.82
47F813	26F6829FC	600	50	G	9.00	98.07	63.80	54.01
47F814	26F6830FC	800	1	A	2.38	18.03	11.77	9.98
47F815	26F6831FC	800	2	A	3.50	18.91	12.34	10.47
47F816	26F6832FA	800	5	C	4.25	25.67	16.74	14.19
47F817	26F6833FA	800	10	C	6.75	32.83	21.39	18.12
47F818	26F6834FC	800	20	G	5.88	72.15	46.95	39.75
47F819	26F6835FC	800	25	G	6.75	75.07	48.85	41.36
47F820	26F6836FC	800	30	G	8.00	93.75	60.99	51.63
47F821	26F6731FC	1000	1	A	2.62	18.87	12.32	10.45
47F822	26F6732FC	1000	2	A	4.25	19.71	12.86	10.91
47F823	26F6734FA	1000	5	C	4.75	27.99	18.25	15.46
47F824	26F6735FA	1000	10	D	6.25	39.15	25.50	21.60
47F825	26F6737FC	1000	20	G	6.75	78.03	50.77	42.98
47F826	26F6741FC	1500	.5	A	2.88	14.91	9.74	8.27
47F827	26F6742FC	1500	1	A	4.25	18.91	12.34	10.47
47F828	26F6743FA	1500	2	C	4.25	22.23	14.50	12.29
47F829	26F6745FA	1500	5	D	7.25	36.43	23.73	20.10
47F830	26F6746FC	1500	10	G	7.25	72.99	47.50	40.21

26F6600 SERIES POLYPROPYLENE/PAPER CAPACITORS



Case Styles A, B, C, D

• For High Voltage Applications

Impregnated with GECONOL, this unit can handle higher energy levels with lower thermal loss. Dielectric is capable of higher voltage stress. Temperature range is −55°C to +70°C. Ideal for higher voltage applications with high thermal stress due to high current.

660 VAC

Stock No.	Type	Cap., µF	Case Style	Case Height C	Net Each 1-9	10-24	25-49
47F1296	26F6615FA	.5	A	2.12	5.75	3.79	3.23
47F1297	26F6616FA	1.0	A	2.12	6.43	4.23	3.60
47F1298	26F6617FA	1.5	A	2.12	6.91	4.54	3.87
47F1299	26F6618FA	2.0	A	2.12	7.07	4.65	3.96
47F1328	26F6619FA	2.5	A	2.12	7.67	5.04	4.29
47F1329	26F6620FA	3.0	A	2.32	8.03	5.27	4.48
47F1330	26F6621FA	4.0	A	3.12	9.15	6.00	5.10
47F1331	26F6622FA	5.0	A	3.50	10.63	6.96	5.91
47F1332	26F6623FA	6.0	A	4.25	12.75	8.34	7.08
47F1333	26F6624FA	7.0	A	4.50	13.43	8.78	7.45
47F1334	26F6625FA	8.0	A	5.50	15.23	9.95	8.44
47F1335	26F6626FA	10.0	C	3.88	17.91	11.69	9.92
47F1336	26F6627FA	12.0	C	4.50	22.39	14.61	12.38
47F1337	26F6628FA	15.0	C	5.75	27.79	18.12	15.35
47F1338	26F6629FA	18.0	C	6.75	34.31	22.35	18.94
47F1339	26F6634FA	20.0	D	6.25	37.59	24.49	20.74
47F1340	26F6635FA	25.0	D	7.50	43.19	28.13	23.82
47F1341	26F6636FA	30.0	D	8.00	47.87	31.17	26.40

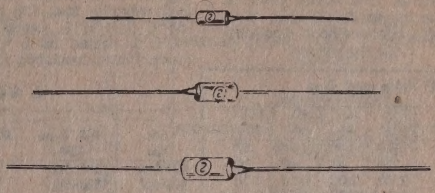
Type 150D and CS13 Solid Tantalums

SPRAGUE® THE MARK OF RELIABILITY

STANDARD SERIES 150D & MILITARY TYPE CS13

PRICE & SIZE LOCATOR -10%

Key	Sizes	1-24	25-49	50-99	100-499
B	.135"x.286"	.81	.57	.41	.33
C	.135"x.286"	.89	.62	.45	.36
D	.185"x.474"	.96	.68	.49	.39
E	.185"x.474"	1.06	.75	.54	.43
F	.289"x.686"	2.92	2.05	1.47	1.18
G	.289"x.686"	3.32	2.33	1.67	1.34
J	.351"x.786"	5.38	3.78	2.71	2.17
K	.351"x.786"	6.13	4.30	3.08	2.47



• Solid-Electrolyte Tantalex Capacitors •Have plastic insulating sleeve •Hermetically sealed

• High frequency performance •Life test 2000 hours

Type CS13. These are Solid-Electrolyte Fixed Tantalex Capacitors. These capacitors have plastic insulating sleeve. These sub-miniature axial-lead hermetically-sealed metal-encased tubular capacitors are furnished to meet all the requirements of Military Specification MIL-C-26655 Revision 2D. These capacitors have low leakage current and stability with both temperature and time. Life test 2000 hours. The operating temperature at full rated working voltage is -55° C to+85° C and with voltage derating, from -55°C to +125°C. They have high frequency performance; impedahce remains low aboye 1 MHz. 2000 cycle vibration test and 50g shock test without any adverse effects. The capacitance tolerance is ±10%. These capacitors are not intended to be mounted by their leads.

7

6 WVDC ± 10% TOLERANCE

Stk. No.	150D	CS13	Mfd	Price & Size Key
18F2258	565X9006A2	BB565K	5.6	B
18F2259	685X9006A2	BB685K	6.8	B
18F2261	476X9006B2	BB476K	47	D
18F2263	566X9006B2	BB566K	56	D
18F2264	157X9006R2	BB157K	150	F
18F2266	187X9006R2	BB187K	180	F
18F2267	277X9006S2	BB277K	270	J
18F2268	337X9006S2	BB337K	330	J

10 WVDC ± 10% TOLERANCE

Stk. No.	150D	CS13	Mfd	Price & Size Key
18F2270	395X9010A2	BC395K	3.9	B
18F2271	475X9010A2	BC475K	4.7	B
18F2273	276X9010B2	BC276K	27	D
18F2274	336X9010B2	BC336K	33	D
18F2276	396X9010B2	BC396K	39	D
18F2277	826X9010R2	BC826K	82	F
18F2278	107X9010R2	BC107K	100	F
18F2280	127X9010R2	BC127K	120	F
18F2281	187X9010S2	BC187K	180	J
18F2282	227X9010S2	BC227K	220	J

15 WVDC ± 10% TOLERANCE

Stk. No.	150D	CS13	Mfd	Price & Size Key
18F2284	275X9015A2	BD275K	2.7	B
18F2285	335X9015A2	BD335K	3.3	B
18F2287	186X9015B2	BD186K	18	D
18F2288	226X9015B2	BD226K	22	D
18F2290	566X9015R2	BD566K	56	F
18F2291	686X9015R2	BD686K	68	F
18F2292	127X9015S2	BD127K	120	J
18F2293	157X9015S2	BD157K	150	J

20 WVDC ± 10% TOLERANCE

Stk. No.	150D	CS13	Mfd	Price & Size Key
18F2296	125X9020A2	BE125K	1.2	B
18F2297	155X9020A2	BE155K	1.5	B
18F2299	185X9020A2	BE185K	1.8	B
18F2300	225X9020A2	BE225K	2.2	B
18F2302	825X9020B2	BE825K	8.2	D
18F2303	106X9020B2	BE106K	10	D
18F2305	126X9020B2	BE126K	12	D
18F2306	156X9020B2	BE156K	15	D
18F2308	276X9020R2	BE276K	27	F
18F2309	336X9020R2	BE336K	33	F
18F2311	396X9020R2	BE396K	39	F

20WVDC ± 10% TOLERANCE (Cont'd)

Stk. No.	150D	CS13	Mfd	Price & Size Key
18F2312	476X9020R2	BE476K	47	F
18F2314	566X9020S2	BE566K	56	J
18F2315	686X9020S2	BE686K	68	J
18F2317	826X9020S2	BE826K	82	J
18F2318	107X9020S2	BE107K	100	J

35WVDC ± 10% TOLERANCE

Stk. No.	150D	CS13	Mfd	Price & Size Key
18F1840	472X9035A2	.....	.0047	B
18F1841	562X9035A2	.....	.0056	B
18F1374	822X9035A2	.....	.0082	B
18F1375	103X9035A2	.....	.01	B
18F1376	123X9035A2	.....	.012	B
18F1377	153X9035A2	.....	.015	B
18F1378	183X9035A2	.....	.018	B
18F1379	223X9035A2	.....	.022	B
18F1380	273X9035A2	.....	.027	B
18F1381	333X9035A2	.....	.033	B
18F1382	393X9035A2	.....	.039	B
18F1383	473X9035A2	.....	.047	B
18F1384	563X9035A2	.....	.056	B
18F1385	683X9035A2	.....	.068	B
18F1386	823X9035A2	.....	.082	B
18F1387	104X9035A2	.....	.10	B
18F1388	124X9035A2	.....	.12	B
18F1389	154X9035A2	.....	.15	B
18F1390	184X9035A2	.....	.18	B
18F1391	224X9035A2	.....	.22	B
18F1392	274X9035A2	.....	.27	B
18F2320	334X9035A2	BF334K	.33	B
18F2322	394X9035A2	BF394K	.39	B
18F2323	474X9035A2	BF474K	.47	B
18F2325	564X9035A2	BF564K	.56	B
18F2326	684X9035A2	BF684K	.68	B
18F2328	824X9035A2	BF824K	.82	B
18F2329	105X9035A2	BF105K	1.0	B
18F2331	125X9035B2	BF125K	1.2	D
18F2332	155X9035B2	BF155K	1.5	D
18F2334	185X9035B2	BF185K	1.8	D
18F2335	225X9035B2	BF225K	2.2	D
18F2337	275X9035B2	BF275K	2.7	D
18F2338	335X9035B2	BF335K	3.3	D
18F2340	395X9035B2	BF395K	3.9	D
18F2341	475X9035B2	BF475K	4.7	D
18F2343	565X9035B2	BF565K	5.6	D
18F2344	685X9035B2	BF685K	6.8	D
18F2346	825X9035R2	BF825K	8.2	F
18F2347	106X9035R2	BF106K	10	F
18F2349	126X9035R2	BF126k	12	F
18F2350	156X9035R2	BF156K	15	F
18F2352	186X9035R2	BF186K	18	F

35 WVDC ± 10% TOLERANCE (Cont.)

Stk. No.	150 D	CS13	Mfd	Price & Size Key
18F2353	226X9035R2	BF226K	22	F
18F2355	276X9035S2	BF276K	27	J
18F2356	336X9035S2	BF336K	33	J
18F2358	396X9035S2	BF396K	39	J
18F2359	476X9035S2	BF476K	47	J

50 WVDC ± 10% TOLERANCE

Stk. No.	150D	CS13	Mfd	Price & Size Key
47F198	472X9050A2	.....	.0047	C
47F199	562X9050A2	.....	.0056	C
47F200	682X9050A2	.....	.0068	C
47F201	822X9050A2	.....	.0082	C
47F202	103X9050A2	.....	.01	C
18F1854	123X9050A2	.....	.012	C
47F203	153X9050A2	.....	.015	C
18F1855	183X9050A2	.....	.018	C
47F204	223X9050A2	.....	.022	C
18F1856	273X9050A2	.....	.027	C
47F205	333X9050A2	.....	.033	C
18F1857	393X9050A2	.....	.039	C
47F206	473X9050A2	.....	.047	C
18F1858	563X9050A2	.....	.056	C
47F207	683X9050A2	.....	.068	C
18F1859	823X9050A2	.....	.082	C
47F208	184X9050A2	.....	.1	C
18F1860	124X9050A2	.....	.12	C
47F209	154X9050A2	.....	.15	C
18F1861	184X9050A2	.....	.18	C
47F210	224X9050A2	.....	.22	C
18F1862	274X9050A2	.....	.27	C
47F211	334X9050A2	.....	.33	C
47F212	474X9050A2	.....	.47	C
18F1864	564X9050A2	.....	.56	C
47F213	684X9050A2	.....	.68	C
18F1865	824X9050A2	.....	.82	C
18F2957	105X9050A2	BG105K	1.0	C
18F2363	125X9050B2	BG125K	1.2	E
18F2958	155X9050B2	BG155K	1.5	E
18F2366	185X9050B2	BG185K	1.8	E
18F2959	225X9050B2	BG225K	2.2	E
18F2369	275X9050B2	BG275K	2.7	E
18F2960	335X9050B2	BG335K	3.3	E
18F2370	395X9050B2	BG395K	3.9	E
18F2961	475X9050B2	BG475K	4.7	E
18F2375	565X9050R2	BG565K	5.6	G
18F2962	685X9050R2	BG685K	6.8	G
18F2378	825X9050R2	BG825K	8.2	G
18F2963	106X9050R2	BG106K	10	G
18F2381	126X9050R2	BG126K	12	G
18F2964	156X9050R2	BG156K	15	G
18F2384	186X9050R2	BG186K	18	G
18F2965	226X9050S2	BG226K	22	K

SPRAGUE THE MARK OF RELIABILITY — 150D, CS13 and CSR-13 Solid Tantalums

COMMERCIAL SERIES 150D AND MILITARY TYPE CS13

Same characteristics as 10% model listed on previous page. True miniaturization with characteristics previously unobtainable in electrolytic capacitors.

150D Price and Size

Key	Sizes	1-24	25-49	50-99	100-499
A	.135x.286	.80	.56	.40	.32
B	.185x.474	.95	.67	.48	.38
C	.289x.686	2.90	2.03	1.45	1.16
D	.351x.786	5.35	3.75	2.68	2.14
E	.135x.286	.80	.56	.40	.32
F	.135x.286	.88	.61	.44	.35
G	.185x.474	1.05	.74	.53	.42
K	.289x.686	3.30	2.31	1.65	1.32
M	.351x.786	6.10	4.27	3.05	2.44

6 WVDC ±20% TOLERANCE

Stk. No.	150D	CS13	MFD	Price Size Key
18F2260	685X0006A2	BB685M	6.8	A
18F2262	476X0006B2	BB476M	47	B
18F2265	157X0006R2	BB157M	150	C
18F2269	337X0006S2	BB337M	330	D

10 WVDC ±20% TOLERANCE

18F2272	475X0010A2	BC475M	4.7	A
18F2275	336X0010B2	BC336M	33	B
18F2279	107x0010R2	BC107M	100	C
18F2283	227X0010S2	BC227M	220	D

15 WVDC ±20% TOLERANCE

18F2286	335X0015A2	BD335M	3.3	A
18F2289	226X0015B2	BD226M	22	B
18F2295	686X0015R2	BD686M	68	C
18F2294	157X0015S2	BD157M	150	D

35 WVDC ±20% TOLERANCE

18F787	472X0035A2	. . . . .	.0047	E
18F788	682X0035A2	. . . . .	.0068	E
18F789	103X0035A2	. . . . .	.01	E
18F790	153X0035A2	. . . . .	.015	E
18F791	223X0035A2	. . . . .	.022	E
18F792	333X0035A2	. . . . .	.033	A
18F793	473X0035A2	. . . . .	.047	A
18F794	683X0035A2	. . . . .	.068	A
18F795	104X0035A2	. . . . .	.10	A
18F12222	154X0035A2	. . . . .	.15	A
18F1223	224X0035A2	. . . . .	.22	A
18F2321	334X0035A2	BF334M	.33	A
18F2324	474X0035A2	BF374M	.47	A
18F2327	684X0035A2	BF684M	.68	A
18F2330	105X0035A2	BF105M	1.0	A
18F2333	155X0035B2	BF155M	1.5	B
18F2336	225X0035B2	BF225M	2.2	B
18F2339	335X0035B2	BF335M	3.3	B
18F2342	475X0035B2	BF475M	4.7	B
18F2345	685X0035B2	BF685M	6.8	B
18F2348	106X0035R2	BF106M	10	C
18F2351	156X0035R2	BF156M	15	C
18F2354	226X0035R2	BF226M	22	C
18F2357	336x0035S2	BF336M	33	D
18F2360	476X0035S2	BF476M	47	D

50 WVDC ±20% TOLERANCE

18F1800	103X0050A2	. . . . .	.01	F
18F1801	153X0050A2	. . . . .	.015	F
18F1802	223X0050A2	. . . . .	.022	F
18F1803	333X0050A2	. . . . .	.033	F
18F1804	473X0050A2	. . . . .	.047	F
18F1805	683X0050A2	. . . . .	.068	F
18F1806	104X0050A2	. . . . .	.1	F
18F1807	154X0050A2	. . . . .	.15	F
18F1809	224X0050A2	. . . . .	.22	F
18F1808	334X0050A2	. . . . .	.33	F
18F1810	474X0050A2	. . . . .	.47	F
18F1811	684X0050A2	. . . . .	.68	F
18F2362	105X0050A2	BG105M	1.0	F
18F2365	155X0050B2	BG155M	1.5	G
18F2368	225X0050B2	BG225M	2.2	G
18F2371	335X0050B2	BG335M	3.3	G
18F2374	475X0050B2	BG475M	4.7	G
18F2377	685X0050R2	BG685M	6.8	K
18F2380	106X0050R2	BG106M	10	K
18F2383	156X0050R2	BG156M	15	K
18F2386	226X0050S2	BG226M	22	M

TYPE CSR-13 2% "L" FAILURE RATE

Subminiature Hermetically sealed. Meet MIL-C 39003/01. Low impendance above 1 MHz. 2000 cycle vibration test. 50g shock test. Temp. range -55°C to 125°C. Leads type M1 of MIL-STD-1276, tin coated .50 to 1.50 mil. Life test 10,000 hours. Plastic insulating sleeve. Weight 2 oz.

6 WVDC

Stk. No.	MIL Type CSR-	M39003/01-	Mfd.	Price Size Code
47F406	13B565KL	2001	5.6	A
47F407	13B685KL	2002	6.8	A
47F409	13B476KL	2004	47	B
47F411	13B566KL	2006	56	B
47F412	13B157KL	2007	150	C
47F414	13B187KL	2009	180	C
47F415	13B277KL	2010	270	D
47F416	13B337KL	2011	330	D

10 WVDC

47F418	13C395KL	2013	3.9	A
47F419	13C475KL	2014	4.7	A
47F421	13C276KL	2016	27	B
47F422	13C336KL	2017	33	B
47F424	13C396KL	2019	39	B
47F425	13C826KL	2020	82	C
47F426	13C107KL	2021	100	C
47F428	13C127KL	2023	120	C
47F429	13C187KL	2024	180	D
47F430	13C227KL	2025	220	D

15 WVDC

47F432	13D275KL	2027	2.7	A
47F433	13D335KL	2028	3.3	A
47F435	13D186KL	2030	18	B
47F436	13D226KL	2031	22	B
47F438	13D566KL	2033	56	C
47F439	13D686KL	2034	68	C
47F441	13D127KL	2036	120	D
47F442	13D157KL	2037	150	D

20 WVDC

47F444	13E125KL	2039	1.2	A
47F445	13E155KL	2040	1.5	A
47F447	13E185KL	2042	1.8	A
47F448	13E225KL	2043	2.2	A
47F450	13E825KL	2045	8.2	B
47F451	13E106KL	2046	10	B
47F453	13E126KL	2048	12	B
47F454	13E156KL	2049	15	B
47F456	13E276KL	2051	27	C
47F457	13E336KL	2052	33	C
47F459	13E396KL	2054	39	C
47F460	13E476KL	2055	47	C
47F462	13E566KL	2057	56	D
47F463	13E686KL	2058	68	D
47K465	13E826KL	2060	82	D
47F466	13E107KL	2061	100	D

35 WVDC

Stk. No.	MIL Type CSR-	M39003/01-	Mfd.	Size Code
47F468	13F565KL	2063	5.6	B
47F469	13F685KL	2064	6.8	B
47F471	13F226KL	2066	22	C
47F473	13F276KL	2068	27	D
47F474	13F336KL	2069	33	D
47F476	13F396KL	2071	39	D
47F477	13F476KL	2072	47	D

CSR-13 SIZE & PRICE CHART

Key	Size	1-24	25-49	50-99	100-499
A	.135x.286	.81	.57	.41	.33
B	.185x.474	.96	.68	.49	.39
C	.289x.686	2.92	2.05	1.47	1.18
D	.351x.786	5.38	3.78	2.71	2.17
H	.135x.286	.94	.66	.47	.38
J	.185x.474	1.11	.78	.56	.45
L	.289x.686	3.32	2.33	1.67	1.34
M	.351x.786	6.13	4.30	3.08	2.47
N	.135x.286	.94	.66	.47	.38
P	.135x.286	1.11	.78	.56	.45
R	.289x.686	3.32	2.33	1.67	1.34

50 WVDC

Stk. No.	MIL Type CSR-	M39003/01-	Mfd.	Size Code
47F479	13G472KL	2074	.0047	N
47F481	13G562KL	2076	.0056	N
47F482	13G682KL	2077	.0068	N
47F484	13G822KL	2079	.0082	N
47F485	13G103KL	2080	.01	N
47F487	13G123KL	2082	.012	N
47F488	13G153KL	2083	.015	N
47F490	13G183KL	2085	.018	N
47F491	13G223KL	2086	.022	N
47F493	13G273KL	2088	.027	N
47F494	13G333KL	2089	.033	H
47F496	13G393KL	2091	.039	H
47F497	13G473KL	2092	.047	H
47F499	13G563KL	2094	.056	H
47F500	13G683KL	2095	.068	H
47F502	13G823KL	2097	.082	H
47F503	13G104KL	2098	.1	H
47F505	13G124KL	2100	.12	H
47F506	13G154KL	2101	.15	H
47F508	13G184KL	2103	.18	H
47F509	13G224KL	2104	.22	H
47F511	13G274KL	2106	.27	H
47F512	13G334KL	2107	.33	H
47F514	13G394KL	2109	.39	H
47F515	13G474KL	2110	.47	H
47F517	13G564KL	2112	.56	H
47F518	13G684KL	2113	.68	H
47F520	13G824KL	2115	.82	H
47F521	13G105KL	2116	1	H
47F523	13G125KL	2118	1.2	P
47F524	13G155KL	2119	1.5	J
47F526	13G185KL	2121	1.8	J
47F527	13G225KL	2122	2.2	J
47F529	13G275KL	2124	2.7	J
47F530	13G335KL	2125	3.3	J
47F532	13G395KL	2127	3.9	J
47F533	13G475KL	2128	4.7	J
47F535	13G565KL	2130	5.6	R
47F536	13G685KL	2131	6.8	R
47F538	13G825KL	2133	8.2	R
47F539	13G106KL	2134	10	R
47F541	13G126KL	2136	12	L
47F542	13G156KL	2137	15	L
47F544	13G186KL	2139	18	L
47F545	13G226KL	2140	22	M

NEWARK carries the complete line of quality Sprague capacitors. NEWARK can supply all your capacitor needs, whether or not they are listed in this catalog. Write or phone your nearest NEWARK facility.

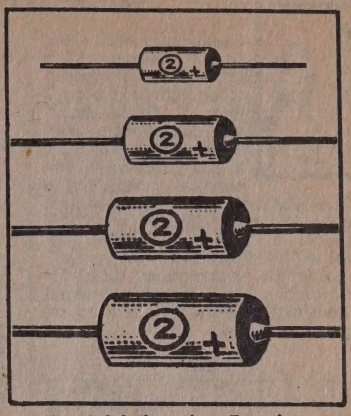
Type CSR-13 Solid Tantalum Capacitors

SPRAGUE
THE MARK OF RELIABILITY

1% FAILURE RATE MIL-39003

PRICE AND SIZE CHART

Key	Size	1-24	25-49	50-99	100-499
A	.135x.286	.83	.59	.43	.35
B	.135x.286	.82	.58	.42	.34
C	.185x.474	.98	.70	.51	.41
D	.185x.474	.97	.69	.50	.40
E	.289x.686	2.94	2.07	1.49	1.20
F	.289x.686	2.92	2.05	1.47	1.18
G	.351x.786	5.40	3.80	2.73	2.19
H	.351x.786	5.37	3.77	2.70	2.16
J	.135x.286	.92	.65	.48	.39
K	.135x.286	.91	.64	.47	.38
L	.135x.286	.92	.65	.48	.39
M	.135x.286	.91	.64	.47	.38
N	.185x.474	1.09	.78	.57	.46
P	.185x.474	1.08	.77	.56	.45
R	.289x.686	2.35	2.36	1.70	1.37
S	.289x.686	3.33	2.34	1.68	1.35
T	.289x.686	3.35	2.36	1.70	1.37
U	.289x.686	3.33	2.34	1.68	1.35
V	.351x.786	6.16	4.33	3.11	2.50
W	.351x.786	6.13	4.30	3.08	2.47



- Solid Electrolyte Tantalex
- 'M' Failure Rate
- 50g Shock Test

6WVDC

Stk. No.	MIL Type CSR-	M39003/ 01-	Mfd.	Price & Size Code
47F547	13B565KM	2241	5.6	A
47F548	13B685KM	2242	6.8	A
47F549	13B685MM	2243	6.8	B
47F550	13B476KM	2244	47	C
47F551	13B476MM	2245	47	D
47F552	13B566KM	2246	56	C
47F553	13B157KM	2247	150	E
47F554	13B157MM	2248	150	F
47F555	13B187KM	2249	180	E
47F556	13B277KM	2250	270	G
47F557	13B337KM	2251	330	G
47F558	13B337MM	2252	330	H

10WVDC

Stk. No.	MIL Type CSR-	M39003/ 01-	Mfd.	Price & Size Code
47F559	13C395KM	2253	3.9	A
47F560	13C475KM	2254	4.7	A
47F561	13C475MM	2255	4.7	B
47F562	13C276KM	2256	27	C
47F563	13C336KM	2257	33	C
47F564	13C336MM	2258	33	D
47F565	13C396KM	2259	39	C
47F566	13C826KM	2260	82	E
47F567	13C107KM	2261	100	E
47F568	13C107MM	2262	100	F
47F569	13C127KM	2263	120	E
47F570	13C187KM	2264	180	G
47F571	13C227KM	2265	220	G
47F572	13C227MM	2266	220	H

15 WVDC

Stk. No.	MIL Type CSR-	M39003/ 01-	Mfd.	Price & Size Code
47F573	13D275KM	2267	2.7	A
47F574	13D335KM	2268	3.3	A
47F575	13D335MM	2269	3.3	B
47F576	13D186KM	2270	18	C
47F577	13D226KM	2271	22	C
47F578	13D226MM	2272	22	D
47F579	13D566KM	2273	56	E
47F580	13D686KM	2274	68	E
47F581	13D686MM	2275	68	F
47F582	13D127KM	2276	120	G
47F583	13D157KM	2277	150	G
47F584	13D157MM	2278	150	H

NEWARK Can Supply

All Your Electronic Needs

20 WVDC

Stk. No.	MIL Type CSR-	M39003/ 01-	Mfd.	Price & Size Code
47F585	13E125KM	2279	1.2	A
47F586	13E155KM	2280	1.5	A
47F587	13E155MM	2281	1.5	B
47F588	13E185KM	2282	1.8	A
47F589	13E225KM	2283	2.2	A
47F590	13E225MM	2284	2.2	B
47F591	13E825KM	2285	8.2	C
47F592	13E106KM	2286	10	C
47F593	13E106MM	2287	10	D
47F594	13E126KM	2288	12	C
47F595	13E156KM	2289	15	C
47F596	13E156MM	2290	15	D
47F597	13E276KM	2291	27	E
47F598	13E336KM	2292	33	E
47F599	13E336MM	2293	33	F
47F600	13E396KM	2294	39	E
47F601	13E476KM	2295	47	E
47F602	13E476MM	2296	47	F
47F603	13E566KM	2297	56	G
47F604	13E686KM	2298	68	G
47F605	13E686MM	2299	68	H
47F606	13E826KM	2300	82	G
47F607	13E107KM	2301	100	G
47F608	13E107MM	2302	100	H

35WVDC

Stk. No.	MIL Type CSR-	M39003/ 01-	Mfd.	Price & Size code
47F609	13F565KM	2303	5.6	C
47F610	13F685KM	2304	6.8	C
47F611	13F685MM	2305	6.8	D
47F612	13F226KM	2306	22	E
47F613	13F226MM	2307	22	F
47F614	13F276KM	2308	27	G
47F615	13F336KM	2309	33	G
47F617	13F336MM	2310	33	H
47F618	13F396KM	2311	39	G
47F619	13F476KM	2312	47	G
47F620	13F476MM	2313	47	H

50WVDC

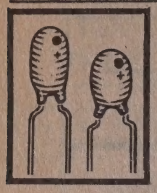
Stk. No.	MIL Type CSR-	M39003/ 01-	Mfd.	Price & Size Code
47F621	13G472KM	2314	.0047	J
47F622	13G472MM	2315	.0047	K
47F623	13G562KM	2316	.0056	J
47F624	13G682KM	2317	.0068	J
47F625	13G682MM	2318	.0068	K
47F626	13G822KM	2319	.0082	J
47F090	13G103KM	2320	.01	J
47F627	13G103MM	2321	.01	K
47F628	13G123KM	2322	.012	J
47F629	13G153KM	2323	.015	J
47F630	13G153MM	2324	.015	K
47F631	13G183KM	2325	.018	J

Hermetically sealed. Meets MIL-C-39003/01 specifications. Temp. range; -55°C to +125°C. Low imped. above 1 MHz 2000 cycle vibration test. Leads type M1 of MIL-STD-1276. Tin coated 0.50 to 1.50 mil. Wt. 2 oz. Second From last letter in type No. indicates Tolerance K: ±10%; M: ±20%

Stk. No.	MIL Type CSR	M39003 01-	Mfg.	Price & Size Code
47F632	13G223KM	2326	.022	J
47F633	13G223MM	2327	.022	K
47F634	13G273KM	2328	.027	J
47F635	13G333KM	2329	.033	L
47F636	13G333MM	2330	.033	M
47F637	13G393KM	2331	.039	L
47F638	13G473KM	2332	.047	L
47F639	13G473MM	2333	.047	M
47F640	13G563KM	2334	.056	L
47F641	13G683KM	2335	.068	L
47F642	13G683MM	2336	.068	M
47F643	13G823KM	2337	.082	L
47F644	13G104KM	2338	.1	L
47F645	13G104MM	2339	.1	M
47F646	13G124KM	2340	.12	L
47F647	13G154KM	2341	.15	L
47F648	13G154MM	2342	.15	M
47F649	13G184KM	2343	.18	L
47F650	13G224KM	2344	.22	L
47F651	13G224MM	2345	.22	M
47F652	13G274KM	2346	.27	L
47F653	13G334KM	2347	.33	L
47F654	13G334MM	2348	.33	M
47F655	13G394KM	2349	.39	L
47F656	13G474KM	2350	.47	L
47F657	13G474MM	2351	.47	M
47F658	13G564KM	2352	.56	L
47F659	13G684KM	2353	.68	L
47F660	13G684MM	2354	.68	M
47F661	13G824KM	2355	.82	L
47F662	13G105KM	2356	1	L
47F663	13G105MM	2357	1	M
47F664	13G125KM	2358	1.2	N
47F665	13G155KM	2359	1.5	N
47F666	13G155MM	2360	1.5	P
47F667	13G185KM	2361	1.8	N
47F668	13G225KM	2362	2.2	N
47F669	13G225MM	2363	2.2	P
47F670	13G275KM	2364	2.7	N
47F671	13G335KM	2365	3.3	N
47F672	13G335MM	2366	3.3	P
47F673	13G395KM	2367	3.9	N
47F674	13G475KM	2368	4.7	N
47F675	13G475MM	2369	4.7	P
47F676	13G565KM	2370	5.6	R
47F677	13G685KM	2371	6.8	R
47F678	13G685MM	2372	6.8	S
47F679	13G825KM	2373	8.2	R
47F680	13G106KM	2374	10	R
47F681	13G106MM	2375	10	S
47F682	13G126KM	2376	12	T
47F683	13G156KM	2377	15	T
47F684	13G156MM	2378	15	U
47F685	13G186KM	2379	18	T
47F686	13G226KM	2380	22	V
47F687	13G226MM	2381	22	W

196D Solid-Tantalum Capacitors

196D EPOXY DIPPED SOLID ELECTROLYTE TANTALEX CAPACITORS



Furnished in sizes which permit coverage of a broad range of capacitance ratings, from 0.1 through 330μf. Standard capacitance tolerance of these capacitors is ±10%. Operating temperature range −55° to +85°C low leakage current. The maximum dissipation factor is 10%. Leads at .125" spacing are ¾" long and straight, .250" spacing are 1" long and "hockeystick" style. Leads are electro-tinned nickel for ease in soldering. Solid-electrolyte tantalum pellet construction allow plug-in mtng. on printed wiring boards.

PRICE AND SIZE CHART

Price Code	Diameter	Height	Lead Spacing	1-49	50-99	100-499	500-999
A	.225	.450	.125	.86	.44	.35	.27
B	.175	.375	.125	.66	.34	.27	.21
C	.225	.425	.125	.76	.39	.31	.24
D	.350	.650	.250	2.12	1.07	.86	.67
E	.400	.750	.250	3.87	1.95	1.56	1.21
F	.175	.375	.125	.76	.39	.31	.24
G	.225	.425	.125	.86	.44	.35	.27
H	.225	.425	.125	.96	.49	.39	.30
K	.350	.650	.250	2.37	1.20	.96	.75
L	.400	.750	.250	4.52	2.27	1.82	1.42

4 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F347	196D106X9004HA1	10	B
47F349	196D107X9004KA1	100	A
47F350	196D227X9004PE4	220	D

6 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F351	196D685X9006HA1	6.8	B
47F352	196D336X9006JA1	33	C
47F354	196D686X9006KA1	68	A
17F1971	196D127X9006PE4	120	D
47F355	196D157X9006PE4	150	D
17F1972	196D277X9006TE4	270	E
47F356	196D337X9006TE4	330	E

10 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F357	196D475X9010HA1	4.7	B
47F358	196D226X9010JA1	22	C
47F359	196D336X9010KA1	33	A
17F1973	196D826X9010PE4	82	D
47F360	196D107X9010PE4	100	D
17F1974	196D187X9010TE4	180	E
47F361	196D227X9010TE4	220	E

15 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F362	196D335X9015HA1	3.3	B
47F363	196D156X9015JA1	15	C
47F364	196D226X9015KA1	22	A
47F365	196D686X9015PE4	68	D
17F1975	196D127X9015TE4	120	E
47F366	196D157X9015TE4	150	E

20 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F386	196D106X9020JA1	10	C
47F387	196D156X9020KA1	15	A
47F388	196D476X9020PE4	47	D
17F1976	196D826X9020TE4	82	E
47F389	196D107X9020TE4	100	E

25 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F390	196D155X9025HA1	1.5	B
47F391	196D225X9025HA1	2.2	B
47F392	196D685X9025JA1	6.8	C
47F393	196D106X9025KA1	10	A
47F395	196D336X9025PE4	33	D
17F1977	196D566X9025TE4	56	E
47F397	196D686X9025TE4	68	E

35 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F398	196D104X9035HA1	0.10	B
47F399	196D154X9035HA1	0.15	B
47F400	196D224X9035HA1	0.22	B
47F401	196D334X9035HA1	0.33	B
47F402	196D474X9035HA1	0.47	B

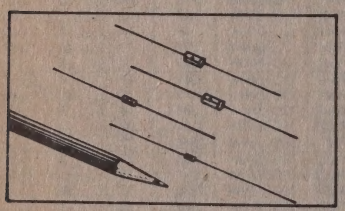
35 WVDC (Con't.)

Stock No.	Type	Mfd.	Price & Size Code
47F403	196D684X9035HA1	0.68	B
17F1978	196D824X9035HA1	.82	B
47F404	196D105X9035HA1	1.0	B
47F405	196DT55X9035JA1	1.5	C
47F367	196D225X9035JA1	2.2	C
17F1979	196D275X9035JA1	2.7	C
47F368	196D335X9035JA1	3.3	C
47F369	196D475X9035JA1	4.7	C
47F370	196D685X9035KA1	6.8	A
47F371	196D106X9035PE4	10	D
47F372	196D156X9035PE4	15	D
47F373	196D226X9035PE4	22	D
47F374	196D336X9035TE4	33	E
17F1980	196D396X9035TE4	39	E

50 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F375	196D104X9050HA1	.10	F
47F376	196D154X9050HA1	0.15	F
47F377	196D224X9050HA1	0.22	F
47F378	196D334X9050HA1	0.33	F
47F379	196D474X9050HA1	0.47	F
47F380	196D684X9050HA1	0.68	F
47F381	196D105X9050HA1	1.0	F
47F382	196D155X9050JA1	1.5	G
47F383	196D225X9050JA1	2.2	G
47F384	196D335X9050JA1	3.3	G
47F385	196D475X9050KA1	4.7	H
17F1981	196D565X9050PE4	5.6	K
17F1982	196D126X9050PE4	12	K
17F1983	196D186X9050TE4	18	L

TYPE 162D RED TOP SOLID ELECTROLYTE TANTALEX CAPACITORS



Miniature commercial/industrial tantalum capacitors for use in applications where space is at a premium. Metal case is insulated with a heat shrunk polyester film. Leads are solder coated nickel 1.5" long x .02" dia. Tolerance: ±10%. Designed to operate over a temperature range of −55c to +85c with no voltage derating. Maximum operating voltage is for continuous duty at rated temperature.

162D—PRICE AND SIZE CHART

Code	Dia. x Lgth.	1-24	25-49	50-99	100-499
A	.095 x .260	.62	.47	.39	.24
B	.110 x .290	.66	.50	.42	.26
C	.095 x .260	.70	.53	.44	.27
D	.180 x .345	.82	.62	.52	.32
E	.110 x .290	.74	.56	.47	.29
F	.180 x .420	.86	.65	.54	.33
G	.180 x .345	.90	.68	.57	.35
H	.180 x .420	.94	.71	.59	.36

2 WVDC

Stk. No.	Type	Mfd.	Price & Size Code
47F1400	162D106X9002BC2	10	A
47F1401	162D336X9002CD2	33	B
47F1402	162D686X9002DD2	68	D

4 WVDC

Stk. No.	Type	Mfd.	Price & Size Code
47F1403	162D685X9004BC2	6.8	A
47F1404	162D476X9004DD2	47	D
47F1405	162D686X9004EE2	68	F

6 WVDC

Stk. No.	Type	Mfd.	Price & Size Code
47F1406	162D475X9006BC2	4.7	A
47F1407	162D156X9006CD2	15	B
47F1408	162D336X9006DD2	33	D
47F1409	162D476X9006EE2	47	F

10 WVDC

Stk. No.	Type	Mfd.	Price & Size Code
47F1410	162D335X9010BC2	3.3	A
47F1411	162D106X9010CD2	10	B
47F1412	162D226X9010DD2	22	D
47F1413	162D336X9010EE2	33	F

15 WVDC

Stk. No.	Type	Mfd.	Price & Size Code
47F1414	162D225X9015BC2	2.2	A
47F1415	162D685X9015CD2	6.8	B
47F1416	162D156X9015DD2	15	D
47F1417	162D226X9015EE2	22	F

20 WVDC

Stk. No.	Type	Mfd.	Price & Size Code
47F1418	162D155X9020BC2	1.5	A
47F1419	162D475X9020CD2	4.7	B
47F1420	162D156X9020EE2	15	F

25 WVDC

Stk. No.	Type	Mfd.	Price & Size Code
47F1421	162D684X9025BC2	.68	A
47F1422	162D105X9025BC2	1	A
47F1423	162D225X9025CD2	2.2	B
47F1424	162D335X9025CD2	3.3	B
47F1425	162D685X9025DD2	6.8	D
47F1426	162D106X9025DD2	10	D

35 WVDC

Stk. No.	Type	Mfd.	Price & Size Code
47F1427	162D472X9035BC2	.0047	A
47F1428	162D682X9035BC2	.0068	A
47F1429	162D103X9035BC2	.01	A
47F1430	162D153X9035BC2	.015	A
47F1431	162D223X9035BC2	.022	A
47F1432	162D333X9035BC2	.033	A
47F1433	162D473X9035BC2	.047	A
47F1434	162D683X9035BC2	.068	C
47F1435	162D104X9035BC2	.1	A
47F1436	162D154X9035BC2	.15	A
47F1437	162D224X9035BC2	.22	A
47F1438	162D334X9035BC2	.33	A
47F1439	162D474X9035BC2	.47	A
47F1440	162D684X9035CD2	.68	B

35 WVDC (Con't.)

Stk. No.	Type	Mfd.	Price & Size Code
47F1441	162D105X9035CD2	1	B
47F1442	162D155X9035CD2	1.5	B
47F1443	162D225X9035DD2	2.2	D
47F1444	162D335X9035DD2	3.3	D
47F1445	162D475X9035DD2	4.7	D
47F1446	162D685X9035EF2	6.8	F

50 WVDC

Stk. No.	Type	Mfd.	Price & Size Code
47F1447	162D472X9050BC2	.0047	C
47F1448	162D682X9050BC2	.0068	C
47F1449	162D103X9050BC2	.01	C
47F1450	162D153X9050BC2	.015	C
47F1451	162D223X9050BC2	.022	C
47F1452	162D333X9050BC2	.033	C
47F1453	162D473X9050BC2	.047	C
47F1454	162D683X9050BC2	.068	A
47F1455	162D104X9050BC2	.1	C
47F1456	162D154X9050BC2	.15	C
47F1457	162D224X9050BC2	.22	C
47F1458	162D334X9050CD2	.33	E
47F1459	162D474X9050CD2	.47	E
47F1460	162D684X9050CD2	.68	E
47F1461	162D105X9050CD2	1	E
47F1462	162D155X9050DD2	1.5	G
47F1463	162D225X9050DD2	2.2	G
47F1464	162D335X9050EE2	3.3	H
47F1465	162D475X9050EE2	4.7	H

Capacitors Type 199D

SOLID AND DIP TANTALUM CAPACITORS

SPRAGUE® THE MARK OF RELIABILITY

• Low Cost • High Volume Usage • Resin-coated Protection

Designed for minimum cost applications in entertainment and commercial equipment, intended for volume production. Resin-coated for moisture and mechanical protection. Tolerance ±20%. Oper. Temp.: −55°C to 85°C. For lead spacing, type numbers ending with: A1: .100± .030, A2: .200± .030 in.

PRICE CHART

Code	1-49	50-99	100-499	500-999
A	.48	.24	.19	.15
B	.49	.24	.19	.15
C	.50	.25	.20	.16
D	.51	.26	.20	.16
E	.52	.26	.21	.16
F	.55	.28	.22	.18
G	.58	.29	.23	.18
H	.60	.30	.24	.19
K	.63	.31	.25	.20
L	.65	.33	.26	.20
M	.75	.38	.30	.23
N	.83	.41	.33	.26
P	1.00	.50	.40	.31
R	1.50	.75	.60	.47
S	1.75	.88	.70	.54
V	2.00	1.00	.80	.62
W	2.50	1.25	1.00	.78
X	2.75	1.38	1.10	.85
Y	3.25	1.63	1.30	1.01
Z	3.50	1.75	1.40	1.09

3 WVDC, 3.6V SURGE

Stk. No.	Type	µF	Case	Price
17F2006	199D106X0003BB1	10	BB	D
17F2007	199D226X0003BB1	22	BB	E
17F2008	199D107X0003DB1	100	DD	N
17F2009	199D157X0003DB1	150	DD	R
17F2010	199D227X0003EA2	220	EE	V
17F2011	199D337X0003EA2	330	EE	W
17F2012	199D477X0003FA2	470	FF	Y
17F2013	199D687X0003FA2	680	FF	Z

6.3 WVDC, 8V SURGE

17F2014	199D106X06R3BB1	10	BB	E
17F2015	199D156X06R3BB1	15	BB	E
17F2016	199D226X06R3CB1	22	CC	F
17F2017	199D476X06R3DB1	47	DD	L
17F2018	199D107X06R3DB1	100	DD	R
17F2019	199D157X06R3EA2	150	EE	V
17F2020	199D227X06R3EA2	220	EE	W
17F2021	199D337X06R3FA2	330	FF	Y

10 WVDC, 12V SURGE

Stk. No.	Type	µF	Case	Price
17F2022	199D475X0010BB1	4.7	BB	D
17F2023	199D106X0010BB1	10	BB	E
17F2024	199D156X0010CB1	15	CC	F
17F2025	199D226X0010CB1	22	CC	H
17F2026	199D336X0010DB1	33	DD	L
17F2027	199D476X0010DB1	47	DD	P
17F2028	199D686X0010DB1	68	DD	R
17F2029	199D107X0010EA2	100	EE	V
17F2030	199D157X0010EA2	150	EE	X
17F2031	199D227X0010FA2	220	FF	Y

16 WVDC, 19V SURGE

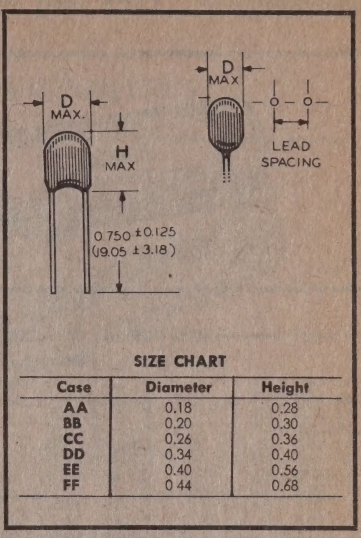
17F2032	199D106X0016CB1	10	CC	F
17F2033	199D156X0016CB1	15	CC	H
17F2034	199D226X0016DB1	22	DD	L
17F2035	199D336X0016DB1	33	DD	P
17F2036	199D476X0016EB2	47	EE	S
17F2037	199D686X0016EA2	68	EE	V
17F2038	199D107X0016FA2	100	FF	X
17F2039	199D157X0016FA2	150	FF	Y

25 WVDC, 30V SURGE

17F2040	199D105X0025AB1	1.0	AA	C
17F2041	199D225X0025BB1	2.2	BB	C
17F2042	199D106X0025CB1	10	CC	L
17F2043	199D156X0025DB1	15	DD	P
17F2044	199D226X0025DB1	22	DD	R
17F2045	199D336X0025EA2	33	EE	S
17F2046	199D476X0025EA2	47	EE	W
17F2047	199D686X0025FA2	68	FF	Y

35 WVDC, 42 V SURGE

17F2048	199D224X0035AB1	.22	AA	A
17F2049	199D474X0035AB1	.47	AA	B
17F2050	199D684X0035AB1	.68	AA	B
17F2051	199D105X0035BB1	1.0	BB	C
17F2052	199D225X0035CB1	2.2	CC	F
17F2053	199D335X0035CB1	3.3	CC	F
17F2054	199D475X0035DB1	4.7	DD	H
17F2055	199D685X0035DB1	6.8	DD	L



SIZE CHART

Case	Diameter	Height
AA	0.18	0.28
BB	0.20	0.30
CC	0.26	0.36
DD	0.34	0.40
EE	0.40	0.56
FF	0 44	0.68

35 WVDC Cont.

Stk. No.	Type	µF	Case	Price
17F2056	199D106X0035DA1	10	DD	M
17F2057	199D156X0035EA2	15	EE	R
17F2058	199D226X0035EA2	22	EE	V
17F2059	199D336X0035FA2	33	FF	W
17F2060	199D476X0035FA2	47	FF	Y

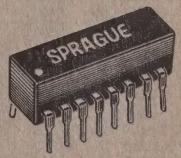
50 WVDC, 60V SURGE

17F2061	199D104X0050AA1	.10	AA	F
17F2062	199D154X0050AA1	.15	AA	F
17F2063	199D224X0050AA1	.22	AA	F
17F2064	199D334X0050AA1	.33	AA	F
17F2065	199D474X0050BA1	.47	BB	G
17F2066	199D684X0050BA1	.68	BB	G
17F2067	199D105X0050CA1	1.0	CC	G
17F2068	199D155X0050CA1	1.5	CC	H
17F2069	199D225X0050DA1	2.2	DD	K
17F2070	199D335X0050DA1	3.3	DD	L
17F2071	199D475X0050DA1	4.7	DD	M
17F2072	199D685X0050FA2	6.8	FF	R
17F2073	199D106X0050FA2	10	FF	V

DIP TANTALUM/CERAMIC AND DIP TANTALEX® SOLID TANTALUM CAPACITORS

SOLID-TANTALUM capacitors in molded DIP packages for high frequency signal or data processing applications. Parallel capacitor sections have two pins for each terminal. Guaranteed 1 ohm maximum impedance ranges from 10 kHz to 50 MHz. Operating range from −55°C to +85°C. Tolerance ±20%.

TANTALUM/CERAMIC capacitor sections alternated in a molded DIP package. Impedance typically less than 1 ohm thru 60 MHz, ceramic sections low at higher frequencies than tantalum sections. Ceramic capacitors rated at 100 WVDC. All capacitors at ±20% tolerance. From −55°C to 70°C. Ceramic section starts pin 1.



TANTALUM/CERAMIC CAPACITORS

Stock No.	Type	Tan µF	WV DC	Cer µF	No. Sec	1-49	50-99	100-249	250-499
17F2166	939Z685X0035DA	6.8	35	.01	4	5.92	4.44	3.70	2.96
17F2167	939Z685X0035DE	6.8	35	.047	4	6.12	4.59	3.83	3.06
17F2168	939Z685X0035DG	6.8	35	.1	4	6.36	4.77	3.98	3.18
17F2169	939Z156X0020DA	15	20	.01	4	5.92	4.44	3.70	2.96
17F2170	939Z156X0020DE	15	20	.047	4	6.12	4.59	3.83	3.06
17F2171	939Z156X0020DG	15	20	.1	4	6.36	4.77	3.98	3.18
17F2172	939Z226X0015DA	22	15	.01	4	5.92	4.44	3.70	2.96
17F2173	939Z226X0015DE	22	15	.047	4	6.12	4.59	3.83	3.06
17F2174	939Z226X0015DG	22	15	.01	4	6.36	4.77	3.98	3.18
17F2175	939Z336X0010DA	33	10	.01	4	5.92	4.44	3.70	2.96
17F2176	939Z336X0010DE	33	10	.047	4	6.12	4.59	3.83	3.06
17F2177	939Z336X0010DG	33	10	.1	4	6.36	4.77	3.98	3.18

Stock No.	Type	Tan µF	WV DC	Cer µF	No. Sec	1-49	50-99	100-249	250-499
17F2178	936Z685X0035DA	6.8	35	.01	8	12.60	9.45	7.88	6.30
17F2179	936Z685X0035DE	6.8	35	.047	8	13.00	9.75	8.13	6.50
17F2180	936Z685X0035DG	6.8	35	.1	8	13.52	10.14	8.45	6.76
17F2181	936Z156X0020DA	15	20	.01	8	12.60	9.45	7.88	6.30
17F2182	936Z156X0020DE	15	20	.047	8	13.00	9.75	8.13	6.50
17F2183	936Z156X0020DG	15	20	.1	8	13.52	10.14	8.45	6.76
17F2184	936Z226X0015DA	22	15	.01	8	12.60	9.45	7.88	6.30
17F2185	936Z226X0015DE	22	15	.047	8	13.00	9.75	8.13	6.50
17F2186	936Z226X0015DG	22	15	.1	8	13.52	10.14	8.45	6.76
17F2187	936Z336X0010DA	33	10	.01	8	12.60	9.45	7.88	6.30
17F2188	936Z336X0010DE	33	10	.047	8	13.00	9.75	8.13	6.50
17F2189	936Z336X0010DG	33	10	.1	8	13.52	10.14	8.45	6.76

SOLID-TANTALUM CAPACITORS

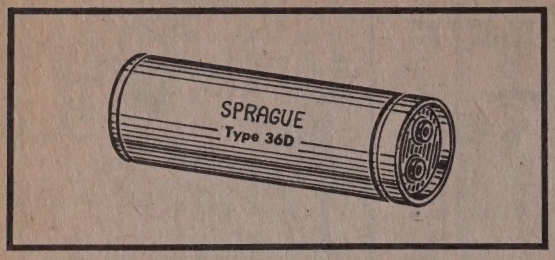
17F2190	935D685X0035SQ	6.8	35	—	1	2.40	1.80	1.35	1.20
17F2191	935D156X0020SQ	15	20	—	1	2.40	1.80	1.35	1.20
17F2192	935D226X0015SQ	22	15	—	1	2.40	1.80	1.35	1.20
17F2193	935D336X0010SQ	33	10	—	1	2.40	1.80	1.35	1.20
17F2194	939D685X0035SQ	6.8	35	—	2	4.36	3.27	2.45	2.18
17F2195	939D156X0020SQ	15	20	—	2	4.36	3.27	2.45	2.18

17F2196	939D226X0015SQ	22	15	—	2	4.36	3.27	2.45	2.18
17F2197	939D336X0010SQ	33	10	—	2	4.36	3.27	2.45	2.18
17F2198	936D685X0035SQ	6.8	35	—	4	9.24	6.93	5.20	4.62
17F2199	936D156X0020SQ	15	20	—	4	9.24	6.93	5.20	4.62
17F2200	936D226X0015SQ	22	15	—	4	9.24	6.93	5.20	4.62
17F2201	936D336X0010SQ	33	10	—	4	9.24	6.93	5.20	4.62

SPRAGUE
THE MARK OF RELIABILITY

Powerlytic® Capacitors

TYPE 36D POWERLYTIC® ALUMINUM ELECTROLYTICS



- **Designed for Maximum Capacitance**
- **Low ESR and Leakage Current**
- **Long Shelf Life**

For applications requiring maximum capacitance in a given case size. Low ESR and leakage current; exteremely long shelf life. Withstands military environmental conditions including −55°C storage tests. Tol. 3-50 WV, +75% to −10%; 75-450 WV, +50% to −10%. Av. shpg. wt. 6 oz. Pressure safety vents.

SIZES FOR 36D CAPACITORS

D. x L. Including plastic outer case

AA 1.453 x 2.25	BC 2.078 x 4.25	CE 2.578 x 5.25
AB 1.453 x 3.25	BD 2.078 x 4.75	CF 2.578 x 5.75
AC 1.453 x 4.25	BE 2.078 x 5.25	DC 3.078 x 4.25
AD 1.453 x 4.75	BF 2.078 x 5.75	DD 3.078 x 4.75
AE 1.453 x 5.25	CB 2.578 x 3.25	DE 3.078 x 5.25
AF 1.453 x 5.75	CC 2.578 x 4.25	DF 3.078 x 5.75
BB 2.078 x 3.25	CD 2.578 x 4.75	DJ 3.078 x 8.75

7

Stk. No.	Type 36D-	Mfd.	WVDC	Size	1-24	25-49	50-99	100-249
18F2434	124G006DC2A	120,000	6	DC	17.22	14.35	8.21	7.46
18F2435	194G006DF2A	190,000	6	DF	20.73	17.28	9.88	8.98
18F2436	602G010AA2A	6,000	10	AA	4.14	3.45	1.97	1.79
18F2437	123G010AB2A	12,000	10	AB	4.83	4.03	2.30	2.09
18F2438	183G010AC2A	18,000	10	AC	5.25	4.38	2.50	2.28
18F2439	283G010BB2A	28,000	10	BB	7.05	5.88	3.36	3.06
18F2440	423G010BC2A	42,000	10	BC	8.46	7.05	4.03	3.67
18F2441	483G010CB2A	48,000	10	CB	8.94	7.45	4.26	3.87
18F2442	104G010DC2A	100,000	10	DC	17.22	14.35	8.21	7.46
18F2443	164G010DF2A	160,000	10	DF	20.73	17.28	9.88	8.98
18F2444	462G015AA2A	4,600	15	AA	4.14	3.45	1.97	1.79
18F2445	922G015AB2A	9,200	15	AB	4.83	4.03	2.30	2.09
18F2446	133G015AC2A	13,000	15	AC	5.25	4.38	2.50	2.28
27F520	183G015AE2A	18,000	15	AE	6.39	5.33	3.05	2.77
27F525	203G015AF2A	20,000	15	AF	6.75	5.63	3.22	2.93
18F2447	213G015BB2A	21,000	15	BB	7.05	5.88	3.36	3.06
18F2448	313G015BC2A	31,000	15	BC	8.46	7.05	4.03	3.67
18F2449	363G015CB2A	36,000	15	CB	8.94	7.45	4.26	3.87
18F2450	543G015CC2A	54,000	15	CC	12.15	10.13	5.79	5.27
18F2451	633G015CD2A	63,000	15	CD	12.69	10.58	6.05	5.50
27F558	723G015CE2A	72,000	15	CE	13.59	11.33	6.48	5.89
18F2452	803G015DC2A	80,000	15	DC	17.22	14.35	8.21	7.46
27F511	104G015DE2A	100,000	15	DE	18.09	15.08	8.62	7.84
27F513	124G015DF2A	120,000	15	DF	20.73	17.28	9.88	8.98
18F2453	272G025AA2A	2,700	25	AA	4.14	3.45	1.97	1.79
18F2454	552G025AB2A	5,500	25	AB	4.83	4.03	2.30	2.09
18F2455	822G025AC2A	8,200	25	AC	5.25	4.38	2.50	2.28
27F562	962G025AD2A	9,600	25	AD	6.00	5.00	2.86	2.60
18F2456	183G025BC2A	18,000	25	BC	8.46	7.05	4.03	3.67
27F531	213G025CB2A	21,000	25	CB	8.94	7.45	4.26	3.87
18F2457	323G025CC2A	32,000	25	CC	12.15	10.13	5.79	5.27
27F541	383G025CD2A	38,000	25	CD	12.69	10.58	6.05	5.50
27F540	473G025DC2A	47,000	25	DC	17.22	14.35	8.21	7.46
27F551	553G025DD2A	55,000	25	DD	16.80	14.00	8.01	7.28
27F555	633G025DE2A	63,000	25	DE	18.09	15.08	8.62	7.84
18F2460	713G025DF2A	71,000	25	DF	20.73	17.28	9.88	8.98
27F524	202G030AA2A	2,000	30	AA	4.14	3.45	1.97	1.79
27F542	402G030AB2A	4,000	30	AB	4.83	4.03	2.30	2.09
27F544	602G030AC2A	6,000	30	AC	5.25	4.38	2.50	2.28
27F515	163G030BD2A	16,000	30	BD	10.23	8.53	4.88	4.43
27F534	243G030CC2A	24,000	30	CC	12.15	10.13	5.79	5.27
27F527	283G030CD2A	28,000	30	CD	12.69	10.58	6.05	5.50
18F2461	363G030DC2A	36,000	30	DC	17.22	14.35	8.21	7.46
18F2462	423G030DD2A	42,000	30	DD	16.80	14.00	8.01	7.28
27F547	543G030DF2A	54,000	30	DF	20.73	17.28	9.88	8.98
27F519	182G040AA2A	1,800	40	AA	4.14	3.45	1.97	1.79
27F539	362G040AB2A	3,600	40	AB	4.83	4.03	2.30	2.09
18F2463	552G040AC2A	5,500	40	AC	5.25	4.38	2.50	2.28
18F2464	842G040BB2A	8,400	40	BB	7.05	5.88	3.36	3.06
18F2465	123G040BC2A	12,000	40	BC	8.46	7.05	4.03	3.67
27F516	163G040BE2A	16,000	40	BE	9.87	8.23	4.70	4.28
27F523	193G040BF2A	19,000	40	BF	10.38	8.65	4.95	4.50
18F2466	213G040CC2A	21,000	40	CC	12.15	10.13	5.79	5.27
18F2467	253G040CD2A	25,000	40	CD	12.69	10.58	6.05	5.50
27F535	313G040DC2A	31,000	40	DC	17.22	14.35	8.21	7.46
27F536	323G040CF2A	32,000	40	CF	14.49	12.08	6.91	6.28
27F546	423G040DE2A	42,000	40	DE	18.09	15.08	8.62	7.84
27F548	483G040DF2A	48,000	40	DF	20.73	17.28	9.88	8.98
18F2468	132G050AA2A	1,300	50	AA	4.14	3.45	1.97	1.79
18F2469	262G050AB2A	2,600	50	AB	4.83	4.03	2.30	2.09
18F2470	392G050AC2A	3,900	50	AC	5.25	4.38	2.50	2.28
27F549	522G050AE2A	5,200	50	AE	6.39	5.33	3.05	2.77
18F2471	602G050BB2A	6,000	50	BB	7.05	5.88	3.36	3.06
18F2472	902G050BC2A	9,000	50	BC	8.46	7.05	4.03	3.67
27F509	103G050BD2A	10,000	50	BD	10.23	8.53	4.88	4.43
27F512	123G050BE2A	12,000	50	BE	9.87	8.23	4.70	4.28
18F2473	153G050CC2A	15,000	50	CC	12.15	10.13	5.79	5.27
27F521	183G050CD2A	18,000	50	CD	12.69	10.58	6.05	5.50
27F529	203G050CE2A	20,000	50	CE	13.59	11.33	6.48	5.89
27F530	223G050DC2A	22,000	50	DC	17.22	14.35	8.21	7.46
27F526	233G050CF2A	23,000	50	CF	14.49	12.08	6.91	6.28
27F537	343G050DF2A	34,000	50	DF	20.73	17.28	9.88	8.98
27F518	172G075AB2A	1,700	75	AB	5.10	4.25	2.43	2.21
18F2475	252G075AC2A	2,500	75	AC	5.76	4.80	2.75	2.50
18F2476	392G075BB2A	3,900	75	BB	7.80	6.50	3.72	3.38
18F2477	592G075BC2A	5,900	75	BC	9.42	7.85	4.49	4.08
27F553	672G075CB2A	6,700	75	CB	10.59	8.83	5.05	4.59
27F510	103G075CC2A	10,000	75	CC	13.35	11.13	6.36	5.79
18F2478	113G075CD2A	11,000	75	CD	14.31	11.93	6.82	6.20
27F514	143G075DC2A	14,000	75	DC	17.85	14.88	8.51	7.74
27F517	173G075DD2A	17,000	75	DD	19.47	16.23	9.28	8.44
18F2480	223G075DF2A	22,000	75	DF	23.76	19.80	11.33	10.30
18F2481	451G100AA2A	450	100	AA	4.23	3.53	2.02	1.83
27F561	901G100AB2A	900	100	AB	5.10	4.25	2.43	2.21
18F2482	132G100AC2A	1,300	100	AC	5.76	4.80	2.75	2.50
18F2483	302G100BC2A	3,000	100	BC	9.42	7.85	4.49	4.08
18F2484	532G100CC2A	5,300	100	CC	13.35	11.13	6.36	5.79
27F554	702G100CE2A	7,000	100	CE	16.05	13.38	7.65	6.96
18F2485	782G100DC2A	7,800	100	DC	17.85	14.88	8.51	7.74
18F2486	301F150AA2A	300	150	AA	4.41	3.68	2.10	1.91
18F2487	901F150AC2A	900	150	AC	6.45	5.38	3.07	2.80
18F2488	142F150BB2A	1,400	150	BB	8.43	7.03	4.02	3.65
18F2489	212F150BC2A	2,100	150	BC	10.08	8.40	4.80	4.37
18F2490	362F150CC2A	3,600	150	CC	15.18	12.65	7.24	6.58
18F2491	532F150DC2A	5,300	150	DC	20.19	16.83	9.62	8.75
27F552	622F150DD2A	6,200	150	DD	22.47	18.73	10.71	9.74
27F557	702F150DE2A	7,000	150	DE	25.95	21.63	12.37	11.25
18F2492	782F150DF2A	7,800	150	DF	27.27	22.73	13.00	11.82
18F2493	251F200AA2A	250	200	AA	4.41	3.68	2.10	1.91
18F2494	431F200AB2A	430	200	AB	5.46	4.55	2.60	2.37
18F2495	641F200AC2A	640	200	AC	6.45	5.38	3.07	2.80
18F2496	142F200BC2A	1,400	200	BC	10.08	8.40	4.80	4.37
18F2497	162F200CB2A	1,600	200	CB	11.34	9.45	5.41	4.91
18F2498	372F200DC2A	3,700	200	DC	20.19	16.83	9.62	8.75
18F2499	552F200DF2A	5,500	200	DF	27.27	22.73	13.00	11.82
27F538	351F250AB2A	350	250	AB	5.46	4.55	2.60	2.37
18F2500	531F250AC2A	530	250	AC	6.45	5.38	3.07	2.80
27F560	801F250BB2A	800	250	BB	8.43	7.03	4.02	3.65
18F2501	122F250BC2A	1,200	250	BC	10.08	8.40	4.80	4.37
18F2502	302F250DC2A	3,000	250	DC	20.19	16.83	9.62	8.75
27F545	402F250DE2A	4,000	250	DE	25.95	21.63	12.37	11.25
18F2503	452F250DF2A	4,500	250	DF	27.27	22.73	13.00	11.82
18F2504	241F300AB2A	240	300	AB	5.46	4.55	2.60	2.37
18F2506	212F300DC2A	2,100	300	DC	20.19	16.83	9.62	8.75
27F533	312F300DF2A	3,100	300	DF	27.27	22.73	13.00	11.82
18F2507	950F350AA2A	95	350	AA	4.41	3.68	2.10	1.91
27F522	191F350AB2A	190	350	AB	5.46	4.55	2.60	2.37
27F543	421F350BB2A	420	350	BB	8.43	7.03	4.02	3.65
27F556	651F350BC2A	650	350	BC	10.08	8.40	4.80	4.37
18F2511	112F350CC2A	1,100	350	CC	15.18	12.65	7.24	6.58
18F2512	162F350DC2A	1,600	350	DC	20.19	16.83	9.62	8.75
27F528	192F350DD2A	1,900	350	DD	22.47	18.73	10.71	9.74
27F532	222F350DE2A	2,200	350	DE	25.95	21.63	12.37	11.25
18F2513	252F350DF2A	2,500	350	DF	27.27	22.73	13.00	11.82
18F2514	421F400BC2A	420	400	BC	10.08	8.40	4.80	4.37
18F2515	500F450AA2A	50	450	AA	4.41	3.68	2.10	1.91
18F2516	141F450AC2A	140	450	AC	6.45	5.38	3.07	2.80
18F2517	221F450BB2A	220	450	BB	8.43	7.03	4.02	3.65
18F2518	331F450BC2A	330	450	BC	10.08	8.40	4.80	4.37
18F2519	861F450DC2A	860	450	DC	20.19	16.83	9.62	8.75

Powerlytic® Capacitors

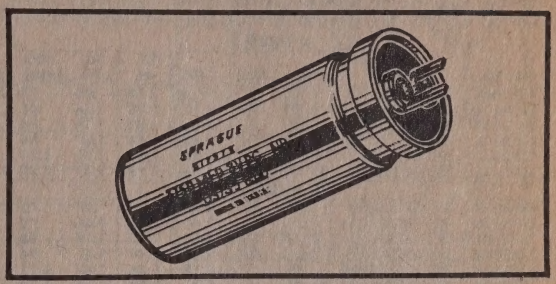
SPRAGUE
THE MARK OF RELIABILITY

TYPE 36DX POWERLYTIC® ALUMINUM ELECTROLYTICS

Same spec as 36D but for uses requiring 50% more capacitance in a given case size. Available in extended capacitance range designs at voltages from 10 to 450 volts. Temp. range: −40° to +85°C up to 30 amps.

SIZES FOR 36DX CAPACITORS
D. x L. Including plastic outer case

AA 1.453 x 2.25	BC 2.078 x 4.25	CE 2.578 x 5.25
AB 1.453 x 3.25	BD 2.078 x 4.75	CF 2.578 x 5.75
AC 1.453 x 4.25	BE 2.078 x 5.25	DC 3.078 x 4.25
AD 1.453 x 4.75	BF 2.078 x 5.75	DD 3.078 x 4.75
AE 1.453 x 5.25	CB 2.578 x 3.25	DE 3.078 x 5.25
AF 1.453 x 5.75	CC 2.578 x 4.25	DF 3.078 x 5.75
BB 2.078 x 3.25	CD 2.578 x 4.75	DJ 3.078 x 8.75



Stk. No.	Type 36DX	Mfd.	WVDC	Size	1-24	25-49	50-99	100-249
27F507	902G010AA2A	9,000	10	AA	4.23	3.53	2.02	1.83
27F461	183G010AB2A	18,000	10	AB	5.31	4.43	2.53	2.30
27F470	273G010AC2A	27,000	10	AC	6.15	5.13	2.93	2.67
27F564	413G010AF2A	41,000	10	AF	8.37	6.98	3.99	3.63
27F491	583G010BC2A	58,000	10	BC	10.62	8.85	5.06	4.60
27F506	883G010BF2A	88,000	10	BF	13.77	11.48	6.56	5.97
27F456	154G010DC2A	150,000	10	DC	20.82	17.35	9.92	9.02
27F466	234G010DF2A	230,000	10	DF	29.31	24.43	13.97	12.70
27F485	394G010DJ2A	390,000	10	DJ	48.36	40.30	23.05	20.96
45F1970	752G015AA2A	7,500	15	AA	4.23	3.53	2.02	1.83
47F1971	153G015AB2A	15,000	15	AB	5.31	4.43	2.53	2.30
47F1972	223G015AC2A	22,000	15	AC	6.15	5.13	2.93	2.67
47F1973	343G015AF2A	34,000	15	AF	8.37	6.98	3.99	3.63
47F1974	503G015BC2A	50,000	15	BC	10.62	8.85	5.06	4.60
47F1975	753G015BF2A	75,000	15	BF	13.77	11.48	6.56	5.97
47F1976	833G015CC2A	83,000	15	CC	15.93	13.28	7.59	6.90
47F1977	124G015CF2A	120,000	15	CF	20.22	16.85	9.64	8.76
47F1978	124G015DC2A	120,000	15	DC	20.82	17.35	9.92	9.02
47F1979	184G015DF2A	180,000	15	DF	29.31	24.43	13.97	12.70
47F1980	304G015DJ2A	300,000	15	DJ	48.36	40.30	23.05	20.96
47F1981	452G025AA2A	4,500	25	AA	4.23	3.53	2.02	1.83
47F1982	902G025AB2A	9,000	25	AB	5.31	4.43	2.53	2.30
47F1983	133G025AC2A	13,000	25	AC	6.15	5.13	2.93	2.67
47F1984	203G025AF2A	20,000	25	AF	8.37	6.98	3.99	3.63
47F1985	303G025BC2A	30,000	25	BC	10.62	8.85	5.06	4.60
47F1986	453G025BF2A	45,000	25	BF	13.77	11.48	6.56	5.97
47F1987	503G025CC2A	50,000	25	CC	15.93	13.28	7.59	6.90
47F1988	753G025CF2A	75,000	25	CF	20.22	16.85	9.64	8.76
47F1989	753G025DC2A	75,000	25	DC	20.82	17.35	9.92	9.02
47F1990	114G025DF2A	110,000	25	DF	29.31	24.43	13.97	12.70
47F1991	194G025DJ2A	190,000	25	DJ	48.36	40.30	23.05	20.96
47F2030	402G030AA2A	4,000	30	AA	4.23	3.53	2.02	1.83
47F2031	802G030AB2A	8,000	30	AB	5.31	4.43	2.53	2.30
47F2032	123G030AC2A	12,000	30	AC	6.15	5.13	2.93	2.67
47F2033	183G030AF2A	18,000	30	AF	8.37	6.98	3.99	3.63
47F2034	263G030BC2A	26,000	30	BC	10.62	8.85	5.06	4.60
47F2035	393G030BF2A	39,000	30	BF	13.77	11.48	6.56	5.97
47F2036	443G030CC2A	44,000	30	CC	15.93	13.28	7.59	6.90
47F2037	663G030CF2A	66,000	30	CF	20.22	16.85	9.64	8.76
47F2038	663G030DC2A	66,000	30	DC	20.82	17.35	9.92	9.02
47F2039	973G030DF2A	97,000	30	DF	29.31	24.43	13.97	12.70
47F2040	164G030DJ2A	160,000	30	DJ	48.36	40.30	23.05	20.96
47F2050	292G040AA2A	2,900	40	AA	4.23	3.53	2.02	1.83
47F2051	582G040AB2A	5,800	40	AB	5.31	4.43	2.53	2.30
47F2052	872G040AC2A	8,700	40	AC	6.15	5.13	2.93	2.67
47F2053	133G040AF2A	13,000	40	AF	8.37	6.98	3.99	3.63
47F2054	203G040BC2A	20,000	40	BC	10.62	8.85	5.06	4.60
47F2055	303G040BF2A	30,000	40	BF	13.77	11.48	6.56	5.97
47F2056	343G040CC2A	34,000	40	CC	15.93	13.28	7.59	6.90
47F2057	513G040CF2A	51,000	40	CF	20.22	16.85	9.64	8.76
47F2058	513G040DC2A	51,000	40	DC	20.82	17.35	9.92	9.02
47F2059	763G040DF2A	76,000	40	DF	29.31	24.43	13.97	12.70
47F2060	124G040DJ2A	120,000	40	DJ	48.36	40.30	23.05	20.96
47F2061	242G050AA2A	2,400	50	AA	4.23	3.53	2.02	1.83
47F2062	482G050AB2A	4,800	50	AB	5.31	4.43	2.53	2.30
47F2063	722G050AC2A	7,200	50	AC	6.15	5.13	2.93	2.67
47F2064	113G050AF2A	11,000	50	AF	8.37	6.98	3.99	3.63
47F2065	163G050BC2A	16,000	50	BC	10.62	8.85	5.06	4.60
47F2066	243G050BF2A	24,000	50	BF	13.77	11.48	6.56	5.97
47F2067	273G050CC2A	27,000	50	CC	15.93	13.28	7.59	6.90
47F2068	403G050CF2A	40,000	50	CF	20.22	16.85	9.64	8.76
47F2069	413G050DC2A	41,000	50	DC	20.82	17.35	9.92	9.02
47F2070	613G050DF2A	61,000	50	DF	29.31	24.43	13.97	12.70
47F2071	104G050DJ2A	100,000	50	DJ	48.36	40.30	23.05	20.96
27F452	142G075AA2A	1,400	75	AA	4.62	3.85	2.20	2.00
27F473	282G075AB2A	2,800	75	AB	5.76	4.80	2.75	2.50
27F484	422G075AC2A	4,200	75	AC	7.35	6.13	3.50	3.19
27F496	632G075AF2A	6,300	75	AF	10.02	8.35	4.78	4.34
27F446	103G075BC2A	10,000	75	BC	13.44	11.20	6.41	5.82
27F454	153G075BF2A	15,000	75	BF	17.49	14.58	8.34	7.58
27F460	173G075CC2A	17,000	75	CC	19.59	16.33	9.34	8.49
27F471	253G075CF2A	25,000	75	CF	27.06	22.55	12.90	11.73
27F472	253G075DC2A	25,000	75	DC	28.08	23.40	13.38	12.17
27F487	373G075DF2A	37,000	75	DF	37.86	31.55	18.05	16.41
27F494	603G075DJ2A	60,000	75	DJ	62.28	51.90	29.69	26.99
27F502	851G100AA2A	850	100	AA	4.62	3.85	2.20	2.00
27F458	172G100AB2A	1,700	100	AB	5.76	4.80	2.75	2.50
27F469	262G100AC2A	2,600	100	AC	7.35	6.13	3.50	3.19
27F490	582G100BC2A	5,800	100	BC	13.44	11.20	6.41	5.82
27F504	872G100BF2A	8,700	100	BF	17.49	14.58	8.34	7.58
27F508	982G100CC2A	9,800	100	CC	19.59	16.33	9.34	8.49
27F455	153G100CF2A	15,000	100	CF	27.06	22.55	12.90	11.73
27F459	153G100DC2A	15,000	100	DC	28.08	23.40	13.38	12.17
27F464	213G100DF2A	21,000	100	DF	37.86	31.55	18.05	16.41
27F481	363G100DJ2A	36,000	100	DJ	62.28	51.90	29.69	26.99
27F475	301F200AA2A	300	200	AA	4.80	4.00	2.29	2.08
27F492	591F200AB2A	590	200	AB	5.82	4.85	2.77	2.52
27F501	851F200AC2A	850	200	AC	7.26	6.05	3.46	3.15
27F451	142F200BB2A	1,400	200	BB	9.90	8.25	4.72	4.29
27F462	202F200BC2A	2,000	200	BC	12.51	10.43	5.96	5.42
27F474	292F200BF2A	2,900	200	BF	16.38	13.65	7.81	7.10
27F477	342F200CC2A	3,400	200	CC	20.34	16.95	9.70	8.81
27F493	492F200CF2A	4,900	200	CF	26.52	22.10	12.64	11.49
27F503	742F200DF2A	7,400	200	DF	36.48	30.40	17.39	15.81
27F447	123F200DJ2A	12,000	200	DJ	58.17	48.48	27.73	25.21
27F467	251F250AA2A	250	250	AA	4.80	4.00	2.29	2.08
27F488	501F250AB2A	500	250	AB	5.82	4.85	2.77	2.52
27F498	741F250AC2A	740	250	AC	7.26	6.05	3.46	3.15
27F563	122F250BB2A	1,200	250	BB	9.90	8.25	4.72	4.29
27F468	252F250BF2A	2,500	250	BF	16.38	13.65	7.81	7.10
27F478	292F250CC2A	2,900	250	CC	20.34	16.95	9.70	8.81
27F486	422F250CF2A	4,200	250	CF	26.52	22.10	12.64	11.49
27F495	632F250DF2A	6,300	250	DF	36.48	30.40	17.39	15.81
27F445	103F250DJ2A	10,000	250	DJ	58.17	48.48	27.73	25.21
27F482	381F350AC2A	380	350	AC	7.26	6.05	3.46	3.15
27F505	881F350BC2A	880	350	BC	12.51	10.43	5.96	5.42
27F449	132F350BF2A	1,300	350	BF	16.38	13.65	7.81	7.10
27F453	152F350CC2A	1,500	350	CC	20.34	16.95	9.70	8.81
27F465	222F350CF2A	2,200	350	CF	26.52	22.10	12.64	11.49
27F476	332F350DF2A	3,300	350	DF	36.48	30.40	17.39	15.81
27F497	512F350DJ2A	5,100	350	DJ	58.17	48.48	27.73	25.21
27F499	800F450AA2A	80	450	AA	4.80	4.00	2.29	2.08
27F457	161F450AB2A	160	450	AB	5.82	4.85	2.77	2.52
27F480	351F450AF2A	350	450	AF	8.82	7.35	4.20	3.82
27F483	381F450BB2A	380	450	BB	9.90	8.25	4.72	4.29
27F489	541F450BC2A	540	450	BC	12.51	10.43	5.96	5.42
27F500	801F450BF2A	800	450	BF	16.38	13.65	7.81	7.10
27F450	132F450CF2A	1,300	450	CF	26.52	22.10	12.64	11.49
27F463	202F450DF2A	2,000	450	DF	36.48	30.40	17.39	15.81
27F479	312F450DJ2A	3,100	450	DJ	58.17	48.48	27.73	25.21

7

Electrolytic Capacitors

39D COMPUTER GRADE ALUMINUM ELECTROLYTICS

Welds at all critical anode and cathode terminals. End-seals are improved molded phenolic for unusually long life. Insulated case of flexible plastic. Low effective series resistance and leakage current. Oper. temp: −20°C to 85°C. Tol. −10+75% through 75WVDC and −10+50% for higher.

SIZE CHART FOR TYPE 39D

EE	.562x1.25	GE	.812x1.25	HS	.937x3.25
EJ	.562x1.75	GJ	.812x1.75	JE	1.062x1.25
EL	.562x2.25	GL	.812x2.75	JL	1.062x2.25
FJ	.687x1.75	GP	.812x2.75	JP	1.062x2.75
FL	.687x2.25	HE	.937x1.25	JS	1.062x3.25
FP	.687x2.75	HL	.937x2.25	JT	1.062x3.75
		HP	.937x2.75		

3 WVDC

Stk. No.	Type	Mfd.	Size	1-24	25-49	50-99	100-499
18F2613	39D138G003EL4	1,300	EL	2.24	1.12	.99	.73
18F2614	39D218G003HE4	2,100	HE	2.60	1.30	1.14	.85
18F2615	39D308G003JE4	3,000	JE	2.64	1.32	1.16	.86
18F2616	39D578G003GP4	5,700	GP	2.88	1.44	1.27	.94
18F2617	39D109G003HS4	10,000	HS	3.48	1.74	1.53	1.14
18F2618	39D189G003JT4	18,000	JT	4.36	2.18	1.91	1.42

6 WVDC

18F2619	39D607G006EJ4	600	EJ	2.20	1.10	.97	.72
18F2620	39D108G006GE4	1,000	GE	2.40	1.20	1.06	.78
18F2621	39D208G006GJ4	2,000	GJ	2.64	1.32	1.16	.86
18F2622	39D408G006GP4	4,000	GP	2.88	1.44	1.27	.94
18F2623	39D608G006HP4	6,000	HP	3.12	1.56	1.37	1.02
18F2624	39D109G006JS4	10,000	JS	4.00	2.00	1.76	1.30

10 WVDC

18F2625	39D507G010EJ4	500	EJ	2.20	1.10	.97	.72
18F2626	39D108G010FJ4	1,000	FJ	2.40	1.20	1.06	.78
18F2627	39D168G010FL4	1,600	FL	2.62	1.31	1.15	.86
18F2628	39D258G010GL4	2,500	GL	2.76	1.38	1.21	.90
18F2629	39D508G010HP4	5,000	HP	3.12	1.56	1.37	1.02
18F2630	39D109G010JT4	10,000	JT	4.36	2.18	1.91	1.42

15 WVDC

18F2631	39D607G015EL4	600	EL	2.24	1.12	.99	.73
18F2632	39D128G015FL4	1,200	FL	2.62	1.31	1.15	.86
18F2633	39D258G015GP4	2,500	GP	2.88	1.44	1.27	.94
18F2634	39D408G015JL4	4,000	JL	3.24	1.62	1.42	1.06
18F2635	39D808G015JT4	8,000	JT	4.36	2.18	1.91	1.42

25 WVDC

18F2636	39D207G025EJ4	200	EJ	2.20	1.10	.97	.72
18F2637	39D507G025HE4	500	HE	2.60	1.30	1.14	.85
18F2638	39D108G025GL4	1,000	GL	2.76	1.38	1.21	.90
18F2639	39D228G025HP4	2,200	HP	3.12	1.56	1.37	1.02
18F2640	39D408G025JS4	4,000	JS	4.00	2.00	1.76	1.30

30 WVDC

18F2641	39D756G030EE4	75	EE	2.14	1.07	.94	.70
18F2642	39D157G030EJ4	150	EJ	2.20	1.10	.97	.72

30 WVDC (con't)

Stk. No.	Type	Mfd.	Size	1-24	25-49	50-99	100-499
18F2643	39D257G030EL4	250	EL	2.24	1.12	.99	.73
18F2644	39D507G030FL4	500	FL	2.62	1.31	1.15	.86
18F2645	39D118G030GP4	1,100	GP	2.88	1.44	1.27	.94
18F2646	39D218G030HS4	2,100	HS	3.48	1.74	1.53	1.14
18F031	39D308G030JS4	3,100	JS	4.00	2.00	1.76	1.30

50 WVDC

18F2647	39D506G050EE4	50	EE	2.14	1.07	.94	.70
18F2648	39D107G050EJ4	100	EJ	2.20	1.10	.97	.72
18F2649	39D157G050EL4	150	EL	2.24	1.12	.99	.73
18F2650	39D257G050HE4	250	HE	2.60	1.30	1.14	.85
18F2651	39D507G050GL4	050	GL	2.76	1.38	1.21	.90
18F2652	39D118G050HP4	1,100	HP	3.12	1.56	1.37	1.02
18F2653	39D238G050JT4	2,300	JT	4.36	2.18	1.91	1.42

150 WVDC

18F2654	39D256F150EJ4	25	EJ	2.20	1.10	.97	.72
18F2655	39D506F150FJ4	50	FJ	2.40	1.20	1.06	.78
18F2656	39D107F150FP4	100	FP	2.64	1.32	1.16	.86
18F2657	39D257F150HP4	250	HP	3.12	1.56	1.37	1.02
18F2658	39D537F150JT4	530	JT	4.36	2.18	1.91	1.42

250 WVDC

18F2659	39D206F250EL4	20	EL	2.24	1.12	.99	.73
18F2660	39D506F250JE4	50	JE	2.64	1.32	1.16	.86
18F2661	39D107F250HL4	100	HL	3.00	1.50	1.32	.98
18F2662	39D207F250JP4	200	JP	3.52	1.76	1.55	1.15
18F2663	39D307F250JT4	300	JT	4.36	2.18	1.91	1.42

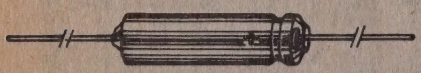
350 WVDC

18F2664	39D206F350FL4	20	FL	2.62	1.31	1.15	.86
18F2665	39D306F350FP4	30	FP	2.64	1.32	1.16	.86
18F2666	39D406F350GL4	40	GL	2.76	1.38	1.21	.90
18F2667	39D506F350GP4	50	GP	2.88	1.44	1.27	.94
18F2668	39D107F350HS4	100	HS	3.48	1.74	1.53	1.14
18F2669	39D167F350JT4	160	JT	4.36	2.18	1.91	1.42

450 WVDC

18F2670	39D505F450EL4	5	EL	2.24	1.12	.99	.73
18F2671	39D106F450FL4	10	FL	2.62	1.31	1.15	.86
18F2672	39D206F450GL4	20	GL	2.76	1.38	1.21	.90
18F2673	39D506F450JP4	50	JP	3.52	1.76	1.55	1.15
18F2674	39D756F450JT4	75	JT	4.36	2.18	1.91	1.42

HIGH GRADE ALUMINUM ELECTROLYTICS-125°C OPERATING-TEMP



Type 600D—Closely approximate requirements of MIL-C3965 aluminum foil capacitors. Tolerance is −10 +75% up to 75 WVDC; −10 +50% for 100 WVDC Up. Insulated case of flexible plastic. Average shipping wt. 3 oz.

600D PRICE AND SIZE LOCATOR CHART

Key	Dia. x Lt. Inches	1-24	25-49	50-99	100-499
A	.296 x 1.0	2.64	1.32	1.16	.86
A-1	.296 x 1.0	3.40	1.70	1.49	1.11
B	.39 x 1.0	2.64	1.32	1.16	.86
C	.39 x 1.187	3.00	1.50	1.32	.98
C-1	.39 x 1.187	3.88	1.94	1.70	1.27
D	.39 x 1.437	3.48	1.74	1.53	1.14
D-1	.39 x 1.437	4.52	2.26	1.98	1.47
E	.39 x 1.687	4.00	2.00	1.76	1.30
E-1	.39 x 1.687	5.16	2.58	2.26	1.68
F	.39 x 2.249	5.08	2.54	2.23	1.66
F-1	.39 x 2.249	6.60	3.30	2.89	2.15
G	.39 x 2.749	6.08	3.04	2.67	1.98
G1	.39 x 2.749	7.88	3.94	3.45	2.57

Stock No.	Mfr's Type 600D-	µF	WVDC@ 85° C	WVDC@ 125° C	Key
18F2834	127G007KD4	120	7	5	A
18F2835	227G007DD4	220	7	5	B
18F2836	277G007DE4	270	7	5	C
18F2837	397G007DG4	390	7	5	D
18F2769	567G007DJ4	560	7	5	E
18F2838	827G007DL4	820	7	5	F
18F2839	108G007DX4	1000	7	5	G
18F2840	107G010KD4	100	10	7	A
18F2841	187G010DD4	180	10	7	B
18F2842	227G010DE4	220	10	7	C
18F2843	337G010DG4	330	10	7	D
18F2844	477G010DJ4	470	10	7	E
18F2845	687G010DL4	680	10	7	F
18F2846	827G010DX4	820	10	7	G
18F2847	686G015KD4	68	15	10	A
18F2848	826G015KD4	82	15	10	A
18F2849	157G015DD4	150	15	10	B
18F2850	187G015DE4	180	15	10	C
18F2851	277G015DG4	270	15	10	D
18F2775	397G015DJ4	390	15	10	E
18F2852	567G015DL4	560	15	10	F
18F2853	687G015DX4	680	15	10	G
18F2854	686G020KD4	68	20	15	A
18F2778	107G020DD4	100	20	15	B
18F2779	147G020DE4	140	20	15	C
18F2780	227G020DG4	220	20	15	D
18F2781	297G020DJ4	290	20	15	E
18F2782	447G020DL4	440	20	15	F
18F2855	607G020DX4	600	20	15	G
18F2856	336G030KD4	33	30	20	A
18F2857	476G030KD4	47	30	20	A
18F2858	826G030DD4	82	30	20	B

Stock No.	Mfr's Type 600D-	µF	WVDC@ 85° C	WVDC@ 125° C	Key
18F2859	107G030DE4	100	30	20	C
18F2860	127G030DG4	120	30	20	D
18F2861	157G030DG4	150	30	20	D
18F2862	227G030DJ4	220	30	20	E
18F2863	337G030DL4	330	30	20	F
18F2864	397G030DX4	390	30	20	G
18F2865	306G040KD4	30	40	30	A
18F2790	506G040DD4	50	40	30	B
18F2791	706G040DE4	70	40	30	C
18F2792	107G040DG4	100	40	30	D
18F2793	147G040DJ4	140	40	30	E
18F2794	217G040DL4	210	40	30	F
18F2866	287G040DX4	280	40	30	G
18F2867	226G050KD4	22	50	40	A
18F2868	336G050DD4	33	50	40	B
18F2869	476G050DE4	47	50	40	C
18F2870	566G050DG4	56	50	40	D
18F2871	686G050DG4	68	50	40	D
18F2799	107G050DJ4	100	50	40	E
18F2800	157G050DL4	150	50	40	F
18F2872	187G050DX4	180	50	40	G
18F2873	176G060KD4	17	60	50	A
18F2802	256G060DD4	25	60	50	B
18F2803	406G060DE4	40	60	50	C
18F2804	606G060DG4	60	60	50	D
18F2805	806G060DJ4	80	60	50	E
18F2806	127G060DL4	120	60	50	F
18F2874	167G060DX4	160	60	50	G
18F2875	126F075KD4	12	75	60	A
18F2876	226F075DD4	22	75	60	B
18F2877	336F075DE4	33	75	60	C
18F2878	476F075DG4	47	75	60	D

Stock No.	Mfr's Type 600D-	µF	WVDC@ 85° C	WVDC@ 125° C	Key
18F2879	686F075DJ4	68	75	60	E
18F2880	107F075DL4	100	75	60	F
18F2881	127F075DX4	120	75	60	G
18F2882	825F100KD4	8.2	100	75	A
18F2883	126F100DD4	12	100	75	B
18F2884	156F100DE4	15	100	75	C
18F2885	226F100DG4	22	100	75	D
18F2886	336F100DJ4	33	100	75	E
18F2887	476F100DL4	47	100	75	F
18F2888	686F100DX4	68	100	75	G
18F2889	475F150KD4	4.7	150	100	A
18F2890	565F150KD4	5.6	150	100	A
18F2891	825F150DD4	8.2	150	100	B
18F2821	126F150DE4	12	150	100	C
18F2822	186F150DG4	18	150	100	D
18F2892	226F150DJ4	22	150	100	E
18F2893	336F150DL4	33	150	100	F
18F2894	566F150DX4	56	150	100	G
18F2895	405F200KD4	4	200	150	A
18F2826	605F200DD4	6	200	150	B
18F2827	805F200DE4	8	200	150	C
18F2828	136F200DG4	13	200	150	D
18F2829	176F200DJ4	17	200	150	E
18F2830	266F200DL4	26	200	150	F
18F2896	396F200DX4	39	200	150	G
18F2897	335F250KD4	3.3	250	200	A-1
18F2898	565F250DD4	5.6	250	200	A-1
18F2899	685F250DE4	6.8	250	200	C-1
18F2900	106F250DG4	10	250	200	D-1
18F2901	126F250DJ4	12	250	200	E-1
18F2902	226F250DL4	22	250	200	F-1
18F2903	276F250DX4	27	250	200	G-1

Electrolytic Capacitors

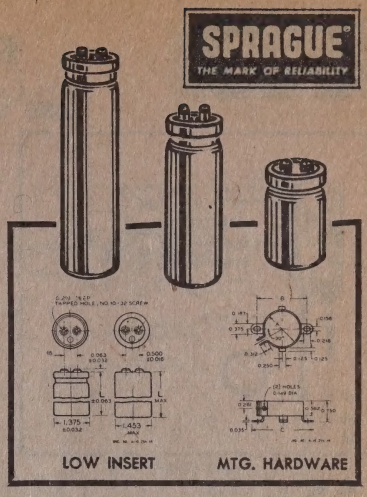
TYPE 622D EXTRALYTIC OUTPUT FILTER CAPACITORS

• Low Internal Inductance

Low Equivalent Series Resistance

• Specified ESR

Designed for use in modern switching-type power supplies. Feature low internal inductance and low equivalent series resistance. ESR is specified and held within a tolerance of ±30% of nominal value at 20 kHz. Operating temperature range of −55°C to +85°C. 1.375" (34.92 mm) diameter case.



622D PRICE AND SIZE CHART

Price Code	Length†	Weight (oz.)	1-24	25-49	50-99	100-249
AA	2.250	2.2	9.13	7.30	6.39	4.93
BB	2.750	3.0	9.68	7.74	6.77	5.23
A	3.250	3.7	10.10	8.08	7.07	5.45
B	3.750	4.3	10.83	8.66	7.58	5.85
C	4.250	4.9	10.35	8.28	7.25	5.59
D	4.750	5.7	11.18	8.94	7.82	6.04
E	5.250	6.3	11.48	9.18	8.03	6.20
F	5.750	7.1	11.53	9.22	8.07	6.22

(†) All units 1.375" in diameter.

MTG. HARDWARE

Dim.	In.
A	1.375
B	1.781
C	2.218

5 WVDC

Stock No.	Type	µF	Price & Size Code
17F2249	622D183M005AA2A	18000	AA
17F2250	622D253M005AM2A	25000	BB
17F2251	622D323M005AB2A	32000	A
17F2252	622D393M005AL2A	39000	B
17F2253	622D463M005AC2A	46000	C
17F2254	622D533M005AD2A	53000	D
17F2255	622D603M005AE2A	60000	E
17F2256	622D673M005AF2A	67000	F

7.5 WVDC

Stock No.	Type	µF	Price & Size Code
17F2257	622D153M7R5AA2A	15000	AA
17F2258	622D213M7R5AM2A	21000	BB
17F2259	622D273M7R5AB2A	27000	A
17F2260	622D333M7R5AL2A	33000	B
17F2261	622D393M7R5AC2A	39000	C
17F2262	622D453M7R5AD2A	45000	D
17F2263	622D513M7R5AE2A	51000	E
17F2264	622D573M7R5AF2A	57000	F

16 WVDC

Stock No.	Type	µF	Price & Size Code
17F2265	622D103M016AA2A	10000	AA
17F2266	622D143M016AM2A	14000	BB
17F2267	622D183M016AB2A	18000	A
17F2268	622D223M016AL2A	22000	B

16 WVDC (Cont.)

Stock No.	Type	µF	Price & Size Code
17F2269	622D263M016AC2A	26000	C
17F2270	622D303M016AD2A	30000	D
17F2271	622D343M016AE2A	34000	E
17F2272	622D383N016AF2A	38000	F

20 WVDC

Stock No.	Type	µF	Price & Size Code
17F2273	622D882M020AA2A	8800	AA
17F2274	622D123M020AM2A	12000	BB
17F2275	622D163M020AB2A	16000	A
17F2276	622D203M020AL2A	20000	B
17F2277	622D223M020AC2A	22000	C
17F2278	622D273M020AD2A	27000	D
17F2279	622D303M020AE2A	30000	E
17F2280	622D343M020AF2A	34000	F

28 WVDC

Stock No.	Type	µF	Price & Size Code
17F2281	622D632M028AA2A	6300	AA
17F2282	622D882M028AM2A	8800	BB
17F2283	622D113M028AB2A	11000	A
17F2284	622D143M028AL2A	14000	B

28 WVDC (Cont.)

Stock No.	Type	µF	Price & Size Code
17F2285	622D163M028AC2A	16000	C
17F2286	622D193M028AD2A	19000	D
17F2287	622D223M028AE2A	22000	E
17F2288	622D243M028AF2A	24000	F

35 WVDC

Stock No.	Type	µF	Price & Size Code
17F2289	622D452M035AA2A	4500	AA
17F2290	622D632M035AM2A	6300	BB
17F2291	622D812M035AB2A	8100	A
17F2292	622D103M035AL2A	10000	B
17F2293	622D123M035AC2A	12000	C
17F2294	622D143M035AD2A	14000	D
17F2295	622D163M035AE2A	16000	E
17F2296	622D173M035AF2A	17000	F

55 WVDC

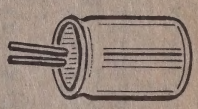
Stock No.	Type	µF	Price & Size Code
17F2297	622D282M055AA2A	2800	AA
17F2298	622D392M055AM2A	3900	BB
17F2299	622D502M055AB2A	5000	A
17F100	622D622M055AL2A	6200	B
17F101	622D732M055AC2A	7300	C
17F102	622D842M055AD2A	8400	D
17F103	622D952M055AE2A	9500	E
17F104	622D103M055AF2A	10000	F

TYPE 672D EXTRALYTIC® ALUMINUM ELECTROLYTICS

Premium-grade capacitors designed for use in high frequency applications. High capacitance combined with low inductance and low ESR make these very useful for bus bar decoupling in data processing applications. Guaranteed inductance limit of 20nH with typical values of less than 10nH. Operating range from −55°C to 105°C. Capacitance tolerance −10, +100%. Outer plastic-film insulation with polymer coated single end-seal.

672D PRICE AND SIZE CHART

Price Code	Diameter	Length	1-9	10-24	25-49	50-99
G	.336	.630	1.60	1.28	.96	.80
H	.413	.677	1.60	1.28	.96	.80
K	.413	.740	1.65	1.32	.99	.83
L	.413	.927	1.70	1.36	1.02	.85
M	.500	1.165	2.00	1.60	1.20	1.00
N	.500	1.462	2.05	1.64	1.23	1.03
P	.500	1.790	2.15	1.72	1.29	1.08



6.3 WVDC

Stock No.	Type	µF	Price & Size Code
18F252	672D686H6R3BB5C	68	G
18F253	672D127H6R3CC5C	120	H
18F254	672D187H6R3CD5C	180	K
18F255	672D227H6R3CG5C	220	L
18F256	672D687H6R3DM5C	680	M
18F257	672D827H6R3DT5C	820	N
15F2777	672D128H6R3DS5C	1200	P

12 WVDC

Stock No.	Type	µF	Price & Size Code
18F259	672D566H012BB5C	56	G
18F260	672D107H012CC5C	100	H
18F261	672D127H012CD5C	120	K
18F262	672D187H012CG5C	180	L
18F263	672D477H012DM5C	470	M
18F264	672D687H012DT5C	860	N
15F2778	672D108H012DS5C	1000	P

15 WVDC

Stock No.	Type	µF	Price & Size Code
18F265	672D476H015BB5C	47	G
18F266	672D826H015CC5C	82	H
15F2779	672D107H015CD5C	100	K
18F267	672D157H015CG5C	150	L
18F268	672D397H015DM5C	390	M
15F2780	672D827H015DS5C	820	P

20 WVDC

Stock No.	Type	µF	Price & Size Code
18F270	672D336H020BB5C	33	G
18F271	672D566H020CC5C	56	H
18F272	672D826H020CD5C	82	K
18F273	672D107H020CG5C	100	L
15F2781	672D337H020DM5C	330	M
18F274	672D397H020DT5C	390	N
15F2782	672D567H020DS5C	560	P

25 WVDC

Stock No.	Type	µF	Price & Size Code
15F2783	672D276H025BB5C	27	G
18F275	672D476H025CC5C	47	H
18F276	672D686H025CD5C	68	K
18F277	672D826H025CG5C	82	L
15F2784	672D277H025DM5C	270	M
18F278	672D337H025DT5C	330	N
15F2785	672D477H025DS5C	470	P

40 WVDC

Stock No.	Type	µF	Price & Size Code
18F279	672D186H040BB5C	18	G
18F280	672D396H040CC5C	39	H
18F281	672D476H040CD5C	47	K
18F282	672D566H040CG5C	56	L
18F283	672D187H040DM5C	180	M
18F285	672D277H040DT5C	270	N
15F2786	672D397H040DS5C	390	P

50 WVDC

Stock No.	Type	µF	Price & Size Code
18F286	672D126H050BB5C	12	G
18F287	672D186H050CC5C	18	H
18F288	672D226H050CD5C	22	K
18F289	672D276H050CG5C	27	L
18F290	672D826H050DM5C	82	M
18F291	672D127H050DT5C	120	N
15F2787	672D187H050DS5C	180	P

60 WVDC

Stock No.	Type	µF	Price & Size Code
18F292	672D126H060CC5C	12	H
18F293	672D186H060CD5C	18	K
18F294	672D226H060CG5C	22	L
18F295	672D686H060DM5C	68	M
18F296	672D826H060DT5C	82	N
15F2788	672D127H060DS5C	120	P

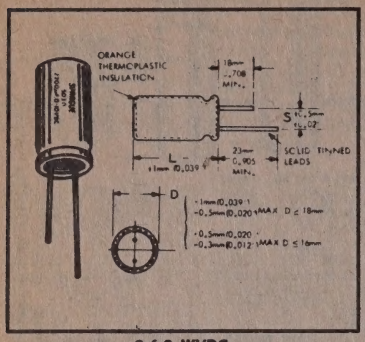
100 WVDC

Stock No.	Type	µF	Price & Size Code
18F298	672D475H100CC5C	4.7	H
18F299	672D685H100CD5C	6.8	K
18F300	672D825H100CG5C	8.2	L
18F305	672D276H100DM5C	27	M
18F318	672D396H100DT5C	39	N
15F2789	672D476H100DS5C	47	P

SPRAGUE
THE MARK OF RELIABILITY

Electrolytic Capacitors

503D VERTI-LYTIC® MINIATURE ELECTROLYTICS


ORANGE THERMOPLASTIC INSULATION
18mm .708 MIN.
S +1.5mm -0 +1/16"
L +1mm ±0.039" 23mm 0.905 MIN.
SOLID TINNED LEADS
D
+1mm ±0.039" -0.5mm ±0.020" MAX D ≤ 18mm
+0.5mm ±0.020" -0.3mm ±0.012" MAX D ≤ 18mm

Model 503D. Vertical installation. Used in coupling, decoupling, bypass and filtering circuits in radio receivers and similar applications. Oper. temp. range −40°C to +85°C, excellent capacitance, ESR, low leakage current.

Size And Price Chart

Code	In Inches D	In Inches L	1-49	50-99	100-299	300-499
HS	.197	0.433	.31	.21	.15	.12
AS	.236	0.433	.32	.22	.15	.13
BB	.315	0.492	.33	.22	.16	.13
CB	.394	0.492	.34	.23	.16	.14
CD	.394	0.630	.35	.23	.17	.14
CG	.394	0.787	.40	.27	.19	.16
DG	.512	0.787	.57	.38	.27	.23
DK	.512	0.984	.64	.43	.30	.25
EK	.630	0.984	1.03	.69	.49	.41
ER	.630	1.240	1.22	.81	.58	.48
EU	.630	1.437	1.38	.92	.66	.55
ET	.630	1.614	1.58	1.06	.75	.63

Code	In Inches D	In Inches L	1-49	50-99	100-299	300-499
KA	.196	.492	.30	.19	.14	.12
LA	.236	.433	.33	.22	.16	.14
MB	.314	.492	.40	.26	.19	.16
NB	.393	.492	.45	.29	.22	.18
NC	.393	.630	.52	.33	.25	.21
ND	.393	.787	.57	.37	.27	.23
PD	.512	.787	.82	.53	.39	.33
QE	.630	.984	1.16	.74	.55	.47
QF	.630	1.20	1.37	.88	.65	.56
QG	.630	1.40	1.54	.99	.74	.63
SJ	.708	1.61	3.31	2.13	1.58	1.34
TJ	.866	1.61	4.11	2.65	1.96	1.67

0-6.3 WVDC

Stk. No.	Type	µF	Code
15F2790	503D227F6R3NB	220	NB
15F2791	503D337F6R3NC	330	NC
47F1902	503D477G6R3ND	470	CG
15F2792	503D228F6R3QE	2200	QE
15F2793	503D338F6R3QG	3300	3QG

0-10 WVDC

Stk. No.	Type	µF	Code
15F2794	503D226F010KA	22	KA
15F2795	503D476F010LA	47	LA
47F1907	503D107G010(MB)	100	CB
47F1908	503D227G010(NC)	220	CD
47F1909	503D337G010(ND)	330	CG
47F1911	503D687G010(PD)	680	DK
47F1912	503D108G010(PE)	1000	EK
15F2796	503D158F010QE	1500	QE

0-16 WVDC

Stk. No.	Type	µF	Code
47F1914	503D106G016KA	10	HS
47F1915	503D226G016LA	22	AS
47F1916	503D476G016MB	47	BB
47F1917	507D686G016MB	68	CB
47F1918	503D107G016NB	100	CD
47F1919	503D227G016ND	220	CG
47F1920	503D337G016PD	330	DG
47F1921	503D477G016PD	470	DK
47F1922	503D687G016PE	680	EK
47F1923	503D108G016QE	1000	ER
15F2797	503D158F016QF	1500	QF

0-25 WVDC

Stk. No.	Type	µF	Code
47F1930	503D685G025KA	6.8	AS
15F2798	503D156F025LA	15	LA
47F1933	503D336G025MB	33	BB
47F1935	503D686G025NB	68	CD
47F1936	503D107G025NC	100	CG
15F2799	503D157F025ND	150	ND
47F1937	503D227G025ND	220	DG
47F1938	503D337G025PE	330	DK
47F1940	503D687G025QE	680	ER
47F1941	503D108G025QG	1000	EU
15F2800	503D158F025QG	1500	25QG
15F2801	503D228F025SJ	2200	SJ
15F2802	503D338F025TJ	3300	TJ

0-35 WVDC

Stk. No.	Type	µF	Code
15F2803	503D475F035KA	4.7	KA
15F2804	503D106F035LA	10	LA
15F2805	503D226F035MB	22	MB
471F1943	503D336G035MB	33	CB
471F1944	503D476G035NB	47	CD
15F2806	503D686F035NC	68	NC
15F2807	503D157F035PD	150	PD
471F1945	503D227G035PE	220	DK
471F1946	503D337G035QE	330	EK
471F1947	503D477G035QE	470	ER
471F1948	503D687G035QG	680	EU
15F2808	503D158F035SJ	1500	SJ

0-50 WVDC

Stk. No.	Type	µF	Code
15F2809	503D685F050LA	6.8	LA
15F2810	503D156F050MB	15	MB
15F2811	503D226F050NE	22	NB
15F2812	503D476F050NC	47	NC
47F1953	503D107G050PD	100	DG
47F1954	503D227G050QE	220	EK
47F1955	503D337G050QF	330	ER
47F1956	503D477G050QG	470	ET

0-63 WVDC

Stk. No.	Type	µF	Code
47F7957	503D474G063KA	.47	HS
47F1958	503D684G063KA	.68	HS
47F1959	503D105G063KA	1.0	HS
47F1960	503D225G063KA	2.2	AS
47F1961	503D335G063KA	3.3	AS
47F1962	503D475G063LA	4.7	BB
47F1963	503D685G063MB	6.8	BB
47F1964	503D106G063MB	10	BB
47F1965	503D226G063NC	22	CB
47F1966	503D336G063NC	33	CG
47F1967	503D476G067ND	47	CG
47F1968	503D686G063PD	68	DG
47F1969	503D107G063PE	100	DK

TYPE 500D MINIATURE METAL-CASE ALUMINUM ELECTROLYTICS

PRICE CHART

Key	1-24	25-49	50-99	100-249	Key	1-24	25-49	50-99	100-249
A	.70	.49	.39	.29	F2	.70	.49	.39	.29
B	.92	.64	.51	.39	G	.80	.55	.44	.33
B1	.88	.61	.49	.37	J	.89	.62	.50	.38
B2	.98	.68	.55	.41	J2	.82	.57	.46	.34
D	.71	.49	.40	.30	K	.98	.68	.55	.41
D1	.75	.52	.42	.31	L	1.02	.71	.57	.43
D4	.81	.56	.45	.34	M	.78	.54	.44	.33
E	.83	.57	.46	.35	P	.77	.53	.43	.22
F	.73	.51	.41	.31	T	.91	.63	.51	.38
FT	.71	.49	.40	.30					

Model 500D. Doesn't cause open or intermittent circuits. Effective up to 85°C without derating. Low leakage current. Lead length is 1.5". Av. shpg. wt. is 2 oz.

SIZE CHART

Size	DxL	Size	DxL	Size	DxL
BA7	.260x.536	DC7	.385x.848	DF7	.385x1.286
CB7	.322x.723	DD7	.385x.973	BB7	.260x.723
CC7	.322x.848	DH7	.385x1.536	DB7	.385x.723

0-3 WVDC

Stk. No.	Type 500D	Price Key	Mfd.
47F307	106G003 BA7	A	10
47F308	256G003 BA7	A	25
47F309	506G003 BB7	D	50
47F310	756G003 CB7	F	75
47F311	107G003 CB7	F	100
47F312	157G003 CC7	D1	150
47F313	207G003 CC7	D1	200
47F314	507G003 DF7	J	500

0-6 WVDC

Stk. No.	Type 500D	Price Key	Mfd.
47F315	156G006 BA7	A	15
47F316	256G006 BB7	D	25
47F317	506G006 BB7	D	50
47F318	756G006 CB7	F	75
47F319	107G006 CC7	D1	100
47F320	157G006 DC7	G	150
47F321	207G006 DC7	G	200
47F322	307G006 DD7	E	300
47F323	507G006 DH7	B	500

0-16 WVDC

Stk. No.	Type 500D	Price Key	Mfd.
47F324	505G016 BA7	A	5
47F325	106G016 BA7	A	10
47F326	206G016 BB7	D	20
47F287	256G016 BB7	D	25
47F288	306G016 CB7	F	30
47F289	356G016 CB7	D4	35

0-16 WVDC (Cont.)

Stk. No.	Type 500D	Price Key	Mfd.
47F290	506G016 CB7	F	50
47F291	107G016 DC7	G	100
47F292	157G016 DD7	E	150
47F293	207G016 DF7	J	200
47F294	307G016 DH7	B	300
47F295	357G016 DH7	B	350

0-25 WVDC

Stk. No.	Type 500D	Price Key	Mfd.
47F296	205G025 BA7	A	2
47F297	405G025 BA7	A	4
47F298	505G025 BA7	A	5
47F299	605G025 BA7	A	6
47F300	805G025 BA7	A	8
47F301	106G025 BB7	D	10
47F302	156G025 BB7	D	15
47F303	256G025 CB7	F	25
47F304	306G025 CB7	F	30
47F305	356G025 CB7	F	35
47F306	506G025 CC7	D1	50
47F327	756G025 DC7	G	75
47F328	107G025 DD7	E	100
47F329	157G025 DF7	J	150
47F330	207G025 DH7	B	200

0-50 WVDC

Stk. No.	Type 500D	Price Key	Mfd.
47F331	105G050 BA7	A	1
47F332	205G050 BA7	A	2
47F333	305G050 BA7	A	3

0-50 WVDC (Cont.)

Stk. No.	Type 500D	Price Key	Mfd.
47F334	405G050 BA7	A	4
47F335	505G050 BB7	D	5
47F336	805G050 BB7	D	8
47F337	106G050 CB7	F	10
47F338	156G050 CB7	F	15
47F339	206G050 CC7	D1	20
47F340	256G050 CC7	D1	25
47F341	356G050 DC7	G	35
47F342	506G050 DD7	E	50
47F343	756G050 DF7	J	75
47F344	107G050 DH7	B	100

0-100 WVDC

Stk. No.	Type 500D	Price Key	Mfd.
47F345	405F100 CB7	D4	4
47F346	605F100 CC7	J2	6
47F275	106F100 DC7	B1	10
47F276	206F100 DF7	K	20
47F277	256F100 DH7	L	25

0-150 WVDC

Stk. No.	Type 500D	Price Key	Mfd.
47F278	105F150 BA7	P	1
47F279	205F150 BB7	M	2
47F280	305F150 CB7	D4	3
47F281	405F150 CC7	J2	4
47F282	505F150 CC7	J2	5
47F283	805F150 DC7	B1	8
47F284	106F150 DD7	T	10
47F285	156F150 DF7	B2	15
47F286	206F150 DH7	L	20

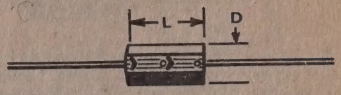
Electrolytic Capacitors

TYPE 501D MINILYTIC® ALUMINUM ELECTROLYTICS

SPRAGUE
THE MARK OF RELIABILITY

- **Fills need for miniature tubular electrolytic with good operating life**
- **Very low ESR**
- **Capacitance tolerance, −10, +50%**
- **Outer thermoplastic sleeve over aluminum case**
- **Temp. range: −40°C to +85°C**
- **Very low leakage current**

Model 501D. For entertainment and commercial applications requiring miniature tubular electrolytics with good operating life. Intended for use in coupling, decoupling, bypass, and filtering circuits in radios, automobile receivers, portable tape recorders, commercial amplifiers and similar applications. Capacitance tolerance, −10, +50%. Designed for operation over temperature range of −40°C to +85°C. Very low equivalent series resistance and leakage current. Supplied with outer thermoplastic sleeve over aluminum case.



0-6.3 WVDC

Stock No.	Type No.	In Inches D	L	µF	1- 24	25- 49	50- 99	100- 299
15F000	501D157F6R3MM	.314	.630	150	.51	.43	.33	.25
15F001	501D477F6R3NP	.393	.829	470	.60	.50	.39	.29
15F002	501D687F6R3NR	.393	1.020	680	.78	.66	.51	.38
15F003	501D158F6R3PS	.512	1.240	1500	1.08	.89	.69	.51
15F004	501D228F6R3QS	.630	1.240	2200	1.50	1.24	.96	.71
15F005	501D478F6R3SV	.708	1.570	4700	3.27	2.72	2.10	1.56
15F006	501D688F6R3TV	.866	1.570	6800	4.29	3.57	2.75	2.04
15F007	501D109F6R3TW	.866	2.040	10000	5.01	4.18	3.22	2.39
15F008	501D159F6R3UX	1.000	2.400	15000	6.78	5.60	4.36	3.23

0-10 WVDC

15F009	501D336F010LL	.236	.472	33	.42	.34	.26	.20
15F010	501D476F010LL	.236	.472	47	.42	.34	.26	.20
15F011	501D227F010MN	.314	.787	220	.60	.50	.39	.29
15F012	501D337F010NP	.393	.829	330	.60	.50	.39	.29
15F013	501D477F010NR	.393	1.020	470	.69	.57	.44	.33
15F014	501D108F010PR	.512	1.020	1000	.96	.80	.62	.46
15F015	501D338F010QT	.630	1.630	3300	2.34	1.95	1.51	1.12
15F016	501D688F010TW	.866	2.040	6800	4.71	3.92	3.02	2.24
15F017	501D109F010UW	1.000	2.040	10000	5.49	4.57	3.53	2.61

0-16 WVDC

15F018	501D226F016LL	.236	.472	22	.42	.34	.26	.20
15F019	501D336F016LM	.236	.630	33	.42	.35	.27	.20
15F020	501D686F016MM	.314	.630	68	.51	.42	.32	.24
15F021	501D107F016MM	.314	.630	100	.51	.43	.33	.25
15F022	501D157F016MN	.314	.787	150	.60	.50	.39	.29
15F023	501D227F016NP	.393	.829	220	.60	.50	.39	.29
15F024	501D337F016NR	.393	1.020	330	.78	.66	.51	.38
15F025	501D687F016PR	.512	1.020	680	.78	.66	.51	.38
15F026	501D108F016PS	.512	1.240	1000	1.50	1.24	.96	.71
15F027	501D158F016QS	.630	1.240	1500	1.89	1.58	1.22	.90
15F028	501D228F016QT	.630	1.630	2200	2.16	1.79	1.38	1.02
15F029	501D478F016TV	.866	1.570	4700	4.71	3.92	3.02	2.24
15F030	501D688F016UW	1.000	2.040	6800	5.49	4.57	3.53	2.61
15F031	501D109F016UX	1.000	2.400	10000	7.32	6.03	4.70	3.48

0-25 WVDC

15F032	501D156F025LL	.236	.472	15	.42	.34	.26	.20
15F033	501D226F025LM	.236	.630	22	.42	.35	.27	.20
15F034	501D476F025MM	.314	.630	47	.51	.42	.32	.24
15F035	501D686F025MN	.314	.787	68	.51	.43	.33	.25
15F036	501D107F025MN	.314	.787	100	.60	.50	.39	.29
15F037	501D157F025NP	.393	.829	150	.60	.50	.39	.29
15F038	501D227F025NR	.393	1.020	220	.69	.57	.44	.33
15F039	501D477F025PR	.512	1.020	470	.96	.80	.62	.46
15F040	501D687F025PS	.512	1.240	680	1.50	1.25	.97	.72
15F041	501D108F025QS	.630	1.240	1000	1.89	1.58	1.22	.90
15F042	501D158F025QT	.630	1.630	1500	3.27	2.72	2.10	1.56
15F043	501D338F025TV	.866	1.570	3300	4.71	3.92	3.02	2.24
15F044	501D478F025TW	.866	2.040	4700	5.49	4.57	3.53	2.61
15F045	501D688F025UX	1.000	2.400	6800	7.56	6.24	4.86	3.60

0-35 WVDC

15F046	501D685F035LL	.236	.472	6.8	.42	.34	.26	.20
15F047	501D106F035LL	.236	.472	10	.42	.34	.26	.20
15F048	501D156F035LM	.236	.630	15	.42	.35	.27	.20
15F049	501D336F035MM	.314	.630	33	.51	.42	.32	.24
15F050	501D476F035MN	.314	.787	47	.51	.43	.33	.25
15F051	501D686F035NP	.393	.829	68	.60	.50	.39	.29
15F052	501D107F035NP	.393	.829	100	.60	.50	.39	.29
15F053	501D157F035NR	.393	1.020	150	.78	.66	.51	.38
15F054	501D337F035PR	.512	1.020	330	.96	.80	.62	.46
15F055	501D477F035PS	.512	1.240	470	1.50	1.25	.97	.72
15F056	501D687F035QS	.630	1.240	680	1.89	1.58	1.22	.90
15F057	501D108F035QT	.630	1.630	1000	2.16	1.79	1.38	1.02
15F058	501D158F035SV	.708	1.570	1500	3.78	3.15	2.43	1.80
15F059	501D228F035TV	.866	1.570	2200	4.56	3.81	2.94	2.18
15F060	501D338F035TW	.866	2.040	3300	5.49	4.57	3.53	2.61
15F061	501D478F035UW	1.000	2.040	4700	7.56	6.24	4.86	3.60

0-50 WVDC

15F062	501D226F050MM	.314	.630	22	.51	.42	.32	.24
15F063	501D336F050MN	.314	.787	33	.51	.43	.33	.25
15F065	501D108F050SV	.798	1.570	1000	4.11	3.43	2.65	1.96
15F066	501D158F050TV	.866	2.040	1500	6.27	5.17	4.03	2.98
15F067	501D228F050TW	.866	2.040	2200	6.78	5.60	4.36	3.23
15F068	501D338F050UX	1.000	2.400	3300	8.10	6.67	5.15	3.85

0-63 WVDC

15F069	501D474F063LL	.236	.472	.47	.42	.34	.26	.20
15F070	501D684F063LL	.236	.472	.68	.42	.34	.26	.20
15F071	501D105F063LL	.236	.472	1.0	.42	.34	.26	.20
15F072	501D155F063LL	.236	.472	1.5	.42	.34	.26	.20
15F073	501D225F063LL	.236	.472	2.2	.42	.34	.26	.20
15F074	501D335F063LL	.236	.472	3.3	.42	.34	.26	.20
15F075	501D475F063LL	.236	.472	4.7	.42	.34	.26	.20
15F076	501D685F063LM	.236	.630	6.8	.42	.35	.27	.20
15F077	501D106F063MM	.314	.630	10	.51	.42	.32	.24
15F078	501D156F063MM	.314	.630	15	.51	.42	.32	.24
15F079	501D226F063MN	.314	.787	22	.51	.43	.33	.25
15F080	501D336F063NP	.393	.829	33	.60	.50	.39	.29
15F081	501D476F063NP	.393	.829	47	.60	.50	.39	.29
15F082	501D686F063NR	.393	1.020	68	.78	.66	.51	.38
15F083	501D107F063NR	.393	1.020	100	.96	.80	.62	.46
15F084	501D157F063PR	.512	1.020	150	.96	.80	.62	.46
15F085	501D227F063PR	.512	1.020	220	1.50	1.25	.97	.72
15F086	501D337F063QS	.630	1.240	330	1.89	1.58	1.22	.90
15F087	501D477F063QS	.630	1.240	470	2.34	1.95	1.51	1.12
15F088	501D687F063QT	.630	1.630	680	3.09	2.57	1.99	1.47
15F089	501D108F063TV	.866	1.570	1000	4.71	3.92	3.02	2.24
15F090	501D158F063TW	.866	2.040	1500	6.27	5.17	4.03	2.98
15F091	501D228F063UW	1.000	2.040	2200	7.32	6.03	4.70	3.48

7.5 WVDC

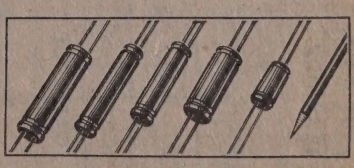
Stk. No.	Type	Mfd.	DxL	1- 24	25- 49	50- 99	100- 499
15F2742	604D202G7R5GJ6	2000	.812 x 1.843	8.88	4.44	3.89	2.89
15F2743	604D302G7R5HJ6	3000	.937 x 1.843	10.72	5.36	4.69	3.48
15F2744	604D382G7R5GP6	3800	.812 x 2.843	11.12	5.56	4.87	3.61
15F2745	604D442G7R5HL6	4400	.937 x 2.343	11.60	5.80	5.08	3.77
15F2746	604D482G7R5JJ6	4800	1.062 x 1.843	12.28	6.14	5.37	3.99
15F2747	604D502G7R5GS6	5000	.812 x 3.343	11.60	5.80	5.08	3.77
15F2748	604D582G7R5HP6	5800	.937 x 2.843	12.72	6.36	5.57	4.13
15F2749	604D622G7R5JL6	6200	1.062 x 2.343	13.64	6.82	5.97	4.43
15F2750	604D752G7R5HS6	7500	.937 x 3.343	13.60	6.80	5.95	4.42
15F2751	604D902G7R5JP6	9000	1.062 x 2.843	14.76	7.38	6.46	4.80
15F2752	604D113G7R5JS6	11000	1.062 x 3.343	16.32	8.16	7.14	5.30
15F2753	604D143G7R5JT6	14000	1.062 x 3.843	17.56	8.78	7.68	5.71

200 WVDC

15F2754	604D500F200GJ6	50	.812 x 1.843	8.88	4.44	3.89	2.89
15F2755	604D850F200HJ6	85	.937 x 1.843	10.72	5.36	4.69	3.48
15F2756	604D101F200HL6	100	.937 x 2.343	11.60	5.80	5.08	3.77
15F2757	604D151F200HP6	150	.937 x 2.843	12.72	6.36	5.57	4.13
15F2758	604D201F200JP6	200	1.062 x 2.843	14.76	7.38	6.46	4.80
15F2759	604D251F200HT6	250	.937 x 3.843	14.60	7.30	6.39	4.75
15F2760	604D321F200JT6	320	1.062 x 3.843	17.56	8.78	7.68	5.71

TYPE 604D 4-TERMINAL EXTRALYTIC ALUMINUM ELECTROLYTIC CAPACITORS

- **Designed for high frequency operation**
- **Low series resistance and inductance.**
- **Immersible in halogenated solvents.**



Four-terminal capacitors with a guaranteed inductance limit of 2 nH, with typical values of less than 1 nH. Impedance limits at 10 kHz are as low as 17 milliohms. Operating temperature range is from −55°C to +105°C. Capacitance tolerance: 5- through 50-volt units, −10 to +50%. Above 50 volts, −10 to +75%. Outer plastic film insulation with polymer coated end seals permit degreasing in halogenated solvents.

SPRAGUE
THE MARK OF RELIABILITY

TE Miniature Electrolytics

TYPE TE LITTL-LYTICS

Ultra-small electrolytic capacitors made for transistor circuitry and other sub-min. applications. Temp. Range: −40°C to 85°C. Ultra-low leakage current. Clear Plastic Sleeves. Life Test to 1000 hrs.

Tolerance: −10 +75% except (*) −10 +50%

CASE SIZES

Key	Size	Key	Size	Key	Size
BA	.260x.536	CC	.322x.848	DD	.385x.973
BB	.260x.723	DB	.358x.723	DF	.385x1.286
CB	.322x.723	DC	.385x.848	DG	.385x1.536

Stock No.	Type	Mfd.	WV DC	DxL	1-24	25-49	50-99	100-249
18F532	TE1050	1	3	BA				
18F533	TE1052	3	3	BA				
18F534	TE1052.1	4	3	BA				
18F535	TE1052.2	5	3	BA				
18F536	TE1052.3	6	3	BA	.90	.53	.43	.30
18F537	TE1052.5	8	3	BA				
18F2929	TE1053	10	3	BA				
18F538	TE1053.5	15	3	BA				
18F539	TE1054	20	3	BA				
18F501	TE1055	25	3	BA				
18F000	TE1055.5	30	3	BA				
18F542	TE1058	50	3	BB	.93	.54	.43	.31
18F001	TE1058.5	65	3	BB				
18F544	TE1059.5	100	3	CB	1.02	.59	.48	.34
18F2930	TE1060.1	130	3	CB	1.02	.59	.48	.34
18F545	TE1061	150	3	CC				
18F546	TE1065	250	3	DC				
18F2928	TE1064	200	3	CC	1.08	.62	.50	.36
17F1900	TE1066	300	3	DC				
17F1901	TE1067	400	3	DD				
18F548	TE1068	500	3	DF	1.20	.70	.56	.40
18F002	TE1069.1	600	3	DF	1.20	.70	.56	.40
17F1902	TE1070.1	800	3	DG	1.29	.76	.61	.43
18F503	TE1080	1	6	BA	.90	.53	.43	.30
18F504	TE1081	2	6	BA	.90	.53	.43	.30
18F505	TE1082	3	6	BA				
18F506	TE1083	4	6	BA				
18F507	TE1084	5	6	BA				
18F549	TE1085	6	6	BA				
18F508	TE1086	8	6	BA	.90	.53	.43	.30
18F509	TE1087	10	6	BA				
18F510	TE1089	15	6	BA				
18F807	TE1090	20	6	BA				
18F511	TE1091	25	6	BB	.93	.54	.43	.31
18F808	TE1093	35	6	BB	.93	.54	.43	.31
18F004	TE1101.7	90	6	CB	1.02	.59	.48	.34
18F2933	TE1102	100	6	CC	1.08	.62	.50	.36
18F005	TE1102.5	140	6	CC	1.08	.62	.50	.36
18F810	TE1103	150	6	DC	1.08	.63	.51	.36
18F811	TE1104	200	6	DC	1.08	.63	.51	.36
18F812	TE1105	250	6	DD	1.08	.64	.51	.36
18F813	TE1106	300	6	DF	1.08	.64	.51	.36
18F007	TE1107	400	6	DF	1.20	.70	.56	.40
17F1904	TE1107.5	500	6	DG	1.29	.76	.61	.43
17F1903	TE1108.5	600	6	DG	1.29	.76	.61	.43
18F817	TE1120	1	12	BA				
18F818	TE1121	2	12	BA				
18F819	TE1122	3	12	BA				
18F820	TE1123	4	12	BA	.90	.53	.43	.30
18F821	TE1127.1	6	12	BA				
18F822	TE1127.3	8	12	BA				
18F2934	TE1128	10	12	BA				
18F823	TE1129	15	12	BA				
18F824	TE1130	20	12	BB				
18F825	TE1131	25	12	BB	.93	.54	.43	.31
18F2935	TE1132.1	30	12	BB				
18F827	TE1133	50	12	CB	1.02	.59	.48	.34
18F009	TE1133.5	60	12	CB	1.02	.59	.48	.34
18F828	TE1134	75	12	CC	1.08	.62	.50	.36
18F010	TE1134.5	90	12	DB	1.08	.63	.50	.36
18F829	TE1135	100	12	CC	1.08	.62	.50	.36
18F011	TE1135.5	140	12	DC	1.08	.63	.51	.36
18F830	TE1136	150	12	DD	1.08	.64	.51	.36
18F012	TE1136.5	190	12	DD	1.08	.64	.51	.36
18F831	TE1137	200	12	DF	1.20	.70	.56	.40
18F832	TE1138	250	12	DF	1.20	.70	.56	.40
18F013	TE1139	290	12	DF	1.20	.70	.56	.40
18F014	TE1140	390	12	DG	1.29	.76	.61	.43
18F833	TE1148	1	16	BA	.90	.53	.43	.30
18F834	TE1149	2	16	BA	.90	.53	.43	.30
18F835	TE1150	3	16	BA	.90	.53	.43	.30
18F520	TE1151	4	16	BA	.90	.53	.43	.30
18F836	TE1152	5	16	BA	.90	.53	.43	.30
18F837	TE1153	6	16	BA	.90	.53	.43	.30
18F838	TE1154	8	16	BA	.90	.53	.43	.30
18F521	TE1155	10	16	BA	.90	.53	.43	.30
18F839	TE1156	15	16	BB	.93	.54	.43	.31
18F522	TE1157	20	16	BB	.93	.54	.43	.31
18F840	TE1157.1	25	16	BB	.93	.54	.43	.31
18F523	TE1158	30	16	CB	1.02	.59	.48	.34
18F841	TE1159	35	16	CB	1.02	.59	.48	.34
18F842	TE1160	50	16	CB	1.02	.59	.48	.34
18F843	TE1161	75	16	CC	1.08	.62	.50	.36
18F015	TE1161.5	85	16	DB	1.08	.63	.50	.36
18F016	TE1161.7	90	16	CC	1.08	.62	.50	.36
18F844	TE1162	100	16	DC	1.08	.63	.51	.36
18F017	TE1162.5	130	16	DC	1.08	.63	.51	.36
18F845	TE1163	150	16	DD	1.08	.64	.51	.36
17F1905	TE1163.7	180	16	DD	1.08	.64	.51	.36
18F846	TE1164	200	16	DF	1.20	.70	.56	.40
17F1906	TE1164.5	250	16	DF	1.20	.70	.56	.40
18F020	TE1166	350	16	DG	1.29	.76	.61	.43
18F847	TE1200	1	25	BA	.90	.53	.43	.30
18F848	TE1201	2	25	BA	.90	.53	.43	.30
18F849	TE1201.1	3	25	BA	.90	.53	.43	.30
18F850	TE1201.2	4	25	BA	.90	.53	.43	.30
18F524	TE1202	5	25	BA	.90	.53	.43	.30
18F525	TE1203	6	25	BA	.90	.53	.43	.30
18F851	TE1203.5	8	25	BA	.90	.53	.43	.30
18F526	TE1204	10	25	BB	.93	.54	.43	.31
18F527	TE1205	15	25	BB	.93	.54	.43	.31
17F1907	TE1206	20	20	CB	1.02	.59	.48	.34
18F852	TE1207	25	25	CB	1.02	.59	.48	.34
18F021	TE1207.5	30	25	CB	1.02	.59	.48	.34
18F853	TE1208	35	25	CB	1.02	.59	.48	.34
18F854	TE1209	50	25	CC	1.08	.62	.50	.36
18F855	TE1210	75	25	DC	1.08	.63	.51	.36
18F856	TE1211	100	25	DD	1.08	.64	.51	.36
18F022	TE1212	150	25	DF	1.20	.70	.56	.40
18F023	TE1213	200	25	DG	1.29	.76	.61	.43
18F857	TE1300	1	50	BA	.90	.53	.43	.30
18F858	TE1301	2	50	BA	.90	.53	.43	.30
18F859	TE1302	3	50	BA	.90	.53	.43	.30
18F860	TE1302.1	4	50	BA	.90	.53	.43	.30
18F529	TE1303	5	50	BB	.93	.54	.43	.31
18F861	TE1303.1	6	50	BB	.93	.54	.43	.31
18F862	TE1303.3	8	50	BB	.93	.54	.43	.31
18F530	TE1304	10	50	CB	1.02	.59	.48	.34
18F863	TE1304.2	15	50	CB	1.02	.59	.48	.34
18F531	TE1305	20	50	CC	1.08	.62	.50	.36
18F024	TE1305.5	25	50	CC	1.08	.62	.50	.36
18F864	TE1306	35	50	DC	1.08	.63	.51	.36
18F865	TE1307	50	50	DD	1.08	.64	.51	.36
18F025	TE1308	75	50	DF	1.20	.70	.56	.40
18F026	TE1309	100	50	DG	1.29	.76	.61	.43
18F866	TE1400*	1	100	BA	.99	.58	.47	.33
18F867	TE1401*	2	100	BB	1.02	.59	.48	.34
18F868	TE1402*	3	100	CB	1.11	.65	.52	.38
18F869	TE1403*	4	100	CB	1.11	.65	.52	.38
18F870	TE1404*	5	100	CC	1.17	.69	.55	.39
18F871	TE1405*	6	100	CC	1.17	.69	.55	.39
18F872	TE1406*	8	100	DC	1.20	.70	.56	.40
18F873	TE1407*	10	100	DC	1.20	.70	.56	.40
18F874	TE1408*	15	100	DD	1.20	.70	.56	.40
18F875	TE1409*	20	100	DF	1.32	.77	.62	.44
18F027	TE1410*	25	100	DG	1.44	.83	.67	.48
18F028	TE1411*	30	100	DG	1.44	.83	.67	.48
18F876	TE1500*	1	150	BA	.99	.58	.47	.33
18F877	TE1501*	2	150	BB	1.02	.59	.48	.34
18F878	TE1502*	3	150	CB	1.11	.65	.52	.38
18F879	TE1503*	4	150	CC	1.17	.69	.55	.39
18F880	TE1504*	5	150	CC	1.17	.69	.55	.39
18F881	TE1505*	6	150	DC	1.20	.70	.56	.40
18F029	TE1505.5*	7	150	DC	1.20	.70	.56	.40
18F882	TE1506*	8	150	DC	1.20	.70	.56	.40
18F883	TE1507*	10	150	DD	1.20	.70	.56	.40
18F2936	TE1508.1*	15	150	DF	1.32	.77	.62	.44
18F030	TE1509*	20	150	DG	1.44	.83	.67	.48

TVA Atom Electrolytics

SPRAGUE
THE MARK OF RELIABILITY

- **Withstand High Temperature,**
- **High Ripple Current and**
- **High Surge Voltage**

The only small size electrolytic especially designed for 85°C (185°F) operation on voltages to 450 working volts D.C. Unit is engineered to withstand extra high temperature, high ripple current, plus high surge voltages. Metal case construction with outer insulating tube. Wt., 3 oz.

SINGLE UNITS 6 WVDC

Stock No.	TVA No.	Mfd.	D. x L.	1-49	50-99	100-249	250-499
18F955	1100	50	¼"x2 3/32"	.87	.59	.49	.35
18F957	1102	250	3/8"x3 1/32"	1.11	.77	.63	.45
18F958	1103	500	3/8"x1 17/32"	1.26	.88	.72	.52
18F959	1104	1000	½"x1 9/32"	1.74	1.21	.99	.71
18F960	1105	1500	½"x1 17/32"	1.83	1.27	1.04	.74
18F151	1106	2000	½"x1 25/32"	1.89	1.30	1.07	.77

12 WVDC

18F961	1130	100	5/16"x2 7/32"	.96	.68	.56	.40
18F962	1131	250	3/8"x1 9/32"	1.20	.82	.68	.48
18F153	1132	500	7/16"x1 17/32"	1.38	.97	.80	.57
18F963	1133	1000	½"x1 13/16"	1.68	1.17	.96	.69

16 WVDC

18F964	1160	100	3/8"x2 7/32"	.99	.68	.56	.40
18F965	1161	250	3/8"x1 9/32"	1.20	.82	.68	.48
18F966	1162	500	7/16"x1 17/32"	1.38	.97	.80	.57
18F228	1163	1000	½"x1 13/16"	1.74	1.21	.99	.71
18F2132	1170	2000	13/16"x1 25/32"	2.13	1.49	1.23	.88
18F2904	1175	3000	7/8"x1 25/32"	2.85	1.98	1.63	1.16

25 WVDC

18F967	1201	2	¼"x1 7/32"	.84	.59	.48	.34
18F968	1203	5	¼"x1 7/32"	.84	.59	.48	.34
18F154	1204	10	¼"x2 3/32"	.87	.59	.49	.35
18F2133	1204.5	20	5/16"x2 3/32"	.87	.61	.50	.36
18F155	1205	25	5/16"x2 3/32"	.87	.61	.50	.36
18F156	1206	50	5/16"x2 7/32"	.90	.63	.52	.37
18F157	1207	100	3/8"x3 1/32"	1.11	.77	.64	.46
18F2905	1207.5	150	3/8"x1 9/32"	1.20	.83	.68	.49
18F969	1208	250	7/16"x1 9/32"	1.56	1.09	.90	.64
18F159	1209	500	½"x1 9/16"	2.04	1.41	1.16	.83
18F2134	1211	1000	13/16"x1 21/32"	3.87	2.70	2.22	1.58

50 WVDC

18F970	1300	1	¼"x1 7/32"	.84	.59	.48	.34
18F971	1301	2	¼"x1 7/32"	.84	.59	.48	.34
18F972	1303	5	¼"x2 3/32"	.87	.59	.49	.35
18F163	1304	10	5/16"x2 3/32"	.87	.61	.50	.36
18F2136	1305	15	5/16"x2 3/32"	.87	.61	.50	.36
18F973	1305.5	20	5/16"x2 7/32"	.90	.62	.51	.37
18F164	1306	25	5/16"x2 7/32"	.90	.62	.51	.37
18F165	1308	50	3/8"x3 1/32"	1.02	.70	.58	.41
18F166	1310	100	3/8"x1 17/32"	1.11	.77	.64	.46
18F974	1311	150	7/16"x1 17/32"	1.26	.88	.72	.52
18F229	1312	250	½"x5/16"	1.59	1.11	.91	.65
18F975	1315	500	¾"x1 21/32"	2.43	1.69	1.39	.99
18F2966	1316	1000	15/16"x1 25/32"	4.14	2.89	2.37	1.69
18F2967	1318	1500	15/16"x2 9/32"	4.92	3.44	2.83	2.02

150 WVDC

18F2137	1400	1	¼"x1 7/32"	.93	.64	.53	.38
18F976	1402	4	5/16"x2 7/32"	.99	.69	.57	.40
18F977	1403	5	5/16"x2 7/32"	.99	.69	.57	.40
18F978	1405	8	3/8"x2 7/32"	1.05	.73	.60	.43
18F222	1406	10	3/8"x3 1/32"	1.11	.77	.64	.46
18F979	1407	12	3/8"x1 9/32"	1.20	.82	.68	.48
18F980	1409	16	3/8"x1 17/32"	1.23	.85	.70	.50
18F175	1410	20	3/8"x1 17/32"	1.23	.85	.70	.50
18F981	1411	25	7/16"x1 9/32"	1.26	.88	.72	.52
18F167	1412	30	7/16"x1 17/32"	1.32	.92	.76	.54
18F176	1413	40	½"x1 17/32"	1.77	1.23	1.01	.72
18F230	1414	50	½"x1 13/16"	1.86	1.29	1.06	.76
18F223	1415	60	13/16"x1 13/32"	2.25	1.56	1.29	.92
18F168	1418	80	7/8"x1 13/32"	2.16	1.51	1.24	.89
18F231	1420	100	7/8"x1 21/32"	2.40	1.66	1.37	.98
18F224	1422	150	7/8"x2 9/32"	2.52	1.74	1.43	1.02
18F982	1423	200	1" x2 9/32"	3.06	2.13	1.75	1.25
18F2138	1424	250	1 1/8"x2 5/32"	4.53	3.15	2.59	1.85
18F983	1425	300	1 1/8"x2 1 1/16"	4.68	3.25	2.68	1.91

175 WVDC

18F2906	1430	80	13/16"x1 25/32"	2.13	1.48	1.22	.87

200 WVDC

18F984	1447	150	1" x2 5/32"	4.29	2.98	2.45	1.75
18F985	1480	200	1 1/8"x2 1 1/16"	4.86	3.38	2.78	1.98

250 WVDC

Stock No.	TVA No.	Mfd.	D. x L.	1-49	50-99	100-249	250-499
18F2968	1500	1	5/16"x2 3/32"	.96	.68	.56	.40
18F986	1501	4	3/8"x3 1/32"	1.08	.76	.63	.45
18F987	1503	8	7/16"x1 17/32"	1.38	.97	.80	.57
18F232	1504	10	7/16"x1 9/32"	1.41	.98	.81	.58
18F988	1505	12	7/16"x1 17/32"	1.44	.99	.82	.58
18F989	1507	16	½"x1 9/16"	1.77	1.23	1.01	.72
18F233	1508	20	½"x1 13/16"	1.74	1.21	.99	.71
18F990	1510	30	13/16"x1 13/32"	2.19	1.53	1.26	.90
18F234	1511	40	7/8"x1 13/32"	2.13	1.48	1.22	.87
18F991	1512	50	7/8"x1 21/32"	2.22	1.54	1.27	.90
18F992	1513	60	7/8"x1 25/32"	2.43	1.69	1.39	.99
18F2139	1522	100	1" x1 25/32"	2.79	1.95	1.61	1.15
18F2907	1528	200	1 1/4"x2 1 1/16"	5.19	3.61	2.97	2.12

300 WVDC

18F2969	1575	140	1" x3 5/32"	7.08	4.93	4.06	2.89
18F2908	1576	150	1 1/4"x2 1 1/16"	5.64	3.92	3.23	2.30
18F2142	1578	200	1 1/4"x3 5/32"	6.18	4.30	3.54	2.52

350 WVDC

18F994	1601	4	3/8"x1 9/32"	1.38	.97	.80	.57
18F995	1603	8	7/16"x1 17/32"	1.44	.99	.82	.58
18F996	1604	10	½"x1 9/16"	1.77	1.23	1.01	.72
18F998	1607	16	½"x1 13/16"	1.86	1.29	1.06	.76
18F999	1608	20	¾"x1 21/32"	2.13	1.48	1.22	.87
18F1529	1610	30	7/8"x1 21/32"	2.34	1.63	1.34	.96
18F1530	1611	40	7/8"x1 25/32"	2.49	1.73	1.42	1.01
18F1531	1613	60	15/16"x2 5/32"	2.76	1.92	1.58	1.13
18F2144	1620	100	1" x2 21/32"	3.84	2.68	2.20	1.57
18F2909	1622	150	1 1/4"x2 1 1/16"	4.71	3.28	2.70	1.93
18F2910	1624	200	1 1/4"x3 5/32"	6.84	4.76	3.92	2.79

400 WVDC (Nonpolarized)

18F1532	1650	6	½"x1 9/16"	1.50	1.04	.86	.61
18F2143	1652	10	½"x1 13/16"	1.68	1.17	.96	.69

450 WVDC

18F1533	1700	1	3/8"x2 7/32"	1.05	.73	.60	.43
18F1534	1701	2	3/8"x1 9/32"	1.20	.82	.68	.48
18F1535	1702	4	7/16"x1 17/32"	1.32	.91	.75	.54
18F2146	1703	5	½"x1 5/16"	1.47	1.02	.84	.60
18F225	1704	8	½"x1 13/16"	1.86	1.29	1.06	.76
18F169	1705	10	½"x1 13/16"	1.86	1.29	1.06	.76
18F1536	1706	12	¾"x1 21/32"	1.92	1.33	1.09	.78
18F187	1708	16	7/8"x1 21/32"	2.31	1.60	1.32	.94
18F170	1709	20	13/16"x2 5/32"	2.31	1.60	1.32	.94
18F171	1711	30	1" x1 25/32"	2.49	1.73	1.42	1.01
18F172	1712	40	15/16"x2 13/32"	2.52	1.74	1.43	1.02
18F226	1713	50	1 1/8"x2 5/32"	3.66	2.55	2.10	1.49
18F227	1714	60	1 1/8"x2 9/32"	3.66	2.55	2.10	1.49
18F235	1716	80	1" x3 21/32"	3.69	2.58	2.12	1.51
18F1537	1718	100	1 1/4"x3 5/32"	5.31	3.70	3.05	2.17
18F2911	1719	150	1 3/8"x3 1 1/16"	7.74	5.34	4.44	3.16
18F2912	1720	200	1 3/8"x4 5/32"	7.77	5.36	4.46	3.18

500 WVDC

18F236	1902	8	¾"x1 21/32"	2.04	1.42	1.17	.83
18F238	1906	20	7/8"x2 5/32"	2.64	1.83	1.51	1.08
18F2147	1908	40	1" x2 13/32"	3.24	2.26	1.86	1.32

600 WVDC

18F240	1962	8	1 1/16"x2 7/8"	5.46	3.81	3.13	2.23
18F241	1963	10	1 1/16"x3 9/16"	5.61	3.91	3.22	2.29
18F242	1965	16	1 1/16"x4 3/16"	6.03	4.21	3.46	2.47
18F243	1966	20	1 1/16"x3 7/8"	6.42	4.47	3.68	2.62

DUAL UNITS (COMMON NEGATIVE) 150-150 WVDC

18F173	2428	20-20	¾"x1 7/16"	3.87	2.70	2.21	1.58
18F188	2434	30-30	7/8"x1 7/16"	3.84	2.68	2.20	1.57
18F1546	2438	40-20	7/8"x1 7/16"	3.78	2.64	2.17	1.54
18F178	2445	40-40	7/8"x1 9/16"	3.84	2.68	2.20	1.57
18F185	2450	50-30	7/8"x1 9/16"	3.84	2.68	2.20	1.56
18F1548	2453	50-50	7/8"x1 5/16"	4.14	2.90	2.38	1.69
18F1549	2460	80-30	7/8"x2 3/16"	4.38	3.06	2.51	1.79
18F1550	2461	80-40	7/8"x2 7/16"	4.32	3.02	2.48	1.76
18F1551	2462	80-50	7/8"x2 7/16"	4.41	3.08	2.53	1.80
18F036	2463	100-50	1" x2 1 1/16"	4.38	3.07	2.52	1.79

450-450 WVDC

18F179	2720	8-8	15/16"x1 13/16"	3.96	2.77	2.27	1.62
18F174	2722	10-10	7/8"x1 5/16"	4.17	2.92	2.40	1.71
18F180	2730	20-20	7/8"x2 1 1/16"	4.65	3.25	2.67	1.90
18F038	2735	30-30	1" x3 3/16"	5.52	3.86	3.17	2.25
18F181	2740	40-40	1" x3 5/16"	6.39	4.47	3.67	2.61

TRIPLE UNITS 150-150-150 WVDC

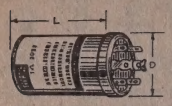
18F041	3448	40-30-20	7/8"x2 3/16"	4.89	3.42	2.81	2.00
18F042	3450	40-40-20	7/8"x2 7/16"	5.01	3.51	2.88	2.05
18F045	3455	80-40-20	1" x2 5/16"	5.19	3.64	2.99	2.12
18F046	3456	80-40-40	1" x2 5/16"	5.31	3.71	3.04	2.16

7

SPRAGUE
THE MARK OF RELIABILITY

Capacitors

TWIST LOK ELECTROLYTIC



Withstand extremely high temperatures, ripple current and surge voltages. Self-mounting with twist prong tabs that go through chassis or connect to washer for above-chassis mounting. For 85°C operation up to 450 Working Volts DC. Hermetically sealed in aluminum cans for long life and dependable performance in TV, radio, and Hi-Fi.

CASE SIZES

A-1⅜x2″	F-1x2½″	K-1⅜x3½″
B-¾-x2″	G-1x3″	L-1x3½″
C-1x1¾″	H-1⅜x3″	M-1⅜x4″
D-1⅜x2½″	I-1⅜x5″	P-1x1½″
E-1x2″	J-1⅜x4″	R-1⅜x4½″

TVL—SINGLE UNITS

Stock No.	TVL No.	μF	VDC	Size	1-24	25-49	50-99	100-249
18F550	1168	2000	15	A	3.37	2.31	1.79	1.15
18F1603	1220	500	25	P	2.24	1.53	1.23	.88
18F552	1230	1000	25	A	3.24	2.18	1.79	1.14
18F554	1330	500	50	A	3.69	2.19	1.75	1.25
18F2970	1338	1000	50	D	3.60	2.12	1.70	1.21
18F2971	1341	1500	50	D	4.20	3.27	2.62	1.65
18F557	1415	50	150	P	2.07	1.59	1.27	.91
18F559	1423	100	150	P	2.31	1.76	1.41	1.00
18F561	1431	200	150	A	3.32	2.32	1.86	1.32
18F562	1434	300	150	A	3.21	2.48	1.99	1.42
18F668	1509	20	250	E	2.52	2.52	2.52	2.52
18F684	1519	40	250	E	2.34	1.65	1.32	.94
18F1782	1535	100	250	G	2.96	2.07	1.66	1.18
18F1783	1540	150	250	D	3.42	2.42	1.93	1.38
18F2973	1541	160	250	D	3.69	2.85	2.29	1.63
18F2974	1541.1	160	250	L	3.46	2.68	2.14	1.53
18F690	1547	200	250	D	4.20	2.65	2.12	1.51
18F566	1584	150	300	K	3.80	2.69	2.15	1.54
18F692	1590	250	300	J	4.45	3.16	2.53	1.80
18F669	1617	30	350	E	2.43	2.43	2.43	2.43
18F567	1621	40	350	E	2.55	1.76	1.41	1.01
18F568	1638	125	350	D	3.96	2.81	2.25	1.60
18F693	1642	150	350	D	3.80	2.69	2.12	1.53
18F569	1705	10	450	P	2.29	1.59	1.27	.91
18F570	1714	20	450	E	3.37	2.56	2.04	1.46
18F571	1720	30	450	F	2.36	1.81	1.45	1.03
18F572	1725	40	450	F	2.40	1.83	1.47	1.05
18F573	1735	80	450	D	3.52	2.72	2.18	1.55
18F574	1760	125	450	J	4.56	3.23	2.58	1.84
18F578	1940	10	500	P	2.64	2.64	2.64	2.64
18F670	1947	30	500	F	2.92	2.05	1.64	1.17
18F1604	1950	40	500	F	3.10	2.21	1.77	1.26
18F694	1958	80	500	D	3.87	2.76	2.21	1.58
18F687	1960	90	500	H	4.35	3.35	2.68	1.91

TVLU—SINGLE UNITS

Stock No.	TVLU No.	μF	VDC	Size	1-24	25-49	50-99	100-249
15F2813	1090	500-1000	25	P	2.46	1.85	1.48	1.09
15F2814	1093	2350-4700	25	F	2.97	2.24	1.79	1.32
15F2815	1095	3500-5000	25	A	3.96	2.99	2.39	1.76
15F2816	1097	5000-10000	25	D	4.26	3.22	2.58	1.89
15F2817	1101	5000-10000	45	R	7.26	5.43	4.39	3.23
15F2818	1108	50-100	50	B	2.28	1.71	1.37	1.01
15F2819	1115	250-500	50	C	2.43	1.84	1.47	1.08
15F2820	1120	1000-2000	50	F	3.15	2.39	1.91	1.41
15F2821	1125	1500-3000	50	A	4.23	3.19	2.56	1.88
15F2822	1129	2500-5000	50	H	4.89	3.70	2.96	2.18
15F2823	1135	500-1000	70	A	3.45	2.61	2.09	1.54
15F2824	1150	450-800	160	K	6.27	4.75	3.80	2.79
15F2825	1160	800-1400	175	I	8.70	6.52	5.22	3.87
15F2826	1230	100-160	200	E	3.21	2.42	1.94	1.43
15F2827	1235	130-220	200	G	3.57	2.71	2.17	1.59
15F2828	1240	200-320	200	A	4.53	3.42	2.74	2.01
15F2829	1245	250-400	200	D	5.07	3.83	3.07	2.25
15F2830	1246	265-470	200	D	4.86	3.68	2.94	2.16
15F2831	1250	500-750	200	J	7.11	5.33	4.31	3.17
15F2832	1252	600-1000	200	R	7.89	5.91	4.78	3.51
15F2833	1265	40-60	250	P	2.64	2.00	1.60	1.18
15F2834	1330	50-80	300	E	2.94	2.23	1.78	1.31
15F2835	1340	100-160	300	G	3.87	2.94	2.35	1.73
15F2836	1420	20-40	350	P	2.67	2.02	1.62	1.19
15F2837	1440	100-160	350	A	4.47	3.37	2.70	1.98
15F2838	1450	200-320	350	H	6.21	4.70	3.76	2.76
15F2839	1550	40-60	450	F	3.30	2.49	2.00	1.47
15F2840	1555	60-90	450	A	4.11	3.12	2.49	1.83
13F3536	1580	140-200	450	J	6.72	5.03	4.07	2.99
13F3537	1625	8-20	475	P	3.00	2.26	1.81	1.33
13F3538	1750	60-90	500	D	4.89	3.70	2.96	2.18
13F3539	1775	100-150	500	H	6.15	4.65	3.72	2.73
13F3540	1850	4-10	525	P	2.73	2.06	1.65	1.21
13F3541	1920	20-40	525	F	3.75	2.84	2.27	1.67
13F3542	1930	30-50	525	A	4.23	3.19	2.56	1.88

TVL—DUAL UNITS

Stock No.	TVL No.	μF	VDC	Size	1-24	25-49	50-99	100-249
18F1605	2160	1000-1000	15-15	F	2.97	2.97	2.97	2.97
18F1786	2641	100-100	350-350	H	6.25	3.46	2.77	1.97
18F598	2750	10-10	450-450	E	2.40	1.85	1.48	1.06
18F600	2755	20-20	450-450	F	2.74	2.10	1.68	1.20
18F601	2759	30-30	450-450	A	3.40	2.63	2.11	1.50
18F602	2764	40-40	450-450	D	4.25	2.98	2.38	1.70

TVL—TRIPLE UNITS

Stock No.	TVL No.	μF	VDC	Size	1-24	25-49	50-99	100-249
18F635	3739	20-20-20	450-450-25	G	3.30	2.35	1.88	1.34
18F642	3776	10-10-10	450-450-450	E	2.90	2.23	1.79	1.28
18F644	3780	20-20-20	450-450-450	A	3.61	2.56	2.05	1.46
18F647	3786	40-40-20	450-450-450	D	4.23	3.01	2.41	1.72
18F648	3787	40-40-40	450-450-450	H	4.67	3.31	2.65	1.89
18F681	3793	80-40-20	450-450-450	H	5.38	3.82	3.06	2.18
18F682	3952	10-10-10	500-500-500	F	3.69	3.69	3.69	3.69

TVL—QUADRUPLE UNITS

18F664	4760	10-10-10-10	4x450	A	3.59	2.79	2.23	1.59
18F665	4763	20-20-20-20	4x450	D	5.57	3.66	2.94	1.99
18F1792	4773	40-40-20-20	4x450	D	6.04	3.97	3.07	2.08
18F699	4775	40-40-40-40	4x450	K	6.64	4.31	3.38	2.31

MINIATURIZED DISC CERAMIC

Tiny ceramic capacitors for by-pass and coupling application. Low self inductance and flat plate construction permits higher self-resonant frequency and high by-pass efficiency in all TV and transistorized circuitry. Designed for continuous operation at 85°C. Dia. .275 to .655. Tol. ±20%.

Stock No.	Type	Volts	μF	1-99	100-249	250-499	500-999
18F932	TG-D50	100	.005	.15	.10	.09	.07
18F933	TG-S10	100	.01	.15	.09	.08	.06
18F934	TG-S20	100	.02	.15	.11	.10	.08
18F935	TG-S25	100	.025	.18	.13	.12	.09
18F936	TG-S30	100	.03	.18	.13	.12	.09
18F937	TG-S50	100	.05	.39	.29	.26	.19
18F938	TG-P10	100	.1	.51	.38	.34	.26

TYPE 2DF METALLIZED ORANGE DROP-CAPACITORS

Ideal for color TV replacement. Fits easily into tight spots because of their small size. Extremely high insulation resistance. Insures peak performance at temps. up to +85°. Radial leads are extra long for point-to-point wiring and crimped for printed board insertion. Double dipped in orange epoxy resin, for protection against heat and humidity. Tol. ±10%.

TYPE 2DF-200WVDC

Stock No.	μF	Size	Type	1-24	25-49	50-99	100-499
18F2914	.22	⅜x 7/16x13/16	2DF-P22	.81	.52	.41	.31
18F2916	.47	13/16x 9/16x13/16	2DF-P47	1.02	.64	.50	.38
18F2918	1.0	13/16x 9/16x1¼	2DF-M1	1.14	.86	.67	.51
18F2919	1.5	⅞ x ⅝ x1¼	2DF-M1.5	1.41	1.09	.85	.65
18F2920	2.0	1 5/16x1 1/16x1¼	2DF-M2	1.59	1.24	.96	.73
18F2921	2.5	1 1/16x1 3/16x1¼	2DF-M2.5	1.77	1.35	1.05	.80
18F2922	3.0	1 5/16x1 1/16x1⅝	2DF-M3	1.68	1.47	1.14	.87
18F2924	4.0	1 1/16x1 3/16x1⅝	2DF-M4	2.19	1.67	1.30	.99
18F2925	4.5	1⅛x ⅞ x1⅝	2DF-M4.5	2.31	1.78	1.39	1.05
18F2926	5.0	1⅛x ⅞ x1⅝	2DF-M5	2.43	1.87	1.45	1.11
18F2927	5.5	1 3/16x1 5/16x1⅝	2DF-M5.5	2.67	2.07	1.61	1.22

HIGH-VOLTAGE DOORKNOB CERAMIC

Female threads for interchangeable screw-in terminals. Molded plastic, guard rings lengthen surface creepage path.
Type 20DK-T5. Complete with 7 term. 1″ dia x 3½″.

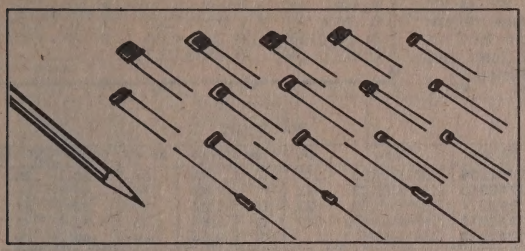
Stock No.	Type	Term	Size	pF	KV	NET
18F2762	20DK-T5	7	1.000x1.222″	500	20	4.62
18F2763	30DK-T5	2	1.000x1.312″	500	30	4.83

7

Sprague Ceramic Capacitors

SPRAGUE
THE MARK OF RELIABILITY

FORMULATION Z5U MONOLYTHIC CERAMIC CAPACITORS



For transistorized circuitry. Provide high capacitance in small physical size. Solid homogeneous blocks are protected against moisture and mechanical damage by a tough resin coating. Well suited for use in the HF, VHF and UHF ranges through 1000 MHz. Radial leads. ±20% tolerance.

SIZE CHART

A. .390″ x .200″	C. .500″ x .200″	E. .500″ x .400″
B. .400″ x .400″	D. .500″ x .296″	F. .500″ x .500″

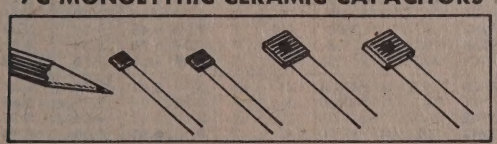
TYPE 3C 50 WVDC

Stk. No.	Type	Size Code	μF	1-49	50-99	100-249	250-499
47F2009	3CZ5U103X0050C5	A	.01	.37	.28	.21	.19
47F2010	3CZ5U223X0050C5	A	.022	.41	.31	.23	.21
47F2011	3CZ5U333X0050C5	A	.033	.41	.31	.23	.21
47F2012	3CZ5U473X0050C5	A	.047	.41	.31	.23	.21
47F2013	3CZ5U104X0050C5	A	.1	.48	.36	.27	.24
47F2014	3CZ5U154X0050C5	A	.15	.60	.45	.34	.30
47F2015	3CZ5U224X0050C5	A	.22	.73	.55	.41	.37
47F2016	3CZ5U334X0050C5	A	.33	.83	.62	.47	.42
47F2017	3CZ5U474X0050C5	A	.47	.88	.66	.50	.44
47F2018	3CZ5U684X0050C5	B	.68	1.26	.94	.71	.63

TYPE 5C 50 WVDC

Stk. No.	Type	Size Code	μF	1-49	50-99	100-249	250-499
47F2019	5CZ5U104X0050C5	C	.1	.52	.39	.29	.26
47F2020	5CZ5U224X0050C5	C	.22	.74	.56	.42	.37
47F2021	5CZ5U334X0050C5	C	.33	.84	.63	.48	.42
47F2022	5CZ5U474X0050C5	C	.47	.90	.68	.51	.45
47F2023	5CZ5U684X0050C5	C	.68	1.13	.85	.64	.57
47F2024	5CZ5U105X0050C5	D	1.0	1.66	1.24	.93	.83
47F2025	5CZ5U155X0050C5	E	1.5	2.50	1.87	1.41	1.25
47F2026	5CZ5U225X0050C5	F	2.2	3.48	2.61	1.96	1.74

7C MONOLYTHIC CERAMIC CAPACITORS



The radial lead style is especially designed for printed wiring board mounting and the complete unit is provided with stand off "feet" for this purpose. Units are dipped in an insulating phenolic resin which provides moisture protection. Temp. range −55C to +85°C. 50 WVDC. ±20% tolerance.

SIZE .390x.275x.160

Stock No.	Type	μF	1-24	25-49	50-99	100-499
47F120	7CZ5U103X0050D1	.01	.46	.35	.26	.23
47F2027	7CZ5U153X0050D1	.015	.46	.35	.26	.23
47F121	7CZ5U223X0050D1	.022	.46	.35	.26	.23
47F122	7CZ5U333X0050D1	.033	.46	.35	.26	.23
47F123	7CZ5U473X0050D1	.047	.46	.35	.26	.23
47F124	7CZ5U683X0050D1	.068	.48	.36	.27	.24
47F125	7CZ5U104X0050D1	0.1	.53	.40	.30	.27
47F2028	7CZ5U154X0050D1	.15	.66	.49	.37	.33
47F126	7CZ5U224X0050D1	.22	.78	.59	.44	.39

SIZE .535x.550x.160 except (*) .535x.550x.260

Stock No.	Type	μF	1-24	25-49	50-99	100-499
47F127	7CZ5U334X0050E1	.33	.90	.67	.51	.45
47F128	7CZ5U474X0050E1	.47	.95	.71	.54	.48
47F129	7CZ5U684X0050E2	.68	1.30	.98	.73	.65
47F130	7CZ5U105X0050E2	1.0	1.68	1.26	.95	.84
47F131	7CZ5U155X0050E3	1.5	2.52	1.89	1.42	1.26
47F132	7CZ5U225X0050E4	2.2*	3.50	2.63	1.97	1.75

SERIES 5GA CERAMIC CAPACITORS

Low self-inductance of silvered flat-plate design means very high by-pass efficiency in all TV circuits. Designed for 85°C (185°F) continuous operation. Moisture proof coating. Tol. ±20%. 1000 WVDC, except (*) 500 W VDC.

SERIES 5GA PRICES

Mmfd.	1-99	100-249	250-499	500-999
5 thru 820	.15	.10	.09	.07

Stk. No.	Type	pF	Stk. No.	Type	Mmfd.
18F2675	5GA-V50	5	18F2694	5GA-T12	120
18F2676	5GA-V75	7.5	18F2695	5GA-T15	150
18F2677	5GA-Q10	10	18F2696	5GA-T18	180
18F2678	5GA-Q12	12	18F2697	5GA-T20	200
18F2679	5GA-Q15	15	18F2698	5GA-T22	220
18F2680	5GA-Q20	20	18F2699	5GA-T25	250
18F2681	5GA-Q22	22	18F2700	5GA-T27	270
18F2682	5GA-Q25	25	18F2701	5GA-T30	300
18F2632	5GA-Q27	27	18F2702	5GA-T33	330
18F2684	5GA-Q30	30	18F2703	5GA-T36	360
18F2685	5GA-Q33	33	18F2704	5GA-T39	390
18F2686	5GA-Q39	39	18F2705	5GA-T47	470
18F2687	5GA-Q47	47	18F2706	5GA-T50	500
18F2688	5GA-Q50	50	18F2707	5GA-T56	560
18F2689	5GA-Q56	56	18F2708	5GA-T68	680
18F2690	5GA-Q68	68	18F2709	5GA-T75	750
17F2691	5GA-Q75	75	18F2710	5GA-T82	820
18F2692	5GA-Q82	82			
18F2693	5GA-T10	100			

SERIES 5GA PRICES

Mfd.	1-99	100-249	250-499	500-999
.001-.0039	.15	.10	.09	.07
.004-.0047	.15	.11	.09	.07
.005	.15	.11	.09	.07
.01	.21	.16	.14	.11
.015	.30	.21	.19	.14
.02	.33	.24	.21	.16
.025	.24	.18	.16	.12
.04	.48	.36	.32	.24
.05	.48	.36	.32	.24
.1	.84	.62	.55	.42

Stk. No.	Type	μF	Stk. No.	Type	Mfd.
18F2711	5GA-D10	.001	18F2723	5GA-D40	.004
18F2712	5GA-D12	.0012	18F2725	5GA-D47	.0047
18F2714	5GA-D15	.0015	18F2726	5GA-D50	.005
18F2715	5GA-D18	.0018	18F2727	5GA-S10	.01
18F2716	5GA-D20	.002	18F2728	5GA-S15	.015
18F2717	5GA-D22	.0022	18F2729	5GA-S20	.02
18F2718	5GA-D25	.0025	18F2730	5GA-S25*	.025
18F2719	5GA-D27	.0027	18F2731	5GA-S40*	.04
18F2720	5GA-D30	.003	18F2732	5GA-S50*	.05
18F2721	5GA-D33	.0033	18F2733	5GA-P10*	.1
18F2722	5GA-D39	.0039			

HYPERCON CERAMIC DISCS

Ultra-miniature. Designed for by-pass and coupling applications and low voltage use where high capacitance and low power factor are important considerations. Superior to electrolytic capacitors of similar capacitance value because of the very low power factor of Hypercon Capacitors, Capacitance Tolerance: GMV.

25WVDC, CAP. TOL. +50, −20%

Stock Number	Type	μF	Size D. x T. (In.)	EACH 1-99	100-249	250-499	500-999
13F3600	HY-725	.022	.290 x .156	.18	.13	.11	.09
13F3601	HY-730	.033	.350 x .156	.18	.13	.11	.09
13F3602	HY-735	.047	.410 x .156	.21	.15	.13	.10
13F3603	HY-740	.068	.410 x .156	.21	.15	.13	.10
13F3604	HY-750	.1	.480 x .156	.24	.18	.16	.12
13F3605	HY-765	.15	.610 x .156	.36	.26	.23	.17
13F3606	HY-770	.22	.670 x .156	.39	.29	.25	.19
13F3607	HY-775	.33	.870 x .156	.60	.45	.40	.30
13F3608	HY-780	.47	.700 x .187	.75	.56	.49	.37

25 WVDC, CAP. TOL. ±20%

Stock Number	Type	μF	Size D. x T. (In.)	EACH 1-99	100-249	250-499	500-999
13F3609	HY-820	.01	.250 x .156	.18	.14	.12	.09
13F3610	HY-825	.022	.290 x .156	.21	.14	.13	.10
13F3611	HY-830	.033	.350 x .156	.21	.14	.13	.10
13F3612	HY-835	.047	.410 x .156	.24	.18	.16	.12
13F3613	HY-840	.068	.410 x .156	.24	.18	.16	.12
13F3614	HY-850	.1	.480 x .156	.27	.20	.18	.14
13F3615	HY-870	.22	.670 x .156	.48	.35	.31	.24

25 WVDC, CAP. TOL. +80, −20%

47F112	HY-510	.0047	.290 x .156	.18	.14	.12	.09
18F1987	HY-520	.01	.250 x .156	.18	.12	.11	.08
18F1988	HY-525	.022	.290 x .156	.18	.13	.11	.09
18F1989	HY-530	.037	.350 x .156	.18	.13	.11	.09
18F1990	HY-535	.047	.410 x .156	.21	.14	.13	.10
47F113	HY-540	.068	.410 x .156	.21	.14	.13	.10
18F1991	HY-550	.1	.480 x .156	.24	.17	.15	.11

7

Tubular Capacitors and Filters

TYPE 715P FILMITE® 'L' ORANGE DROP DIPPED TUBULARS

- Linear negative temperature coefficient
- High AC current flow
- Flame-retardant epoxy coating

Polypropylene film capacitors are ideal where high AC current flow is needed. Negative temperature coefficient of 180 ppm/°C allows for high circuit stability compensation. Tolerance of ±5% from 25°C to 105°C. Leads are 1.250" long and crimped for constant spacing.

SIZE CHART D x L

A .400 x .750	G .550 x 1.300	P .750 x 1.700
B .450 x .750	H .600 x 1.300	Q .800 x 1.700
C .450 x .950	K .650 x 1.300	R .850 x 1.700
D .500 x .950	L .700 x 1.300	S .900 x 1.700
E .500 x 1.300	M .700 x 1.700	T .950 x 1.700
F .550 x .950	N .750 x 1.300	

400 WVDC

Stk. No.	Type	µF	Size	1-24	25-49	50-99	100-249
17F2202	715P10354JD3	.01	A	.48	.40	.23	.19
17F2203	715P15354JD3	.015	B	.54	.44	.26	.21
17F2204	715P33354KD3	.033	D	.63	.51	.30	.24
17F2205	715P15454LD3	.15	K	.93	.78	.45	.36
17F2206	715P22454MD3	.22	M	1.05	.88	.51	.41
17F2207	715P33454MD3	.33	Q	1.50	1.23	.72	.58
17F2208	715P47454MD3	.47	S	1.71	1.42	.83	.67

600 WVDC

15F2700	715P10256JD3	.001	A	.45	.36	.21	.17
15F2701	715P15256JD3	.0015	A	.45	.36	.21	.17
15F2702	715P22256JD3	.0022	A	.45	.36	.21	.17
15F2703	715P33256JD3	.0033	A	.45	.38	.22	.18
15F2704	715P47256JD3	.0047	B	.45	.38	.22	.18
15F2705	715P68256JD3	.0068	B	.48	.40	.23	.19
15F2706	715P10356KD3	.01	C	.54	.44	.26	.21
15F2707	715P15356KD3	.015	D	.54	.44	.26	.21
15F2708	715P22356KD3	.022	F	.57	.48	.28	.23
15F2709	715P47356LD3	.047	H	.96	.79	.46	.37
15F2710	715P68356LD3	.068	K	.93	.78	.45	.36
15F2711	715P10456LD3	.1	N	1.05	.88	.51	.41
15F2712	715P15456MD3	.15	P	1.50	1.23	.72	.58
15F2713	715P22456MD3	.22	R	1.71	1.42	.83	.67

800 WVDC

Stk. No.	Type	µF	Size	1-24	25-49	50-99	100-249
17F2209	715P15358LD3	.015	G	.78	.64	.38	.30
17F2210	715P22358LD3	.022	H	.93	.78	.45	.36
17F2211	715P33358LD3	.033	L	1.20	.99	.58	.47
17F2212	715P68358MD3	.068	Q	1.50	1.23	.72	.58
17F2213	715P10458MD3	.1	S	2.04	1.69	.99	.79

1200 WVDC

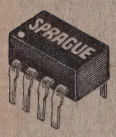
17F2214	715P153512LD3	.015	K	1.20	.99	.58	.47
17F2215	715P473512MD3	.047	R	1.71	1.42	.83	.67

1600 WVDC

15F2714	715P222516LD3	.0022	E	.78	.64	.38	.30
15F2715	715P332516LD3	.0033	G	.87	.73	.43	.34
15F2716	715P472516LD3	.0047	H	.87	.73	.43	.34
15F2717	715P682516LD3	.0068	K	.93	.78	.45	.36
15F2718	715P103516LD3	.01	L	1.20	.99	.58	.47
15F2719	715P153516MD3	.015	P	1.41	1.17	.69	.55
15F2720	715P223516MD3	.022	R	2.04	1.69	.99	.79
15F2721	715P333516MD3	.033	T	2.49	2.07	1.21	.97

7

DIP MONOLYTHIC® CERAMIC CAPACITORS



- Compatible with DIP ICs
- Superior Insertion Protection
- Ideal for Breadboarding
- Reliable in Severe Environments

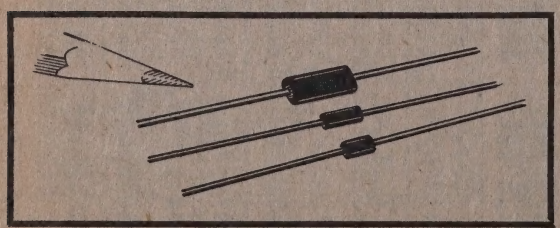
Separate capacitor sections are useful for by-pass and coupling applications. Standard pinspacing of .100" allows end-to-end placement in standard sockets, ideal for breadboard. Rated at 50 WVDC from −55° to 85°C with a tolerance of 10% if the eleventh letter of the type number is "K" and 20% if it is "M". **Series 923** is one section with two pin and **Series 926** is eight section, 16 pins.

DIMENSIONS (in inches)

Width	Length	Size Code	Body Height	Seated Height
.260	.090	B	.135	.175
.260	.190	D	.162	.185
.260	.450			
.260	.750	F	.250	.275
.260	.850			

Stock No.	Type	Capac. (µF)	Size Code	EACH 1-49	50-99	100-249	250-499
65F925	923CX7R102K050B	.001	B	.55	.41	.31	.28
65F926	923CX7R103K050B	.01	B	.56	.42	.32	.28
65F927	923CX7R473K050B	.047	B	.80	.60	.45	.40
65F928	923CX7R104K050B	.1	B	.99	.74	.56	.50
65F929	923CZ5U103M050B	.01	B	.54	.40	.30	.27
65F930	923CZ5U473M050B	.047	B	.56	.42	.32	.28
65F931	923CZ5U104M050B	.1	B	.58	.44	.33	.29
65F932	923CZ5U224M050B	.22	B	.78	.58	.44	.39
65F933	923CZ5U474M050D	.47	D	.90	.68	.51	.45
65F934	923CZ5U105M050F	1.0	F	1.63	1.22	.92	.82
65F935	926CX7R102K050B	.001	B	5.00	3.75	2.81	2.50
65F936	926CX7R103K050B	.01	B	5.12	3.84	2.88	2.56
65F937	926CX7R473K050B	.047	B	7.28	5.46	4.10	3.64
65F938	926CX7R104K050B	.1	B	9.04	6.78	5.09	4.52
65F939	926CZ5U103M050B	.01	B	4.88	3.66	2.75	2.44
65F940	926CZ5U473M050B	.01	B	5.08	3.81	2.86	2.54
65F941	926CZ5U104M050B	.1	B	5.32	3.99	2.99	2.66
65F942	926CZ5U224M050B	.22	B	7.12	5.34	4.01	3.56
65F943	926CZ5U474M050D	.47	D	8.28	6.21	4.66	4.14

292 C MOLDED MONOLYTHIC® CERAMIC CAPACITORS



- Indestructible
- Low-Cost and Reliable
- Miniature Size

DIMENSIONS

Case Code	D. x L. (inches)	D. x L. (mm)
B	.090 x .160	2.29 x 4.06
C	.090 x .250	2.29 x 6.35
E	.140 x .390	3.56 x 9.91

Axial-leaded capacitors made by spraying alternate layers of ceramic dielectric material and metallic electrodes and then heat-fusing them together. Formulation Z5U general application capacitors, well-suited for by-pass and other filtering jobs, have highest possible cap. in smallest case size.

Stock No.	Type (292CZ5U-)	µF	Size Code	EACH 1-24	25-49	50-99	100-499
65F944	103M050B	0.010	B	.34	.25	.19	.17
65F945	153M050B	0.015	B	.36	.27	.20	.18
65F946	223M050B	0.022	B	.37	.28	.21	.19
65F947	333M050B	0.033	B	.45	.34	.25	.23
65F948	473M050B	0.047	B	.45	.34	.25	.23
65F949	683M050C	0.068	C	.50	.38	.28	.25
65F950	104M050C	0.10	C	.54	.41	.31	.27
65F951	154M050E	0.15	E	.79	.59	.45	.40
65F952	224M050E	0.22	E	.87	.65	.49	.44
65F953	334M050E	0.33	E	1.16	.87	.66	.58
65F954	474M050E	0.47	E	1.28	.96	.72	.64
65F955	684M050E	0.68	E	1.32	1.32	.99	.74
65F956	105M050E	1.0	E	1.68	1.68	1.26	.95

Orange Drop Capacitors

SPRAGUE® THE MARK OF RELIABILITY

SIZE CHART

A 5/16 x 3/8 x 3/4	K 2 1/64 x 1 5/64 x 4 5/64	U 2 3/32 x 3/8 x 1 3/16	CC 2 1/32 x 2 7/64 x 1 3/16
B 2 1/32 x 7/16 x 3/4	L 1 1/32 x 1/4 x 4 5/64	V 3/4 x 2 7/64 x 1 3/16	DD 1 31/64 x 3 1/64 x 1 3/16
C 4 7/64 x 3 1/64 x 3/4	M 3/8 x 3 3/32 x 4 5/64	W 2 5/32 x 1 1/32 x 1 3/16	EE 1 x 4 7/64 x 1 3/16
D 1 31/64 x 3 5/64 x 3/4	N 1 7/32 x 2 1/64 x 4 5/64	X 2 3/32 x 2 7/64 x 1 3/16	FF 6 1/64 x 2 1/32 x 1 3/16
E 5 7/64 x 9/16 x 1 3/16	P 9/16 x 1 5/64 x 1 3/16	Y 2 7/32 x 1/2 x 1 3/16	GG 1 9/32 x 5/16 x 1 3/16
F 2 9/32 x 1 9/32 x 1 3/16	R 1 3/32 x 1/4 x 1 3/16	Z 1 5/64 x 2 7/32 x 1 3/16	HH 2 7/32 x 1 7/32 x 1 3/16
H 6 3/64 x 4 7/64 x 1 3/16	S 5/8 x 3/32 x 1 3/16	AA 1 9/32 x 9/32 x 1 3/16	KK 5 7/64 x 9/16 x 1 1/16
J 9/16 x 1 3/16 x 4 5/64	T 4 1/64 x 9/16 x 1 3/16	BB 2 1/32 x 1 1/32 x 1 3/16	

FILMITE® "E" ORANGE DROP CAPACITORS

Capacitors are wound from polyester film and thin gauge foil and are coated with epoxy. Capacitance tolerance is ±10%. Temp. range −40°C to 85°C. Insulation res 25000 megohm-microfarads at 25°C. Life test 250 hrs. at 85°C.

TYPE 225P 100 VOLTS DC

Stock No.	Mfd.	Size	Type	1-24	25-49	50-99	100-249
18F2561	.001	J	225P10291WD3				
18F2562	.0012	J	225P12291WD3				
18F2563	.0015	J	225P15291WD3				
18F2564	.0018	J	225P18291WD3				
18F2565	.0022	J	225P22291WD3				
18F2566	.0027	J	225P27291WD3				
18F2567	.0033	J	225P33291WD3				
18F2568	.0039	J	225P39291WD3				
18F2569	.0047	J	225P47291WD3				
18F2570	.0056	J	225P56291WD3	.32	.14	.13	.12
18F2571	.0068	J	225P68291WD3				
18F2572	.0082	J	225P82291WD3				
18F2573	.01	J	225P10391WD3				
18F2574	.012	J	225P12391WD3				
18F2575	.015	J	225P15391WD3				
18F2576	.018	J	225P18391WD3				
18F2577	.022	J	225P22391WD3				
18F2578	.027	K	225P27391WD3				
18F2579	.033	K	225P33391WD3				
18F2580	.039	L	225P39391WD3	.35	.16	.14	.14
18F2581	.047	L	225P47391WD3				
18F2582	.056	M	225P56391WD3	.36	.16	.15	.14
18F2583	.068	M	225P68391WD3	.36	.16	.15	.14
18F2584	.082	N	225P82391WD3	.36	.16	.15	.14
18F2585	.1	N	225P10491WD3	.38	.17	.15	.14
47F2000	.12	A	225P12491XD3	.49	.22	.20	.19
47F2001	.15	A	225P15491XD3	.49	.22	.20	.19
47F2002	.18	B	225P18491XD3	.57	.25	.23	.22
47F2003	.22	B	225P22491XD3	.57	.25	.23	.22
47F2004	.27	C	225P27491XD3	.69	.30	.28	.26
47F2005	.33	C	225P33491XD3	.69	.30	.28	.26
47F2006	.39	D	225P39491XD3	1.10	.48	.44	.41
47F2007	.47	D	225P47491XD3	1.10	.48	.44	.41
47F152	.56	E	225P56491YD3	1.24	.55	.50	.47
47F153	.68	F	225P68491YD3	1.24	.55	.50	.47
47F154	.82	FF	225P82491YD3	1.54	.68	.62	.58
47F155	1.0	H	225P10591YD3	1.54	.68	.62	.58

TYPE 225P 200 VOLTS DC

Stock No.	Mfd.	Size	Type	1-24	25-49	50-99	100-249
47F156	.001	P	225P10292XD3				
47F157	.0015	P	225P15292XD3				
47F158	.0022	P	225P22292XD3				
47F159	.0033	P	225P33292XD3	.37	.16	.15	.14
47F160	.0047	P	225P47292XD3				
47F161	.0068	R	225P68292XD3				
47F162	.01	R	225P10392XD3				
47F163	.015	R	225P15392XD3	.42	.18	.17	.16
47F164	.022	R	225P22392XD3				
47F165	.033	S	225P33392XD3				
47F166	.047	S	225P47392XD3	.45	.20	.18	.17
47F167	.068	T	225P68392XD3				
47F168	.1	U	225P10492XD3				
47F169	.15	V	225P15492XD3	.49	.22	.20	.19
47F170	.22	W	225P22492XD3	.57	.25	.23	.22
47F171	.33	X	225P33492XD3	.69	.30	.28	.26
47F133	.47	Y	225P47492XD3	1.10	.48	.44	.41
47F134	.68	Z	225P68492XD3	1.54	.68	.62	.58

TYPE 225P 400 VOLTS DC

Stock No.	Mfd.	Size	Type	1-24	25-49	50-99	100-249
47F135	.001	P	225P10294XD3				
47F136	.0015	P	225P15294XD3				
47F137	.0022	P	225P22294XD3				
47F138	.0033	P	225P33294XD3	.37	.16	.15	.14
47F139	.0047	P	225P47294XD3				
47F140	.0068	R	225P68294XD3				
47F141	.01	R	225P10394XD3				
47F142	.015	R	225P15394XD3	.39	.17	.16	.15
47F143	.022	AA	225P22394XD3	.39	.17	.16	.15
47F144	.033	GG	225P33394XD3	.45	.20	.18	.17
47F145	.047	BB	225P47394XD3	.45	.20	.18	.17
47F146	.068	CC	225P68394XD3	.49	.22	.20	.19
47F147	.1	DD	225P10494XD3	.57	.25	.23	.22
47F148	.15	HH	225P15494YD3	.69	.30	.28	.26
47F149	.22	KK	225P22494YD3	1.10	.48	.44	.41
47F150	.33	EE	225P33494YD3	1.54	.68	.62	.58
47F151	.47	Z	225P47494YD3	2.98	1.31	1.20	1.12

ORANGE DROP® DIPPED TUBULARS

Polyester film dielectric. Crimped-wire leads. Black stripe identifies outside foil. Double dipped in a bright orange epoxy resin—beats heat and humidity. Capacitance tolerance is ±10%. Temp. range −40°C to +85°C.

TYPE 6PS—600 VOLTS DC

Stock No.	Mfd.	Size	Type	1-24	25-49	50-99	100-249
18F1642	.001	2 1/64 x 1 1/16	6PS-D10				
18F1644	.0015	2 1/64 x 1 1/16	6PS-D15				
18F1646	.002	2 1/64 x 1 1/16	6PS-D20				
18F1647	.0022	2 1/64 x 1 1/16	6PS-D22	.39	.22	.17	.14
18F1648	.0025	2 1/64 x 1 1/16	6PS-D25				
18F1649	.0027	1 1/32 x 1 1/16	6PS-D27				
18F1651	.0033	2 3/64 x 1 1/16	6PS-D33				
18F1652	.0039	3/8 x 1 1/16	6PS-D39				
18F1654	.0047	2 5/64 x 1 1/16	6PS-D47				
18F1655	.005	2 5/64 x 1 1/16	6PS-D50	.42	.23	.19	.15
18F1656	.0056	2 5/64 x 1 1/16	6PS-D56				
18F1658	.0068	1 3/32 x 1 1/16	6PS-D68				
18F1659	.0075	2 3/64 x 7/8	6PS-D75	.42	.23	.19	.15
18F1661	.0082	3/8 x 7/8	6PS-D82	.42	.25	.20	.16
18F1662	.01	2 5/64 x 7/8	6PS-S10	.42	.25	.20	.16
18F1664	.015	2 7/64 x 7/8	6PS-S15	.43	.27	.21	.17
18F1665	.02	3 1/64 x 7/8	6PS-S20	.51	.29	.23	.18
18F1666	.022	3 1/64 x 7/8	6PS-S22	.51	.29	.23	.18
18F1667	.025	1 7/32 x 7/8	6PS-S25	.51	.29	.23	.18
18F1670	.033	1 9/32 x 1 3/16	6PS-S33	.57	.33	.26	.20
18F1672	.039	3 1/64 x 1 3/16	6PS-S39	.66	.38	.30	.24
18F1674	.047	1 7/32 x 1 3/16	6PS-S47	.66	.38	.30	.24
18F1675	.05	1 7/32 x 1 3/16	6PS-S50	.66	.38	.30	.24
18F1676	.056	3 5/64 x 1 3/16	6PS-S56	.72	.42	.33	.26
18F1678	.068	3 7/64 x 1 3/16	6PS-S68	.72	.42	.33	.26
18F1679	.075	9/16 x 1 5/16	6PS-S75	.72	.42	.33	.26
18F1680	.082	3 7/64 x 1 5/16	6PS-S82	.78	.45	.36	.28
18F1681	.1	5/8 x 1 5/16	6PS-P10	.78	.45	.36	.28
18F1682	.15	4 3/64 x 1 5/8	6PS-P15	1.11	.64	.51	.40
18F1683	.2	3/4 x 1 5/8	6PS-P20	1.56	.91	.72	.56
18F1684	.22	2 5/32 x 1 5/8	6PS-P22	1.56	.91	.72	.56
18F1685	.25	1 31/64 x 1 5/8	6PS-P25	1.56	.91	.72	.56

TYPE 10PS—1000 VOLTS DC

Stock No.	Mfd.	Size	Type	1-24	25-49	50-99	100-249
18F1686	.001	2 1/64 x 1 1/16	10PS-D10	.48	.28	.22	.17
18F1689	.0022	3/8 x 1 1/16	10PS-D22	.48	.28	.22	.17
18F1692	.0047	1 1/32 x 7/8	10PS-D47	.54	.31	.25	.19
18F1693	.005	1 1/32 x 7/8	10PS-D50	.54	.31	.25	.19

TYPE 2PS—200 VOLTS DC

Stock No.	Mfd.	Size	Type	1-24	25-49	50-99	100-249
18F1612	.02	3/8 x 7/8	2PS-S20	.39	.23	.18	.14
18F1613	.022	2 5/64 x 7/8	2PS-S22	.39	.23	.18	.14
18F1614	.047	2 3/64 x 7/8	2PS-S47	.48	.27	.21	.17
18F1615	.05	1 5/32 x 7/8	2PS-S50	.48	.27	.21	.17
18F1616	.1	3 1/64 x 1 3/16	2PS-P10	.54	.32	.25	.20
18F1617	.15	9/16 x 1 3/16	2PS-P15	.63	.37	.29	.23
18F1618	.2	1 9/32 x 1 5/16	2PS-P20	.69	.40	.32	.25
18F1619	.22	3 9/64 x 1 5/16	2PS-P22	.69	.40	.32	.25
18F1620	.25	5/8 x 1 5/16	2PS-P25	.69	.40	.32	.25
18F1621	.33	5/8 x 1 5/8	2PS-P33	.90	.51	.41	.32
18F1622	.47	4 5/64 x 1 5/8	2PS-P47	1.17	.69	.55	.43
18F1623	.5	2 3/32 x 1 5/8	2PS-P50	1.17	.69	.55	.43

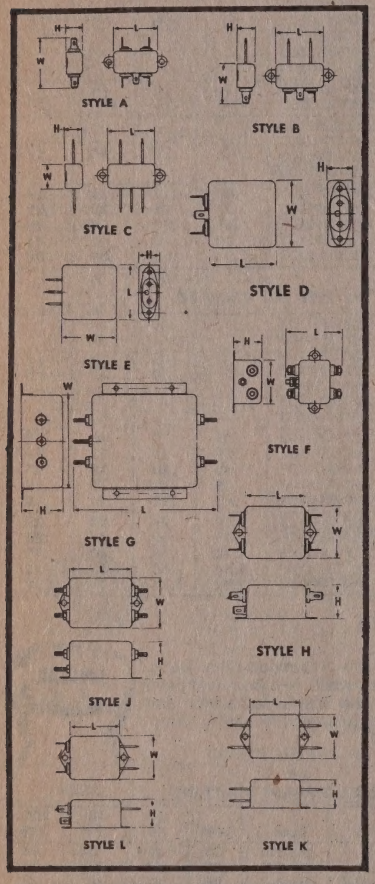
TYPE 4PS—400 VOLTS DC

Stock No.	Mfd.	Size	Type	1-24	25-49	50-99	100-249
18F1624	.01	1 3/32 x 1 1/16	4PS-S10	.39	.23	.18	.14
18F1625	.015	2 9/64 x 1 1/16	4PS-S15	.39	.23	.18	.14
18F1626	.02	1 3/32 x 7/8	4PS-S20	.42	.24	.19	.15
18F1627	.022	2 7/64 x 7/8	4PS-S22	.42	.24	.19	.15
18F1628	.025	7/16 x 7/8	4PS-S25	.42	.24	.19	.15
18F1630	.033	1 5/32 x 7/8	4PS-S33	.48	.27	.21	.17
18F1632	.047	2 9/64 x 1 3/16	4PS-S47	.51	.29	.23	.18
18F1633	.05	2 9/64 x 1 3/16	4PS-S50	.51	.29	.23	.18
18F1634	.056	3 1/64 x 1 3/16	4PS-S56	.54	.32	.25	.20
18F1635	.068	3 3/64 x 1 3/16	4PS-S68	.54	.32	.25	.20
18F1637	.1	3 7/64 x 1 3/16	4PS-P10	.63	.36	.29	.23
18F1638	.15	3 9/64 x 1 5/16	4PS-P15	.69	.40	.32	.25
18F1639	.2	1 9/32 x 1 5/8	4PS-P20	.96	.55	.44	.34
18F1640	.22	3 9/64 x 1 5/8	4PS-P22	.96	.55	.44	.34
18F1641	.25	4 1/64 x 1 5/8	4PS-P25	.96	.55	.44	.34

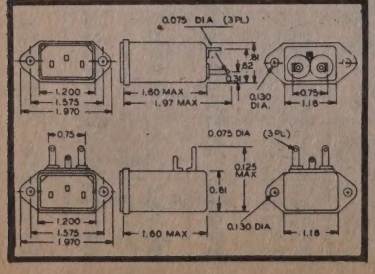
SPRAGUE
THE MARK OF RELIABILITY

Filters

General Purpose Interference Filters Useful for eliminating high-frequency interference into the VHF range and even from microwave ovens. Can be used at any frequency or voltage up to 250V and 60 Hz. Maximum leakage of .5 mA at 125V 60 Hz, 1 mA at 250V 60 Hz. Dielectric will withstand 2100 VDC. Style AA and AB have combination terminals which accept quick disconnect terminals. U.L. recognized at 125 and 250 VAC. *Maximum rated current in amperes.



Electromagnetic Interference Filters Incorporates I.E.C. integral male line cord receptacle. U.L. recognized for operation at 125 or 250 VAC over range of 50-400 Hz. Protects low level logical circuitry against external transients (energy range: 150 kHz-30 MHz). Withstands I.E.C. 10 kV surge test. Type numbers shown are for filters with rear terminals. Size: 1.97" x1.97"x.81.



GENERAL PURPOSE INTERFERENCE FILTERS

Stock No.	Type	Style	Dimensions LxWxH (Inches)	Max. Amps	EACH 1-24	25-49	50-99	100-499
15F2650	1JX5101A	A	1.750x1.985x .635	1	7.01	6.01	5.34	4.68
17F2216	1JX5101B	B	1.750x1.435x .635	1	7.14	6.12	5.44	4.76
17F2217	1JX5101C	C	1.750x .885x .635	1	7.29	6.25	5.55	4.86
17F2218	1JX5101D	D	2.310x2.000x .760	1	8.04	6.89	6.13	5.36
15F2651	2JX5102A	A	1.750x1.985x .635	2	6.28	5.38	4.78	4.19
17F2220	2JX5102B	B	1.750x1.435x .635	2	6.41	5.49	4.88	4.27
17F2221	2JX5102C	C	1.750x .885x .635	2	6.34	5.44	4.83	4.23
15F2652	2JX5102D	D	2.310x2.000x .760	2	7.54	6.46	5.74	5.03
17F2222	2JX5102E	E	2.000x1.760x .760	2	7.35	6.30	5.60	4.90
15F2653	5JX5104A	A	1.750x2.360x .760	5	6.51	5.58	4.96	4.34
17F2228	5JX5104B	B	1.810x1.750x .760	5	6.64	5.69	5.06	4.42
17F2229	5JX5104C	C	1.260x1.750x .760	5	6.85	5.87	5.22	4.56
15F2654	5JX5104D	D	2.560x2.000x .760	5	7.75	6.64	5.90	5.17
15F2656	10JX5105A	A	1.750x2.360x1.135	10	7.08	6.07	5.39	4.72
17F2230	10JX5105B	B	1.810x1.750x1.135	10	7.29	6.25	5.55	4.86
17F2231	10JX5105C	C	1.260x1.750x1.135	10	7.39	6.34	5.63	4.93
15F2657	10JX5105D	D	2.560x2.000x1.135	10	8.17	7.00	6.22	5.45
17F2232	10JX5105E	E	2.010x2.000x1.135	10	8.30	7.11	6.32	5.53
17F2233	10JX5105F	F	2.820x1.750x1.135	10	8.53	7.31	6.50	5.68
17F2234	20JX5106A	A	2.000x3.110x1.135	20	11.80	10.12	8.99	7.87
17F2235	20JX5106B	F	3.570x2.000x1.135	20	13.13	11.25	10.00	8.75
17F2236	30JX5107A	G	5.450x3.312x1.510	30	23.16	19.85	17.65	15.44
20F774	1JX5201A	A	2.000x2.860x .885	1	8.60	6.88	6.24	5.59
20F775	1JX5201B	B	2.000x2.310x .885	1	8.36	6.69	6.06	5.43
20F776	1JX5201C	C	2.000x1.760x .885	1	8.48	6.78	6.15	5.51
20F777	1JX5201D	D	2.560x2.000x .885	1	9.22	7.38	6.68	5.99
20F779	2JX5202A	A	2.000x2.860x .885	2	8.00	6.40	5.80	5.20
20F780	2JX5202B	B	2.000x2.310x .885	2	7.66	6.13	5.55	4.98
20F781	2JX5202C	C	2.000x1.760x .885	2	8.10	6.48	5.87	5.27
20F782	2JX5202D	D	2.560x2.000x .885	2	8.48	6.78	6.15	5.51
20F785	3JX5203B	B	2.000x2.310x1.135	3	8.58	6.86	6.22	5.58
20F786	3JX5203C	C	2.000x1.760x1.135	3	9.16	7.33	6.64	5.95
20F787	3JX5203D	D	2.560x2.010x1.135	3	9.46	7.57	6.86	6.15
20F789	5JX5204A	A	2.000x2.860x1.135	5	8.08	6.46	5.86	5.25
20F790	5JX5204B	B	2.000x2.310x1.135	5	7.88	6.30	5.71	5.12
20F791	5JX5204C	C	2.000x1.760x1.135	5	8.46	6.77	6.13	5.50
20F792	5JX5204D	D	2.560x2.010x1.135	5	9.02	7.22	6.54	5.86
20F793	5JX5204E	E	2.000x2.010x1.135	5	8.86	7.09	6.42	5.76
20F794	10JX5205A	A	2.000x3.110x1.135	10	8.70	6.96	6.31	5.66
20F795	10JX5205B	B	2.000x2.560x1.135	10	8.78	7.02	6.37	5.71
20F796	10JX5205C	C	2.000x2.010x1.135	10	8.60	6.88	6.24	5.59
20F797	10JX5205D	F	3.580x2.000x1.135	10	9.92	7.94	7.19	6.45
20F798	20JX5206A	F	3.580x2.500x1.515	20	12.76	10.21	9.25	8.29
20F799	30JX5207A	G	5.450x3.312x1.510	30	25.50	20.40	18.49	16.58
20F800	1JX5301A	H	2.000x1.765x1.140	1	13.20	11.00	9.90	8.53
20F801	1JX5301B	J	2.000x1.765x1.140	1	13.20	11.00	9.90	8.53
20F802	1JX5301C	K	2.000x1.765x1.140	1	13.20	11.00	9.90	8.53
20F803	2JX5302A	H	2.000x1.765x1.140	2	12.00	10.00	9.00	7.75
20F804	2JX5302B	J	2.000x1.765x1.140	2	12.00	10.00	9.00	7.75
20F805	2JX5302C	K	2.000x1.765x1.140	2	12.00	10.00	9.00	7.75
20F806	3JX5303A	H	2.500x2.015x1.140	3	13.20	11.00	9.90	8.53
20F807	3JX5303B	J	2.500x2.015x1.140	3	13.20	11.00	9.90	8.53
20F808	3JX5303C	K	2.500x2.015x1.140	3	13.20	11.00	9.90	8.53
20F809	5JX5304A	H	2.500x2.015x1.140	5	12.00	10.00	9.00	7.75
20F810	5JX5304B	J	2.500x2.015x1.140	5	12.00	10.00	9.00	7.75
20F811	5JX5304C	K	2.500x2.015x1.140	5	12.00	10.00	9.00	7.75
20F812	10JX5305A	H	2.500x2.015x1.140	10	13.63	11.36	10.22	8.80
20F813	10JX5305B	J	2.500x2.015x1.515	10	13.20	11.00	9.90	8.53
20F814	10JX5305C	K	2.500x2.015x1.515	10	13.97	11.64	10.48	9.02
20F815	10JX5305D	L	2.500x2.015x1.515	10	15.17	12.64	11.38	9.80
20F816	20JX5306A	G	5.450x3.312x1.510	20	27.00	22.50	20.25	17.44

ELECTROMAGNETIC INTERFERENCE FILTERS

Stock Number	Type	Max. Current (Amperes)	Circuit Style	EACH 1-24	25-49	50-99	100-499
20F817	1JX5411A	1	1	9.68	7.70	6.82	5.94
20F818	3JX5421A	3	1	9.13	7.26	6.43	5.60
20F819	6JX5431A	6	1	8.58	6.83	6.05	5.27
20F820	10JX5441A	10	1	10.23	8.14	7.21	6.28
20F821	15JX5451A	15	1	10.34	8.23	7.29	6.35
20F822	1JX5412A	1	2	10.45	8.31	7.36	6.41
20F823	3JX5422A	3	2	10.45	8.31	7.36	6.41
20F824	6JX5432A	6	2	9.90	7.88	6.98	6.08
20F825	10JX5442A	10	2	10.45	8.31	7.36	6.41
20F826	15JX5452A	15	2	10.45	8.31	7.36	6.41
20F827	1JX5413A	1	3	11.00	8.75	7.75	6.75
20F828	3JX5423A	3	3	10.45	8.31	7.36	6.41
20F829	6JX5433A	6	3	10.34	8.23	7.29	6.35
20F830	10JX5443A	10	3	11.00	8.75	7.75	6.75
20F831	15JX5453A	15	3	11.55	9.19	8.14	7.09
20F832	1JX5414A	1	4	12.43	9.89	8.76	7.63
20F833	3JX5424A	3	4	11.99	9.54	8.45	7.36
20F834	6JX5434A	6	4	11.55	9.19	8.14	7.09

SPRAGUE
THE MARK OF RELIABILITY

192P "PACER"—MINIATURE "FILMITE E" CAPACITORS

Miniature size for commercial and industrial applications. Controlled dimensions for automatic insertion equipment installing on P.C. boards. Operating temp. range −55°C to +85°C. Tolerance ±10%. Shpg. wt. 2 oz.

80 VOLTS DC

Stock No.	Type	Mfd.	Size	1-24	25-49	50-99	100-249
18F2520	192P2229R8	.0022	9/64x5/16"				
18F2521	192P2729R8	.0027	9/64x5/16"				
18F2522	192P3329R8	.0033	9/64x5/16"				
18F2523	192P3929R8	.0039	9/64x5/16"	.57	.34	.27	.22
18F2524	192P4729R8	.0047	9/64x5/16"				
18F2525	192P5629R8	.0056	1 1/64x3/8"				
18F2526	192P6829R8	.0068	1 1/64x3/8"				
18F2527	192P8229R8	.0082	1 1/64x3/8"				
18F2528	192P1039R8	.01	1 1/64x3/8"	.51	.32	.25	.20
18F2529	192P1239R8	.012	1 1/64x3/8"	.57	.34	.27	.22
18F2530	192P1539R8	.015	1 1/64x3/8"	.60	.37	.29	.23
18F2531	192P1839R8	.018	1 1/64x3/8"	.60	.37	.29	.24
18F2532	192P2239R8	.022	1 1/64x3/8"	.60	.38	.30	.24
18F2533	192P2739R8	.027	7/32x7/16"	.63	.38	.30	.24
18F2534	192P3339R8	.033	7/32x7/16"	.63	.39	.30	.25
18F2535	192P3939R8	.039	7/32x7/16"	.63	.40	.31	.25
18F2536	192P4739R8	.047	7/32x7/16"	.66	.41	.32	.26
18F2537	192P5639R8	.056	1 5/64x9/16"	.66	.42	.33	.27
18F2538	192P6839R8	.068	1 5/64x9/16"	.72	.44	.34	.28
18F2539	192P8239R8	.082	1 9/64x1/2"	.75	.46	.36	.29
18F2540	192P1049R8	.1	1 9/64x1/2"	.75	.47	.37	.30
18F2541	192P1249R8	.12	1 9/64x5/8"	.87	.55	.43	.35
18F2542	192P1549R8	.15	1 9/64x5/8"	.93	.59	.46	.38
18F2543	192P1849R8	.18	2 1/64x5/8"	1.02	.65	.51	.42
18F2544	192P2249R8	.22	2 1/64x5/8"	1.02	.72	.56	.46
18F2545	192P2749R8	.27	2 1/64x7/8"	1.02	.77	.60	.49
18F2546	192P3349R8	.33	2 1/64x7/8"	1.05	.81	.63	.51
18F2547	192P3949R8	.39	2 1/64x1 3/16"	1.14	.86	.67	.54
18F2548	192P4749R8	.47	2 1/64x1 3/16"	1.20	.90	.70	.57

200 VOLTS DC

Stk. No.	Type	Mfd.	D x L	1-24	25-49	50-99	100-249
18F2242	192P47192	.00047	9/64x5/16"	.48	.29	.23	.19
18F2243	192P56192	.00056	9/64x5/16"				
18F2244	192P68192	.00068	9/64x5/16"	.45	.27	.21	17
18F2245	192P82192	.00082	9/64x5/16"				
18F2246	192P10292	.001	9/64x5/16"				
18F2247	192P12292	.0012	9/64x5/16"				
18F2248	192P15292	.0015	9/64x5/16"				
18F2249	192P18292	.0018	1 1/64x5/16"	.39	.24	.19	.15
18F2250	192P22292	.0022	1 1/64x5/16"				
18F2251	192P27292	.0027	1 1/64x5/16"				
18F2252	192P33292	.0033	1 1/64x5/16"				
18F2253	192P39292	.0039	1 1/64x7/16"				
18F2254	192P47292	.0047	1 1/64x7/16"	.42	.24	.19	.16
18F2255	192P56292	.0056	1 1/64x7/16"	.42	.25	.19	.16
18F2256	192P68292	.0068	1 1/64x7/16"	.42	.25	.19	.16
18F2257	192P82292	.0082	1 1/64x1/2"	.42	.26	.20	.17
18F2226	192P10392	.01	1 1/64x1/2"	.45	.27	.21	.17
18F2227	192P12392	.012	7/32x7/16"	.45	.27	.21	.17
18F2228	192P15392	.015	7/32x7/16"	.45	.27	.21	.17
18F2229	192P18392	.018	7/32x9/16"	.45	.28	.22	.18
18F2230	192P22392	.022	7/32x9/16"	.48	.28	.22	.18
18F2231	192P27392	.027	1 5/64x9/16"	.48	.30	.24	.19
18F2232	192P33392	.033	1 5/64x9/16"	.51	.32	.25	.20
18F2233	192P39392	.039	1 9/64x1/2"	.54	.33	.26	.21
18F2234	192P47392	.047	1 9/64x1/2"	.57	.35	.27	.22
18F2235	192P56392	.056	1 9/64x5/8"	.60	.36	.28	.23
18F2236	192P68392	.068	1 9/64x5/8"	.63	.38	.30	.24
18F2237	192P82392	.082	2 1/64x5/8"	.66	.40	.31	.26
18F2238	192P10492	.1	2 1/64x5/8"	.66	.42	.33	.27
18F2239	192P12492	.12	2 1/64x7/8"	.72	.44	.34	.28
18F2240	192P15492	.15	2 1/64x7/8"	.81	.50	.39	.32
18F2241	192P22492	.22	2 1/64x1 3/16"	.93	.59	.46	.38

TYPE 431P WRAP AND FILL "FILMITE E"

Construction gives benefits over metal encased molded or wax coated Cardboard-case tubulars of comparable ratings. Axial lead polyester film capacitor section protected from moisture by wrap of polyester film tape. Tol. ±10%.

50 VOLTS DC

Stk. No.	Type 431P-	Size	Mfd	1-24	25-49	50-99	100-249
47F214	4739R5	3/32x3/16x5/8"	.047	1.98	1.52	.89	.68
47F215	6839R5	1/8x7/32x5/8"	.068	2.04	1.56	.92	.70
47F217	2249R5	5/32x3/32x3/4"	.22	2.34	1.81	1.06	.81
47F218	3349R5	3/16x5/16x3/4"	.33	2.61	2.02	1.18	.90
47F219	4749R5	3/16x5/16x1"	.47	2.88	2.22	1.30	.99
47F220	6849R5	3/16x3/8x1"	.68	3.12	2.43	1.42	1.08
47F221	1059R5	1/4 x 1 3/32x1"	1.0	3.12	2.43	1.42	1.08
47F222	2059R5	3/8 x 9/16x1"	2.0	3.96	3.07	1.80	1.37
47F223	3059R5	3/8 x 1 9/32x1 1/4"	3.0	4.71	3.64	2.13	1.62
47F227	1069R5	5/16x2 5/32x1 3/4"	10.0	11.46	8.78	5.18	3.94

200 VOLTS DC

47F229	22392	1/8 x 1 1/16x3/8"	.022	1.11	.87	.51	.39
47F231	47392	5/32x1/4 x 5/8"	.047	1.11	.87	.51	.39
47F233	10492	3/16x5/16x3/4"	.1	1.11	.87	.51	.39
47F234	22492	1/4 x 1 3/32x3/4"	.22	1.29	.99	.58	.44
47F236	47492	7/32x1 3/32x1 1/4"	.47	1.59	1.24	.72	.55
47F237	68492	5/16x1 7/32x1 1/4"	.68	1.92	1.48	.87	.66
47F238	10592	5/16x1 7/32x1 1/4"	1.0	2.04	1.56	.91	.69
47F239	20592	3/8 x 9/16x1 3/4"	2.0	2.88	2.24	1.31	1.00
47F240	30592	1 5/32x2 1/32x1 3/4"	3.0	3.39	2.62	1.53	1.16
47F241	40592	1 7/32x3/4 x1 3/4"	4.0	3.87	3.00	1.75	1.33
47F243	70592	3/4 x1 3/16x1 3/4"	7.0	6.48	5.01	2.92	2.22

200 VOLTS WVDC (Cont.)

Stk. No.	Type 431P	Size	Mfd.	1-24	25-49	50-99	100-249
47F244	10692	2 3/32x1x2 1/4"	10.0	7.86	6.00	3.54	2.69
47F245	12692	2 3/32x1x2 1/2"	12.0	8.67	6.64	3.92	2.98

400 VOLTS DC

47F247	47294	1/8 x 3/16x5/8"	.0047	1.86	1.43	.83	.63
47F249	10394	3/16x1/4 x 5/8"	.01	1.59	1.24	.72	.55
47F251	33394	7/32x1 1/32x3/4"	.033	1.77	1.36	.80	.61
47F254	10494	9/32x7/16x1"	.1	1.92	1.48	.87	.66
47F257	47494	1 3/8 x 9/16x1 3/4"	.47	2.40	1.85	1.08	.82

800 VOLTS DC

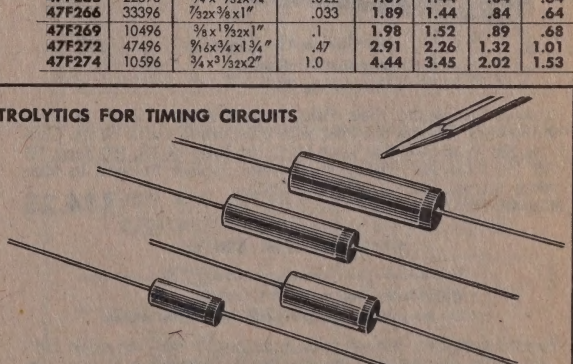
47F262	47296	1/8 x 1/4 x 3/4"	.0047	1.86	1.43	.83	.63
47F263	68296	9/32x9/32x3/4"	.0068	1.98	1.52	.89	.68
47F265	22396	1/4 x 1 3/32x3/4"	.022	1.89	1.44	.84	.64
47F266	33396	7/32x3/8x1"	.033	1.89	1.44	.84	.64
47F269	10496	3/8 x 1 3/32x1"	.1	1.98	1.52	.89	.68
47F272	47496	9/16x3/4x1 3/4"	.47	2.91	2.26	1.32	1.01
47F274	10596	3/4 x 3 1/32x2"	1.0	4.44	3.45	2.02	1.53

TYPE 630D EXTRALYTIC® ELECTROLYTICS FOR TIMING CIRCUITS

- **Extremely Low Leakage**
- **Meets 2000 Hour Life Test**
- **Tight Tolerance Values**
- **All Welded Construction**

These aluminum electrolytics are specifically designed for use in long-interval timing circuits. They feature extremely low leakage current levels and an unusually tight tolerance of only ±10%. These premium grade units offer capacitance values needed for commonly used R-C timing circuits. Excellent shelf and life characteristics over the temperature range of −55°C to +125°C. Reliable welded connections with an outer plastic film insulation and polymer-coated end-seals. The maximum leakage ranges from 1.0 μA to 5.0 μA; the maximum ESR ranges from 13.3 ohms to 0.3 ohms. Working Voltage: 25 VDC.

Stock No.	Type	μF	Size, Inches D x L	1-9	10-24	25-49	50-99
17F2237	630D100	10	0.270 x 0.812	1.44	1.15	.72	.58
17F2238	630D101	25	0.332 x 0.812	1.45	1.16	.73	.58
17F2239	630D102	50	0.332 x 0.937	1.48	1.19	.75	.60
17F2240	630D103	100	0.395 x 1.062	1.52	1.21	.76	.61
17F2241	630D104	250	0.395 x 1.625	1.80	1.44	.90	.72
17F2242	630D105	500	0.505 x 1.875	3.32	2.64	1.50	1.20



Yellow Jacket Filmite "E" Capacitors

SPRAGUE
THE MARK OF RELIABILITY

TYPE 416P FILMITE "E" CAPACITORS

- For Commercial Applications
- Protected Against Moisture
- Light Weight; Minimum Size

Suited for transistorized or low voltage tube circuits. Extended foil design. End seals are of plastic resin to assure long service life. Temp. range; −55°C to +85°C w/voltage derating to +105C. Capacitance tol. ±10%.

50 WVDC

Stk. No.	Type	Mfd.	Sizes	1-24	25-49	50-99	100-499
47F1561	416P1539R5	.015	.190x.531	.35	.22	.18	.14
47F1562	416P2239R5	.022	.200x.594	.35	.22	.18	.14
47F1563	416P3339R5	.033	.210x.656	.39	.25	.20	.16
47F1564	416P6839R5	.068	.250x.718	.48	.31	.24	.19
47F1565	416P1049R5	.10	.290x.750	.53	.34	.27	.21
47F1566	416P1549R5	.15	.315x.812	.57	.37	.29	.23
47F1567	416P2249R5	.22	.315x.062	.62	.40	.31	.25
47F1568	416P3349R5	.33	.375x1.062	.71	.45	.36	.28
47F1569	416P4749R5	.47	.430x1.062	.85	.54	.43	.34
47F1570	416P6849R5	.68	.450x1.375	.96	.61	.48	.38
47F1571	416P1059R5	1.0	.500x1.375	1.19	.76	.60	.47

100 WVDC

Stk. No.	Type	Mfd.	Sizes	1-24	25-49	50-99	100-499
47F1572	416P68291	.0068	.190x.450	.28	.18	.14	.11
47F1549	416P10391	.01	.190x.450	.30	.19	.15	.12
47F1550	416P33391	.033	.190x.718	.39	.25	.20	.16
47F1551	416P47391	.047	.215x.718	.44	.28	.22	.18
47F1552	416P68391	.068	.215x.844	.44	.28	.22	.18
47F1553	416P10491	.10	.245x.844	.48	.31	.24	.19
47F1554	416P15491	.15	.285x.844	.53	.34	.27	.21
47F1555	416P22491	.22	.290x1.250	.60	.38	.30	.24
47F1556	416P33491	.33	.325x1.250	.69	.44	.35	.27
47F1557	416P47491	.47	.380x1.250	.82	.53	.41	.33
47F1558	416P68491	.68	.455x1.562	1.00	.64	.50	.40
47F1559	416P10591	1.0	.535x1.562	1.28	.82	.64	.51

200 WVDC

Stk. No.	Type	Mfd.	Sizes	1-24	25-49	50-99	100-499
47F1560	416P10292	.001	.190x.450	.25	.16	.13	.10
47F1537	416P15292	.0015	.190x.450	.25	.16	.13	.10
47F1538	416P22292	.0022	.190x.450	.25	.16	.13	.10
47F1539	416P33292	.0033	.190x.450	.28	.18	.14	.11
47F1540	416P47292	.0047	.190x.450	.28	.18	.14	.11
47F1541	416P68292	.0068	.190x.718	.30	.19	.15	.12
47F1542	416P10392	.01	.190x.718	.32	.21	.16	.13
47F1543	416P22392	.022	.190x.718	.35	.22	.18	.14
47F1544	416P15392	.015	.190x.718	.35	.22	.18	.14

200 WVDC (Con't)

Stk. No.	Type	Mfd.	Sizes	1-24	25-49	50-99	100-499
47F1545	416P33392	.033	.190x.844	.39	.25	.20	.16
47F1546	416P47392	.047	.210x.844	.44	.28	.22	.18
47F1547	416P68392	.068	.240x.844	.44	.28	.22	.18
47F1548	416P10492	.10	.275x.969	.48	.31	.24	.19
47F1525	416P15492	.15	.345x1.000	.60	.38	.30	.24
47F1526	416P22492	.22	.355x1.250	.62	.40	.31	.25
47F1527	416P33492	.33	.355x1.250	.73	.47	.37	.29
47F1528	416P47492	.47	.440x1.562	.87	.56	.44	.35
47F1529	416P68492	.68	.610x1.750	1.37	.88	.69	.54
47F1530	416P10592	1.0	.710x1.875	1.78	1.14	.89	.71

400 WVDC

Stk. No.	Type	Mfd.	Sizes	1-24	25-49	50-99	100-499
47F1531	416P33294	.0033	.190x.718	.32	.21	.16	.13
47F1532	416P47294	.0047	.190x.718	.32	.21	.16	.13
47F1533	416P68294	.0068	.210x.844	.35	.22	.18	.14
47F1534	416P10394	.01	.210x.844	.35	.22	.18	.14
47F1535	416P15394	.015	.230x.844	.37	.24	.19	.15
47F1536	416P22394	.022	.265x.844	.41	.27	.21	.17
47F1513	416P33394	.033	.315x.875	.50	.32	.25	.20
47F1514	416P47394	.047	.325x.1000	.53	.34	.27	.21
47F1515	416P68394	.068	.340x1.250	.55	.35	.28	.22
47F1516	416P10494	.10	.400x1.250	.62	.40	.31	.25
47F1517	416P15494	.15	.405x1.562	.73	.47	.37	.29
47F1518	416P22494	.22	.480x1.562	.87	.56	.44	.35
47F1519	416P33494	.33	.650x1.750	1.19	.76	.60	.47
47F1520	416P47494	.47	.725x1.937	1.82	1.17	.91	.72

600 WVDC

Stk. No.	Type	Mfd.	Sizes	1-24	25-49	50-99	100-499
47F1521	416P10296	.001	.190x.718	.35	.22	.18	.14
47F1522	416P15296	.0015	.190x.718	.35	.22	.18	.14
47F1523	416P22296	.0022	.190x.718	.35	.22	.18	.14
47F1524	416P33296	.0033	.205x.718	.35	.22	.18	.14
47F1500	416P47296	.0047	.235x.718	.35	.22	.18	.14
47F1501	416P68296	.0068	.240x.844	.41	.27	.21	.17
47F1502	416P10396	.01	.270x.844	.46	.30	.23	.18
47F1503	416P15396	.015	.315x.875	.50	.32	.25	.20
47F1504	416P22396	.022	.375x.875	.55	.35	.28	.22
47F1505	416P33396	.033	.395x1.000	.60	.38	.30	.24
47F1506	416P47396	.047	.400x1.250	.62	.40	.31	.25
47F1507	416P68396	.068	.455x1.250	.71	.45	.36	.28
47F1508	416P10496	.10	.470x1.562	.87	.56	.44	.35
47F1509	416P15496	.15	.545x1.562	1.07	.69	.54	.43
47F1510	416P22496	.22	.590x1.937	1.37	.88	.69	.54
47F1511	416P33496	.33	.590x1.937	2.03	1.30	1.02	.81
47F1512	416P47496	.47	.890x2.125	2.55	1.63	1.28	1.01

J-150 CERAMICENTER

- 795 Ceramic Disc Capacitors
- One Stop Servicenter
- Time Saving Aid

Packaged in plastic Kleer-Paks, capacitors are "filed" in compartmented drawers outfitted with pre-printed index cards. Contains 290 Type 5GA, 140 Type 5HK, 100 Type 10-TS, 150 Type TG and 115 Type HY. Heavy-gauge steel cabinet finished in blue baked enamel. 30¾"w x 11½"d x 5½"h.

80W415. NET.....184.25

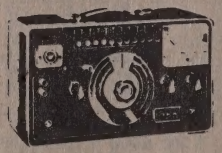
J-141 LITTL-LYTIC CENTER

- Two drawer space-saving cabinet
- Withstands temp. up to 85°C (185°F)
- Contains 200 of the most-popular, fastest ratings

Custom designed cabinet puts hundreds of popular rated Littl-Lytic metal encased tubular electrolytic capacitors at your disposal. Contains 200 of the most-popular, fastest moving capacitance and voltage rating of electrolytic capacitors. Included are 15 at 3 WVDC, 10 at 6 WVDC, 25 at 12 WVDC, 25 at 16 WVDC, 55 at 25 WVDC, 50 at 50 WVDC, 10 at 100 WVDC and 10 at 150 WVDC. Capacitors are "filed" in compartmented drawers outfitted with pre-printed index cards, permitting fast and easy selections. Packed 5 to a Handy Rigid Kleer-Pak Plastic Box. Withstands temperatures up to 85°C (185°F). Heavy-gauge steel cabinet finished in blue baked enamel. Size: 30¾"w x 11½"d x 5½"h.

47F1399. NET.....163.65

TO-6A TEL-OHMIKE CAPACITOR ANALYZER



- High gain amplifier
- Safe testing of low voltage capacitors
- Insulation resistance reads on large meter
- Fast charge feature speeds testing of high capacitance units

Capacitance bridge measures up to 2000μF. Five overlapping ranges include exclusive 1 pF to 100 pF range. Special shielded transformer for bridge voltage. Low AC voltage; 1.35 volts for electrolytic capacitors, 2.85 for all others. Safety tests low voltage capacitors. Insulation resistance of paper, ceramic, and mica capacitors rated 25V and higher read on large meter. Dual range—to 10 KMΩ @ 30V for low voltage units to 50 KMΩ @ 150V for higher voltage components. Leakage current of electrolytics measured directly on meter. Four ranges: .06, .6, 6 and 60mA. Three continuously variable voltage ranges test exact rated voltage up to 600 volts. Power factor of electrolytics, up to 50% measured by Wien bridge. Meter protector of solid state design allows severe overloads without burnouts. Magic-Eye Tube simplifies for capacitance and power factor measurements. High gain amplifier. Push buttons for instant range selection. Silver-grey case with white designations. Size: 8⅜"h x 14⅝"w x 6½" d. Weight: 13 lbs.

62F632. NET.....171.25

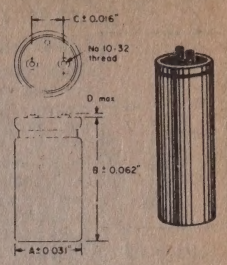
Computer Grade Capacitors

MEPCO/ELECTRA, INC.
A NORTH AMERICAN PHILIPS COMPANY

Case Code	Dim. In. A	B	C	Case Code	Dim. In. A	B	C	Case Code	Dim. In. A	B	C
BA	1.385	2.140	0.500	DE	1.760	4.140	0.750	GE	3.010	4.140	1.250
BC	1.385	3.140	0.500	EE	2.010	4.140	0.875	GH	3.010	5.640	1.250
BE	1.385	4.140	0.500	FE	2.510	4.140	1.125	GN	3.010	8.640	1.250

ALUMINUM HIGH-PERFORMANCE

Compared to older designs, can provide up to 70% more capacitance and 100% higher ripple current ratings for a given case size. Polymeric sleeve. In table, equivalent series resistance and maximum RMS ripple current (*) given at 120 Herz, 25°C. Proportionally good ripple ratings at higher temperatures. Developed to satisfy needs for highest possible microfarad values at voltages up to 100 volts. Ambient temperatures −40°C to +85°C. In dimension illustration, dimension D, .210" minimum.



Stk. No.	Type	WV DC	Cap. µF	Case Code	ESR milli ohms	* A	1-9	10-24	25-49	50-99
47F2232	86F111M	10	12,000	BC	43.0	3.6	4.77	3.70	2.96	1.85
47F2233	86F113M	10	29,000	DE	21.7	6.3	7.05	5.48	4.38	2.74
47F2234	86F114M	10	39,000	EE	15.5	7.8	8.40	6.53	5.22	3.26
47F2235	86F115M	10	66,000	FE	11.7	9.7	12.01	9.33	7.46	4.66
47F2236	86F116M	10	100,000	GE	10.2	10.9	16.58	12.88	10.30	6.44
47F2237	86F120M	15	9,200	BC	46.3	3.5	4.67	3.63	2.90	1.81
47F2238	86F121M	15	13,800	BE	31.9	4.8	5.44	4.23	3.38	2.11
47F2239	86F122M	15	22,000	DE	23.1	6.1	6.86	5.33	4.26	2.66
47F2240	86F123M	15	31,000	EE	16.1	7.6	8.40	6.53	5.22	3.26
47F2241	86F124M	15	51,000	FE	12.1	9.5	11.82	9.18	7.34	4.59
47F2242	86F125M	15	76,000	GE	10.5	10.8	16.10	12.50	10.00	6.25
47F2243	86F126M	15	110,000	GH	8.1	14.0	21.93	17.03	13.62	8.51
47F2244	86F128M	20	3,600	BA	100.4	2.0	3.99	3.10	2.48	1.55
47F2245	86F131M	20	17,500	DE	25.2	5.9	7.50	5.83	4.66	2.91
47F2246	86F138M	25	5,800	BC	47.9	3.4	4.80	3.73	2.98	1.86
47F2247	86F139M	25	8,700	BE	32.9	4.7	5.64	4.38	3.50	2.19
47F2248	86F140M	25	14,000	DE	24.5	6.0	7.18	5.58	4.46	2.79
47F2249	86F142M	25	32,000	FE	13.0	9.1	12.40	9.63	7.70	4.81
47F2250	86F145M	25	115,000	GN	6.6	18.9	36.42	28.28	22.62	14.14
47F2251	86F147M	30	5,200	BC	47.7	3.4	4.86	3.78	3.02	1.89
47F2252	86F150M	30	17,000	EE	16.9	7.4	8.86	6.88	5.50	3.44
47F2253	86F153M	30	64,000	GH	8.8	13.5	24.79	19.25	15.40	9.63
47F2254	86F156M	40	4,000	BC	49.9	3.4	5.22	4.05	3.24	2.03
47F2255	86F157M	40	6,000	BE	34.3	4.6	5.99	4.65	3.72	2.33
47F2256	86F158M	40	9,400	DE	25.8	5.8	7.34	5.70	4.56	2.85
47F2257	86F159M	40	12,900	EE	17.8	7.3	8.76	6.80	5.44	3.40
47F2258	86F160M	40	21,500	FE	13.6	9.0	12.17	9.45	7.56	4.73
47F2259	86F161M	40	32,000	GE	12.0	10.1	16.36	12.70	10.16	6.35
47F2260	86F168M	50	9,300	EE	20.2	6.8	8.79	6.83	5.46	3.41
47F2261	86F173M	75	950	BA	105.2	1.9	4.77	3.70	2.96	1.85
47F2262	86F174M	75	1,900	BC	56.0	3.2	5.73	4.45	3.56	2.23
47F2263	86F175M	75	2,800	BE	38.8	4.3	6.63	5.15	4.12	2.58
47F2264	86F176M	75	4,500	DE	28.6	5.5	8.31	6.45	5.16	3.23
47F2265	86F178M	75	10,400	FE	24.2	6.7	14.20	11.03	8.82	5.51
47F2266	86F182M	100	470	BA	163.4	1.6	4.44	3.45	2.76	1.73
47F2267	86F184M	100	1,400	BE	57.8	3.5	6.31	4.90	3.92	2.45
47F2268	86F189M	100	11,600	GH	17.3	9.6	26.95	20.93	16.74	10.46
47F2269	86F191M	150	300	BA	291.3	1.2	4.83	3.75	3.00	1.88
47F2270	86F196M	150	3,300	FE	31.8	5.8	14.52	11.28	9.02	5.64
47F2271	86F199M	150	11,900	GN	12.0	14.0	42.34	32.88	26.30	16.44
47F2272	86F200M	200	220	BA	439.3	1.0	5.57	4.33	3.46	2.16
47F2273	86F207M	200	5,400	GH	37.2	6.5	32.59	25.30	20.24	12.65
47F2274	86F230M	350	1,900	GE	96.5	3.6	27.02	20.98	16.78	10.49
47F2275	86F231M	350	2,900	GH	64.9	5.0	38.77	30.10	24.08	15.05
47F2276	86F247M	450	1,900	GH	73.7	4.6	46.37	36.00	28.80	18.00
47F2277	86F511M	10	18,000	BC	50.4	3.3	5.57	4.33	3.46	2.16
47F2278	86F520M	15	15,000	BC	50.6	3.3	5.67	4.40	3.52	2.20
47F2279	86F531M	20	27,000	DE	29.0	5.5	9.89	7.68	6.14	3.84
47F2280	86F538M	25	9,000	BC	54.1	3.2	5.73	4.45	3.56	2.23
47F2281	86F547M	30	8,000	BC	53.9	3.2	5.80	4.50	3.60	2.25
47F2282	86F548M	30	12,000	BE	36.9	4.4	7.15	5.55	4.44	2.78
47F2283	86F564M	50	2,400	BA	111.0	1.9	4.60	3.58	2.86	1.79
47F2284	86F565M	50	4,900	BC	58.5	3.1	6.12	4.75	3.80	2.38
47F2285	86F566M	50	7,300	BE	40.2	4.2	7.60	5.90	4.72	2.95
47F2286	86F573M	75	1,400	BA	110.2	1.9	5.22	4.05	3.24	2.03
47F2287	86F583M	100	1,700	BC	71.3	2.8	6.92	5.38	4.30	2.69

HIGH-CAPACITY COMPUTER GRADE

Stk. No.	Type	VDC	Cap. µF	Case Code	ESR milli ohms	* A	1-9	10-24	25-49	50-99
47F2568	86F106M	5	100,000	FE	11.4	9.8	12.98	10.08	8.06	5.04
47F2569	86F107M	5	150,000	GE	10.1	11.0	17.87	13.88	11.10	6.94
47F2570	86F108M	5	230,000	GH	7.7	14.4	25.73	19.98	15.98	9.99
47F2571	86F109M	5	370,000	GN	5.9	19.9	39.45	30.63	24.50	15.31
47F2572	86F127M	15	180,000	GN	6.1	19.5	33.94	26.35	21.08	13.18
47F2573	86F129M	20	7,200	BC	52.7	3.3	4.89	3.80	3.04	1.90
47F2574	86F130M	20	10,800	BE	36.1	4.5	5.80	4.50	3.60	2.25
47F2575	86F132M	20	23,900	EE	18.2	7.2	9.11	7.08	5.66	3.54
47F2576	86F133M	20	40,000	FE	13.1	9.1	13.17	10.23	8.18	5.11
47F2577	86F134M	20	60,000	GE	11.0	10.5	18.19	14.13	11.30	7.06
47F2578	86F135M	20	90,000	GH	8.3	13.8	25.76	20.00	16.00	10.00
47F2579	86F136M	20	145,000	GN	6.3	19.3	39.61	30.75	24.60	15.38
47F2580	86F144M	25	72,000	GH	8.7	13.5	23.96	18.60	14.88	9.30
47F2581	86F169M	50	15,600	FE	14.8	8.6	12.62	9.80	7.84	4.90
47F2582	86F170M	50	23,200	GE	12.7	9.8	17.23	13.38	10.70	6.69
47F2583	86F171M	50	34,800	GH	9.4	13.0	24.28	18.85	15.08	9.43
47F2584	86F172M	50	56,000	GN	7.0	18.3	37.13	28.83	23.06	14.41
47F2585	86F221M	300	1,500	FE	113.6	3.1	18.77	14.58	11.66	7.29
47F2586	86F512M	10	27,000	BE	34.6	4.6	6.79	5.28	4.22	2.64
47F2587	86F513M	10	43,000	DE	25.9	5.8	8.92	6.93	5.54	3.46
47F2588	86F514M	10	59,000	EE	17.8	7.3	11.08	8.60	6.88	4.30
47F2589	86F515M	10	100,000	FE	13.6	8.9	16.58	12.88	10.30	6.44
47F2590	86F516M	10	150,000	GE	12.2	10.0	23.31	18.10	14.48	9.05
47F2591	86F517M	10	225,000	GH	9.1	13.2	33.39	25.93	20.74	12.96
47F2592	86F518M	10	370,000	GN	6.8	18.6	52.87	41.05	32.84	20.53
47F2593	86F521M	15	23,000	BE	34.2	4.6	7.02	5.45	4.36	2.73
47F2594	86F522M	15	36,000	DE	26.0	5.8	9.27	7.20	5.76	3.60
47F2595	86F523M	15	50,000	EE	17.6	7.3	11.66	9.05	7.24	4.53
47F2596	86F524M	15	83,000	FE	13.7	8.9	17.32	13.45	10.76	6.73
47F2597	86F525M	15	120,000	GE	12.3	9.9	23.67	18.38	14.70	9.19
47F2598	86F526M	15	185,000	GH	9.2	13.2	34.78	27.00	21.60	13.50
47F2599	86F527M	15	300,000	GN	6.8	18.5	54.48	42.30	33.84	21.15
47F2600	86F532M	20	38,000	EE	19.9	6.9	12.65	9.83	7.86	4.91
47F2601	86F533M	20	64,000	FE	14.7	8.6	19.19	14.90	11.92	7.45
47F2602	86F534M	20	95,000	GE	12.7	9.8	27.02	20.98	16.78	10.49
47F2603	86F535M	20	140,000	GH	9.5	12.9	38.35	29.78	23.82	14.89
47F2604	86F536M	20	230,000	GN	7.0	18.3	60.99	47.35	37.88	23.68
47F2605	86F539M	25	13,500	BE	37.0	4.4	7.02	5.45	4.36	2.73
47F2606	86F540M	25	22,000	DE	28.3	5.5	9.50	7.38	5.90	3.69
47F2607	86F541M	25	30,000	EE	18.8	7.1	11.82	9.18	7.34	4.59
47F2608	86F549M	30	19,000	DE	28.7	5.5	9.53	7.40	5.92	3.70
47F2609	86F550M	30	26,000	EE	19.0	7.0	11.91	9.25	7.40	4.63
47F2610	86F551M	30	44,000	FE	15.1	8.5	18.03	14.00	11.20	7.00
47F2611	86F560M	40	32,000	FE	15.6	8.3	16.36	12.70	10.16	6.35

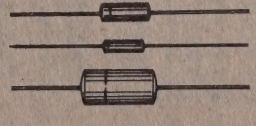
100 VDC

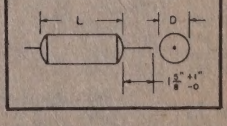
Stk. No.	Type	Cap. µF	Dia. x L. Inches	1-24	25-49	50-99	100-499
47F2213	61F10AA103	.010	.200x .450	.35	.26	.20	.16
47F2214	61F15AA153	.015	.188x .750	.35	.26	.20	.16
47F2215	61F15AA223	.022	.188x .750	.35	.26	.20	.16
47F2216	61F17AA333	.033	.219x .750	.36	.27	.21	.16
47F2217	61F19AA473	.047	.250x .750	.42	.31	.24	.18
47F2218	61F22AA683	.068	.265x .875	.44	.32	.25	.19
47F2219	61F24AA104	.10	.328x .875	.46	.34	.26	.20
47F2220	61F51AA105	1.00	.610x 1.59	1.11	.82	.63	.48

200 VDC

Stk. No.	Type	Cap. µF	Dia. x L. Inches	1-24	25-49	50-99	100-499
47F2221	61F10BA102	.011	.200x .450	.35	.26	.20	.16
47F2222	61F10BA152	.0015	.200x .450	.35	.26	.20	.16
47F2223	61F10BA222	.0022	.200x .450	.35	.26	.20	.16
47F2224	61F10BA472	.0047	.200x .450	.35	.26	.20	.16
47F2225	61F15BA103	.010	.188x .750	.35	.26	.20	.16
47F2226	61F19BA223	.022	.250x .750	.40	.29	.23	.17
47F2227	61F22BA333	.033	.265x .875	.42	.31	.24	.18
47F2228	61F23BA473	.047	.281x .875	.42	.31	.24	.19
47F2229	61F29BA104	.10	.375x1.09	.47	.35	.27	.21
47F2230	61F34BA154	.15	.436x1.09	.52	.38	.30	.23
47F2231	61F38BA224	.22	.436x1.25	.58	.43	.33	.26

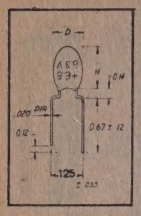
TYPE 61F LECTROFILM®-B TUBULAR COMPUTER-GRADE CAPACITORS





Designed for computers, electronic instruments, communications equipment requiring reliability and long life. Temp. range −55°C to +125°C with proper voltage derating. Ratings 100 and 200 VDC at 85°C. Insulation resistance at 25°C 10,000 megohm-microfarads not to exceed 100,000 megohms, and at 85°C 1000 megohm-microfarads not to exceed 10,000 megohms. Dissipation factor less than 1%. ±10% tolerance.

TYPE TA-DIPPED SOLID TANTALUM CAPACITORS



Type TA epoxy-dipped solid tantalum capacitors are intended for industrial and commercial applications in moderate environments. They provide the recognized advantages inherent to solid tantalum pentoxide/manganese dioxide systems in an economical, non-metal case, radial lead configuration for printed circuit board mounting. The dipped epoxy case is highly resistant to moisture and mechanical damage.

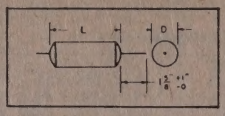
Suitable for continuous operation at 85° C, with voltage ratings from 3 WVDC through 35 WVDC. Capacitance tolerance 10%. Units are marked with capacitance, voltage, and polarity.

OUTLINE DIMENSIONS

Case size	Diameter D (Maximum) M. (mm)	Height H (Maximum) M. (mm)
1	0.177 (4.5)	0.276 (7.0)
2	0.197 (5.0)	0.295 (7.5)
3	0.217 (5.5)	0.315 (8.0)
4	0.217 (5.5)	0.335 (8.5)
5	0.217 (5.5)	0.354 (9.0)
6	0.256 (6.5)	0.374 (9.5)
7	0.276 (7.0)	0.394 (10.0)

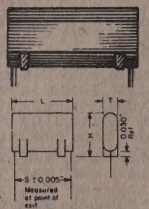
Stock No.	Type	Cap. (μF)	Case Size	EACH 1-24	25-49	50-99	100-499
3 Volts D-C Working, 4 Volts D-C Surge							
48F245	TA01A106KB	10	1	.70	.53	.35	.28
48F246	TA02A156KB	15	2	.70	.53	.35	.28
48F247	TA03A226KB	22	3				
48F248	TA04A336KB	33	4	.80	.60	.40	.32
48F249	TA05A476KB	47	5				
48F250	TA06A686KB	68	6				
48F251	TA07A107KB	100	7	.81	.61	.41	.33
6.3 Volts D-C Working, 8 Volts D-C Surge							
48F252	TA02B685KB	6.8	2	.70	.53	.35	.28
48F253	TA03B106KB	10	3				
48F254	TA04B156KB	15	4	.80	.60	.40	.32
48F255	TA05B226KB	22	5				
48F256	TA06B336KB	33	6				
48F257	TA07B476KB	47	7	.81	.61	.41	.33
10 Volts D-C Working, 13 Volts D-C Surge							
48F258	TA02D475KB	4.7	2	.70	.53	.35	.28
48F259	TA03D685KB	6.8	3				
48F260	TA04D106KB	10	4	.80	.60	.40	.32
48F261	TA05D156KB	15	5				
48F262	TA06D226KB	22	6				
48F263	TA07D336KB	33	7	.81	.61	.41	.33
16 Volts D-C Working, 20 Volts D-C Surge							
48F264	TA02E335KB	3.3	2	.70	.53	.35	.28
48F265	TA03E475KB	4.7	3				
48F266	TA04E685KB	6.8	4	.80	.60	.40	.32
48F267	TA05E106KB	10	5				
48F268	TA06E156KB	15	6				
48F269	TA07E226KB	22	7	.81	.61	.41	.33
20 Volts D-C Working, 26 Volts D-C Surge							
48F270	TA02F225KB	2.2	2	.70	.53	.35	.28
48F271	TA03F335KB	3.3	3				
48F272	TA04F475KB	4.7	4	.80	.60	.40	.32
48F273	TA05F685KB	6.8	5				
48F274	TA06F106KB	10	6				
48F275	TA07F156KB	15	7	.81	.61	.41	.33
25 Volts D-C Working, 32 Volts D-C Surge							
48F276	TA01G155KB	1.5	1	.70	.53	.35	.28
48F277	TA02G225KB	2.2	2	.70	.53	.35	.28
48F278	TA03G335KB	3.3	3	.80	.60	.40	.32
48F279	TA04G475KB	4.7	4	.80	.60	.40	.32
48F280	TA05G685KB	6.8	5	.80	.60	.40	.32
48F281	TA06G106KB	10	6	.81	.61	.41	.33
35 Volts D-C Working, 46 Volts D-C Surge							
48F282	TA01H154KB	0.15	1				
48F283	TA01H224KB	0.22	1				
48F284	TA01H334KB	0.33	1	.70	.53	.35	.28
48F285	TA01H474KB	0.47	1				
48F286	TA01H684KB	0.68	1				
48F287	TA01H105KB	1.0	1				
48F288	TA02H155KB	1.5	2				
48F289	TA03H225KB	2.2	3	.80	.60	.40	.32
48F290	TA04H335KB	3.3	4				
48F291	TA05H475KB	4.7	5				
48F292	TA06H685KB	6.8	6	.81	.61	.41	.33
48F293	TA07H106KB	10.0	7	1.60	1.20	.80	.64

TYPE AE LECTROFILM-B TUBULAR CAPACITORS



For use where small size and high reliability at moderate cost is required. Special construction provides minimum size with excellent resistance to humidity, vibration and shock. Suffix indicates tolerance: J = ±5%; K = ±10%. Ratings at 85°C.

Stk. No.	Type	VDC	Cap. μF	Dim., Inches D x L	1-24	25-49	50-99	100-499
47F2308	AE12R222J	80	.0022	.153x.406	.56	.41	.32	.25
47F2309	AE12R332K	80	.0033	.153x.406	.42	.31	.24	.18
47F2310	AE12R472K	80	.0047	.153x.406	.42	.31	.24	.18
47F2311	AE13R103K	80	.010	.185x.450	.42	.31	.24	.18
47F2312	AE15R153K	80	.015	.185x.530	.45	.33	.26	.20
47F2313	AE15R223K	80	.022	.185x.530	.46	.34	.26	.20
47F2314	AE17R473K	80	.047	.229x.594	.50	.37	.29	.22
47F2315	AE17R104K	80	.10	.315x.594	.58	.42	.33	.25
47F2316	AE12C102J	200	.0010	.153x.406	.47	.35	.27	.21
47F2317	AE12C102K	200	.0010	.153x.406	.35	.26	.20	.15
47F2318	AE12C152J	200	.0015	.153x.406	.47	.35	.27	.21
47F2319	AE12C152K	200	.0015	.153x.406	.35	.26	.20	.15
47F2320	AE12C222K	200	.0022	.185x.406	.35	.26	.20	.15
47F2321	AE12C332K	200	.0033	.185x.450	.35	.26	.20	.15
47F2322	AE13C472J	200	.0047	.185x.450	.47	.35	.27	.21
47F2323	AE13C472K	200	.0047	.185x.450	.35	.26	.20	.15
47F2324	AE13C103J	200	.010	.185x.450	.47	.35	.27	.21
47F2325	AE13C103K	200	.010	.185x.450	.35	.26	.20	.15
47F2328	AE17C223J	200	.022	.229x.594	.52	.39	.30	.23
47F2329	AE17C223K	200	.022	.229x.594	.39	.29	.22	.17
47F2330	AE17C473J	200	.047	.315x.594	.58	.43	.33	.26
47F2331	AE17C473K	200	.047	.315x.594	.43	.32	.25	.19
47F2332	AE22C104J	200	.10	.328x.719	.69	.51	.40	.30
47F2333	AE22C104K	200	.10	.328x.719	.52	.38	.30	.23



TYPE 75F FILM CAPACITORS

"Black Hawk" film capacitor features rugged epoxy molded case with mounting feet and radial leads for PC board mount. Voltage ratings at 85°C. Tolerance ±10%.

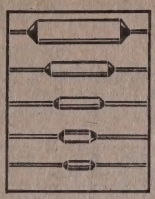
Stk. No.	Type	VDC	Cap. μF	Dim., In. H x L	1-24	25-49	50-99	100-499
47F2334	75F1R5A102	50	.0010	.471x .500				
47F2335	75F1R5A222	50	.0022	.471x .500				
47F2336	75F1R5A472	50	.0047	.471x .500				
47F2337	75F1R5A103	50	.010	.471x .500	.35	.26	.20	.16
47F2338	75F1R5A223	50	.022	.471x .500				
47F2339	75F1R5A333	50	.033	.471x .500				
47F2340	75F1R5A473	50	.047	.471x .500				
47F2341	75F1R5A563	50	.056	.471x .500				
47F2342	75F3R5A683	50	.068	.475x .800				
47F2343	75F3R5A104	50	.10	.475x .800	.42	.31	.24	.18
47F2344	75F3R5A154	50	.15	.475x .800				
47F2345	75F4R5A224	50	.22	.531x .800	.54	.39	.31	.23
47F2346	75F4R5A334	50	.33	.531x .800	.54	.39	.31	.23
47F2347	75F6R5A474	50	.47	.569x1.130	.76	.56	.43	.33
47F2348	75F6R5A684	50	.68	.569x1.130	.76	.56	.43	.33
47F2349	75F7R5A105	50	1.00	.732x1.130	1.20	.88	.68	.52
47F2350	75F1R1A102	100	.001	.471x .500				
47F2351	75F1R1A103	100	.010	.471x .500	.35	.26	.20	.16
47F2352	75F1R1A223	100	.022	.471x .500				
47F2353	75F3R1A473	100	.047	.475x .800	.42	.31	.24	.18
47F2354	75F3R1A104	100	.10	.475x .800				
47F2355	75F1R2A102	200	.0010	.471x .500				
47F2356	75F1R2A222	200	.0022	.471x .500				
47F2357	75F1R2A472	200	.0047	.471x .500	.35	.26	.20	.16
47F2358	75F1R2A103	200	.010	.471x .500				
47F2359	75F1R2A223	200	.022	.471x .500				
47F2360	75F3R2A473	200	.047	.475x .800				
47F2361	75F3R2A683	200	.068	.475x .800	.42	.31	.24	.18
47F2362	75F3R2A104	200	.10	.475x .800				
47F2363	75F6R2A224	200	.22	.569x1.130	.63	.47	.36	.28
47F2364	75F6R2A334	200	.33	.569x1.130	.63	.47	.36	.28
47F2365	75F7R2A474	200	.47	.732x1.130	.81	.60	.46	.36

Insulated Tantalum Capacitors

MEPCO/ELECTRA, INC.
A NORTH AMERICAN PHILIPS COMPANY

TYPE 62F WET-SLUG CAPACITORS

Sub-miniature D.C. Electrolytics utilize large capacitance values in small spaces. Meets Military vibration requirements of 2000 Hz. at 15G acc., normal shock.

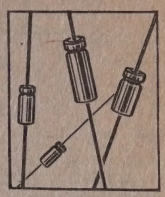


Case	"D" max.	"L" max.	Anode	Cath.	Wt. gms.
5	.080"	.250"	#24	#24	.26
1	.115"	.312"	#24	#24	.36
2	.115"	.438"	#24	#24	.501
3	.145"	.656"	#24	#24	1.00
4	.225"	.875"	#24	#24	2.76

Stock No.	Type	Cap. μF	WVDC	Case	1-24	25-49	50-99	100-499
20F400	62F100	15	6	1	1.71	1.25	.97	.74
20F401	62F200	30	6	2	1.80	1.32	1.02	.78
20F402	62F300	140	6	3	2.64	1.94	1.50	1.14
20F403	62F400	325	6	4	3.33	2.44	1.89	1.44
20F404	62F201	25	8	2	1.80	1.32	1.02	.78
20F405	62F101	10	10	1	1.71	1.25	.97	.74
20F406	62F301	100	10	3	2.64	1.94	1.50	1.14
20F407	62F401	250	10	4	3.33	2.44	1.89	1.44
20F408	62F102	8	15	1	1.71	1.25	.97	.74
20F409	62F202	20	15	2	1.80	1.32	1.02	.78
20F410	62F302	70	15	3	2.64	1.94	1.50	1.14
20F411	62F402	175	15	4	3.33	2.44	1.89	1.44
20F412	62F203	15	20	2	1.80	1.32	1.02	.78
20F413	62F303	50	20	3	2.64	1.94	1.50	1.14
20F414	62F103	6	25	1	1.71	1.25	.97	.74
20F415	62F204	10	25	2	1.80	1.32	1.02	.78
20F416	62F104	5	30	1	1.71	1.25	.97	.74
20F417	62F205	8	30	2	1.80	1.32	1.02	.78
20F418	62F304	40	30	3	2.64	1.94	1.50	1.14
20F419	62F403	100	30	4	3.33	2.44	1.89	1.44
20F420	62F501	0.1	50	5	1.71	1.25	.97	.74
20F421	62F505	0.5	50	5	1.71	1.25	.97	.74
20F422	62F510	1	50	5	1.71	1.25	.97	.74
20F423	62F105	3	50	1	1.71	1.25	.97	.74
20F424	62F206	6	50	2	1.80	1.32	1.02	.78
20F425	62F305	25	50	3	2.64	1.94	1.50	1.14
20F426	62F404	60	50	4	3.33	2.44	1.89	1.44
20F427	62F106	2	60	1	1.71	1.25	.97	.74
20F428	62F208	4	60	2	1.80	1.32	1.02	.78
20F429	62F306	20	60	3	2.64	1.94	1.50	1.14
20F430	62F405	50	60	4	3.33	2.44	1.89	1.44

TYPE 69F2000 WET-SLUG CAPACITORS

Features: Teflon/Elastomer double O-ring seal providing excellent thermocycle characteristics. Electrical stability throughout a wide temp. range (−55°C to +85/125°C). Low leakage current. Volt x μF ratings 2 to 3 times Mil. standard.



Case	Length	Insulated Diameter	Lead Length	Weight (Grams)
1	2 9/64	1 3/64	1½	1.5
2	4 1/64	1 9/64	2¼	4.2
3	4 9/64	2 3/64	2¼	8.0
4	1 1/16	2 5/64	2¼	12.0

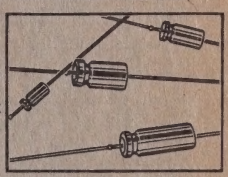
NOTE: All dimensions in inches.

Stock No.	Type No.	Cap. μF	WVDC 85°C	WVDC 125°C	Case	1-24	25-49	50-99	100-499
20F431	69F2101G7	220	6	4	1	2.42	1.98	1.58	1.34
20F432	69F2201G7	820	6	4	2	4.14	3.38	2.70	2.03
20F433	69F2301G7	1500	6	4	3	7.52	6.13	4.89	3.63
20F434	69F2402G7	1800	6	4	4	10.73	8.75	6.97	5.77
20F435	69F2114G7	150	10	7	1	2.42	1.98	1.58	1.34
20F436	69F2214G7	510	10	7	2	4.14	3.38	2.70	2.03
20F437	69F2314G7	1000	10	7	3	7.52	6.13	4.89	3.63
20F438	69F2414G7	1300	10	7	4	10.73	8.75	6.97	5.77
20F439	69F2121G7	100	15	10	1	2.42	1.98	1.58	1.34
20F440	69F2221G7	360	15	10	2	4.14	3.38	2.70	2.03
20F441	69F2321G7	750	15	10	3	7.52	6.13	4.89	3.63
20F442	69F2421G7	1100	15	10	4	10.73	8.75	6.97	5.77
20F443	69F2136G7	68	25	15	1	2.42	1.98	1.58	1.34
20F444	69F2236G7	220	25	15	2	4.14	3.38	2.70	2.03
20F445	69F2336G7	510	25	15	3	7.52	6.13	4.89	3.63
20F446	69F2436G7	750	25	15	4	10.73	8.75	6.97	5.77
20F447	69F2161G7	33	50	30	1	2.42	1.98	1.58	1.34
20F448	69F2261G7	120	50	30	2	4.14	3.38	2.70	2.03
20F449	69F2361G7	270	50	30	3	7.52	6.13	4.89	3.63
20F450	69F2461G7	360	50	30	4	10.73	8.75	6.97	5.77
20F451	69F2171G7	27	60	40	1	2.42	1.98	1.58	1.34
20F452	69F2271G7	100	60	40	2	4.14	3.38	2.70	2.03
20F453	69F2371G7	220	60	40	3	7.52	6.13	4.89	3.63
20F454	69F2471G7	300	60	40	4	10.73	8.75	6.97	5.77
20F455	69F2186G7	22	75	50	1	2.42	1.98	1.58	1.34
20F456	69F2286G7	82	75	50	2	4.14	3.38	2.70	2.03
20F457	69F2386G7	180	75	50	3	7.52	6.13	4.89	3.63
20F458	69F2486G7	240	75	50	4	10.73	8.75	6.97	5.77

TYPE 69F WET-SLUG CAPACITORS

Stock No.	Type No.	Cap. μF	WVDC 85°C	WVDC 125°C	Case	1-24	25-49	50-99	100-499
20F459	69F105G7	30	6	4	1	2.07	1.69	1.35	1.09
20F460	69F106G7	68	6	4	1	2.07	1.69	1.35	1.09
20F461	69F205G7	140	6	4	2	3.17	2.59	2.07	1.67
20F462	69F206G7	270	6	4	2	3.17	2.59	2.07	1.67
20F463	69F305G7	330	6	4	3	5.33	4.35	3.47	2.63
20F464	69F306G7	560	6	4	3	5.33	4.35	3.47	2.63
20F465	69F405G7	1200	6	4	4	9.44	7.70	6.13	4.57
20F466	69F115G7	25	8	5	1	2.07	1.69	1.35	1.09
20F467	69F116G7	56	8	5	1	2.07	1.69	1.35	1.09
20F468	69F215G7	220	8	5	2	3.17	2.59	2.07	1.67
20F469	69F315G7	430	8	5	3	5.33	4.35	3.47	2.63
20F470	69F415G7	850	8	5	4	9.44	7.70	6.13	4.57
20F471	69F125G7	20	10	7	1	2.07	1.69	1.35	1.09
20F472	69F126G7	47	10	7	1	2.07	1.69	1.35	1.09
20F473	69F225G7	100	10	7	2	3.17	2.59	2.07	1.67
20F474	69F226G7	180	10	7	2	3.17	2.59	2.07	1.67
20F475	69F325G7	250	10	7	3	5.33	4.35	3.47	2.63
20F476	69F326G7	390	10	7	3	5.33	4.35	3.47	2.63
20F477	69F425G7	750	10	7	4	9.44	7.70	6.13	4.57
20F478	69F135G7	15	15	10	1	2.07	1.69	1.35	1.09
20F479	69F136G7	33	15	10	1	2.07	1.69	1.35	1.09
20F480	69F235G7	70	15	10	2	3.17	2.59	2.07	1.67
20F481	69F236G7	120	15	10	2	3.17	2.59	2.07	1.67
20F482	69F335G7	170	15	10	3	5.33	4.35	3.47	2.63
20F483	69F336G7	270	15	10	3	5.33	4.35	3.47	2.63
20F484	69F435G7	540	15	10	4	9.44	7.70	6.13	4.57
20F485	69F145G7	10	25	15	1	2.07	1.69	1.35	1.09
20F486	69F146G7	22	25	15	1	2.07	1.69	1.35	1.09
20F487	69F245G7	100	25	15	2	3.17	2.59	2.07	1.67
20F488	69F345G7	180	25	15	3	5.33	4.35	3.47	2.63
20F489	69F445G7	350	25	15	4	9.44	7.70	6.13	4.57
20F490	69F155G7	8	30	20	1	2.07	1.69	1.35	1.09
20F491	69F156G7	15	30	20	1	2.07	1.69	1.35	1.09
20F492	69F255G7	40	30	20	2	3.17	2.59	2.07	1.67
20F493	69F256G7	68	30	20	2	3.17	2.59	2.07	1.67
20F494	69F355G7	100	30	20	3	5.33	4.35	3.47	2.63
20F495	69F356G7	150	30	20	3	5.33	4.35	3.47	2.63
20F496	69F455G7	300	30	20	4	9.44	7.70	6.13	4.57
20F497	69F165G7	5	50	30	1	2.07	1.69	1.35	1.09
20F498	69F166G7	10	50	30	1	2.07	1.69	1.35	1.09

Features: Teflon/Elastomer double O-ring seal providing excellent thermocycle characteristics. Electrical stability throughout a wide temp. range (−55° to +85/125°C). Low leakage current.

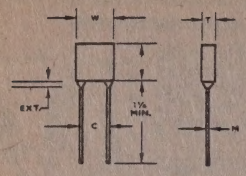


Stock No.	Type No.	Cap. μF	WVDC 85°C	WVDC 125°C	Case	1-24	25-49	50-99	100-499
20F499	69F265G7	25	50	30	2	3.17	2.59	2.07	1.67
20F500	69F266G7	47	50	30	2	3.17	2.59	2.07	1.67
20F501	69F365G7	60	50	30	3	5.33	4.35	3.47	2.63
20F502	69F366G7	82	50	30	3	5.33	4.35	3.47	2.63
20F503	69F465G7	160	50	30	4	9.44	7.70	6.13	4.57
20F504	69F175G7	4	60	40	1	2.07	1.69	1.35	1.09
20F505	69F176G7	8.2	60	40	1	2.07	1.69	1.35	1.09
20F506	69F275G7	20	60	40	2	3.17	2.59	2.07	1.67
20F507	69F276G7	39	60	40	2	3.17	2.59	2.07	1.67
20F508	69F375G7	50	60	40	3	5.33	4.35	3.47	2.63
20F509	69F376G7	68	60	40	3	5.33	4.35	3.47	2.63
20F510	69F469G7	140	60	40	4	9.44	7.70	6.13	4.57
20F511	69F185G7	3.5	75	50	1	2.07	1.69	1.35	1.09
20F512	69F186G7	6.8	75	50	1	2.07	1.69	1.35	1.09
20F513	69F285G7	15	75	50	2	3.17	2.59	2.07	1.67
20F514	69F286G7	33	75	50	2	3.17	2.59	2.07	1.67
20F515	69F385G7	40	75	50	3	5.33	4.35	3.47	2.63
20F516	69F386G7	56	75	50	3	5.33	4.35	3.47	2.63
20F517	69F475G7	110	75	50	4	9.44	7.70	6.13	4.57
20F518	69F195G7	2.5	100	70	1	2.20	1.80	1.44	1.16
20F519	69F196G7	4.7	100	70	1	2.20	1.80	1.44	1.16
20F520	69F295G7	11	100	70	2	3.90	3.19	2.54	1.90
20F521	69F296G7	22	100	70	2	3.90	3.19	2.54	1.90
20F522	69F395G7	30	100	70	3	5.99	4.73	3.77	3.12
20F523	69F396G7	43	100	70	3	5.99	4.73	3.77	3.12
20F524	69F485G7	86	100	70	4	11.35	9.26	7.37	5.49
20F525	69F197G7	1.7	125	85	1	2.20	1.80	1.44	1.16
20F526	69F198G7	3.6	125	85	1	2.20	1.80	1.44	1.16
20F527	69F297G7	9	125	85	2	3.90	3.19	2.54	1.90
20F528	69F298G7	14	125	85	2	3.90	3.19	2.54	1.90
20F529	69F397G7	25	125	85	3	5.99	4.73	3.77	3.12

7

MALLORY Multilayer Commercial Ceramic Capacitors

TYPE MLC LAMINATED CAPACITORS



Capacitors constructed of laminated layers of high density homogeneous ceramic. Interleaved thin layers of precious metal electrode material provide extremely high mechanical stability and electrical reliability.

SPECIFICATIONS

Operable Temperature Range: —55°C to 125°C. Capacity Tolerance: 20%. Voltage Ratings: 50 or 100 VDC. Temperature Coefficient: Z5U. Flash Test: 2.5 times rated voltage for 1 sec. DF @ 1 kHz., Maximum: 2.5% Life Test: exceeds EIA RS-198.

Stk. No.	Type	μF	VDC	Lead Spc.	1-24	25-49	50-99	100-249
65F485	C12C223M5U1CA	.022	50	.100"	.34	.22	.17	.14
65F486	C12C333M5U1CA	.033	50	.100"	.34	.22	.17	.14
65F487	C12C473M5U1CA	.047	50	.100"	.34	.22	.17	.14
65F488	C12C683M5U1CA	.068	50	.100"	.36	.24	.18	.15
65F489	C12C104M5U1CA	.100	50	.100"	.38	.25	.19	.15
65F490	C12C154M5U1CA	.15	50	.100"	.55	.36	.28	.22
65F491	C12C224M5U1CA	.22	50	.100"	.70	.46	.35	.28
65F492	C25C474M5U1CA	.47	50	.250"	.85	.56	.43	.34
65F493	C25C684M5U1CA	.68	50	.250"	1.20	.79	.60	.48
65F494	C25C105M5U1CA	1.0	50	.250"	1.90	1.25	.95	.76
65F495	C25C155M5U1CA	1.5	50	.250"	2.85	1.88	1.43	1.14
65F496	C12C103M1U1CA	.01	100	.100"	.33	.22	.17	.13
65F497	C12C153M1U1CA	.015	100	.100"	.34	.22	.17	.14
65F498	C12C223M1U1CA	.022	100	.100"	.36	.24	.18	.15
65F499	C12C333M1U1CA	.033	100	.100"	.38	.25	.19	.15
65F500	C12C473M1U1CA	.047	100	.100"	.55	.36	.28	.22
65F501	C12C683M1U1CA	.068	100	.100"	.70	.46	.35	.28

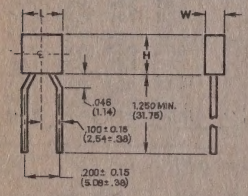
Stk. No.	Type	μF	VDC	Lead Spc.	1-24	25-49	50-99	100-249
65F502	C25C223M1U1CA	.022	100	.250"	.34	.22	.17	.14
65F503	C25C333M1U1CA	.033	100	.250"	.34	.22	.17	.14
65F504	C25C473M1U1CA	.047	100	.250"	.34	.22	.17	.14
65F505	C25C683M1U1CA	.068	100	.250"	.38	.25	.19	.15
65F506	C25C104M1U1CA	.1	100	.250"	.55	.36	.28	.22
65F507	C25C154M1U1CA	.15	100	.250"	.70	.46	.35	.28
65F508	C25C224M1U1CA	.22	100	.250"	.80	.53	.40	.32
65F509	C25C334M1U1CA	.33	100	.250"	.85	.56	.43	.34
65F510	C30C334M1U1CA	.33	100	.200"	1.15	.76	.58	.46
65F511	C30C474M1U1CA	.47	100	.200"	1.70	1.12	.85	.68
65F512	C30C684M1U1CA	.68	100	.200"	1.95	1.29	.98	.78
65F513	C30C105M1U1CA	1.0	100	.200"	5.20	3.43	2.60	2.08
65F514	C30C155M1U1CA	1.5	100	.200"	7.65	5.05	3.83	3.06
65F515	C30C155M5U1CA	1.5	50	.200"	3.00	1.98	1.50	1.20
65F516	C30C225M5U1CA	2.2	50	.200"	4.50	2.97	2.25	1.80
65F517	C30C335M5U1CA	3.3	50	.200"	7.65	5.05	3.83	3.06

7

ESTABLISHED RELIABILITY CERAMIC CAPACITORS

CKR ceramic capacitors exceed MIL-C-39014C requirements. Established failure rates of 2%, 1%, 0.1%, 0.01% per 100 hours at 90% confidence levels. Dielectric body offers maximum volumetric efficiency at minimized capacitance change with voltage and temperature.

CKR05 OUTLINE AND DIMENSIONS



Dimension	Inches	mm
Case Height "H"	.190 ±.010	4.83 ± .25
Case Length "L"	.190 ±.010	4.83 ± .25
Case Width "W"	.090 ±.010	2.29 ± .25
Lead Wire Dia. "D"	.025 +.004 −.001	.64 + .10 − .03

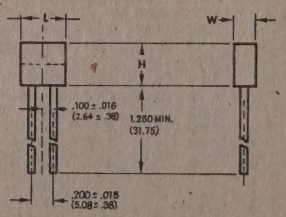
Stk. No.	Mil Type M39014/01	pF	VDC	1-24	25-49	50-99	100-249
65F518	M39014/01-1281	10	200				
65F519	M39014/01-1283	12	200				
65F520	M39014/01-1284	15	200	1.75	1.16	.88	.70
65F521	M39014/01-1286	18	200				
65F522	M39014/01-1287	22	200				
65F523	M39014/01-1289	27	200				
65F524	M39014/01-1290	33	200				
65F525	M39014/01-1292	39	200	1.75	1.16	.88	.70
65F526	M39014/01-1293	47	200				
65F527	M39014/01-1295	56	200				
65F528	M39014/01-1296	68	200				
65F529	M39014/01-1298	82	200				
65F530	M39014/01-1299	100	200	1.75	1.16	.88	.70
65F531	M39014/01-1301	120	200				
65F532	M39014/01-1302	150	200				
65F533	M39014/01-1304	180	200				
65F534	M39014/01-1305	220	200				
65F535	M39014/01-1307	270	200	1.75	1.16	.88	.70
65F536	M39014/01-1308	330	200				
65F537	M39014/01-1310	390	200				
65F538	M39014/01-1311	470	200				
65F539	M39014/01-1313	560	200	1.75	1.16	.88	.70
65F540	M39014/01-1314	680	200				
65F541	M39014/01-1316	820	200	1.75	1.16	.88	.70
65F542	M39014/01-1317	1K	200				

Stk. No.	Mil Type M39014/01	pF	VDC	1-24	25-49	50-99	100-249
65F543	M39014/01-1319	1.2K	100				
65F544	M39014/01-1320	1.5K	100				
65F545	M39014/01-1522	1.8K	100	1.95	1.29	.98	.78
65F546	M39014/01-1523	2.2K	100				
65F547	M39014/01-1525	2.7K	100				

Stk. No.	Mil Type M39014/01	pF	VDC	1-24	25-49	50-49	100-249
65F548	M39014/01-1526	3.3K	100				
65F549	M39014/01-1528	3.9K	100	1.95	1.29	.98	.78
65F550	M39014/01-1529	4.7K	100				
65F551	M39014/01-1531	5.6K	100				
65F552	M39014/01-1532	6.8K	100				
65F553	M39014/01-1534	8.2K	100	2.00	1.32	1.00	.80
65F554	M39014/01-1535	10K	100				

Stk. No.	Mil Type M39014/01	pF	VDC	1-24	25-49	50-49	100-249
65F555	M39014/01-1537	12K	50				
65F556	M39014/01-1538	15K	50	2.40	1.58	1.20	.96
65F557	M39014/01-1540	18K	50				
65F558	M39014/01-1541	22K	50				
65F559	M39014/01-1543	27K	50	2.40	1.58	1.20	.96
65F560	M39014/01-1544	33K	50	2.50	1.65	1.25	1.00
65F561	M39014/01-1546	39K	50	2.50	1.65	1.25	1.00
65F562	M39014/01-1547	47K	50	2.50	1.65	1.25	1.00
65F563	M39014/01-1549	56K	50	2.70	1.78	1.35	1.08
65F564	M39014/01-1550	68K	50	2.70	1.78	1.35	1.08
65F565	M39014/01-1552	82K	50	2.80	1.85	1.40	1.12
65F566	M39014/01-1553	100K	50	2.80	1.85	1.40	1.12

CKR06 OUTLINE AND DIMENSIONS



Dimension	Inches	mm
Case Height "H"	.290 ±.010	7.37 .25
Case Length "L"	.290 ±.010	7.37 ± .25
Case Width "W"	.090 ±.010	2.29 ± .25
Lead Wire Dia. "D"	.025 +.004 −.001	.64 + .10 − .03

Stk. No.	Mil Type M39014/01	pF	VDC	1-24	25-49	50-49	100-249
65F567	M39014/02-1281	1.2K	200				
65F568	M39014/02-1282	1.5K	200				
65F569	M39014/02-1284	1.8K	200				
65F570	M39014/02-1286	2.2K	200	2.00	1.32	1.00	.80
65F571	M39014/02-1288	2.7K	200				
65F572	M39014/02-1289	3.3K	200				
65F573	M39014/02-1291	3.9K	200				

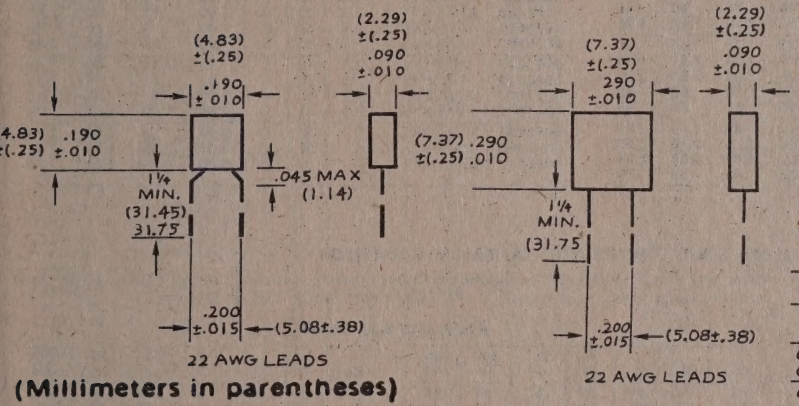
Ceramic Capacitors

MALLORY

Stk. No.	Mil Type M39014/02	pF	VDC	1-24	25-49	50-99	100-249
65F574	M39014/02-1292	4.7K	200				
65F575	M39014/02-1294	5.6K	200				
65F576	M39014/02-1295	6.8K	200	2.00	1.32	1.00	.80
65F577	M39014/02-1297	8.2K	200				
65F578	M39014/02-1298	10K	200				
65F579	M39014/02-1311	12K	100				
65F580	M39014/02-1300	15K	100				
65F581	M39014/02-1301	18K	100	2.20	1.45	1.10	.88
65F582	M39014/02-1302	22K	100				
65F583	M39014/02-1312	27K	100				
65F584	M39014/02-1303	33K	100	2.35	1.55	1.18	.94
65F585	M39014/02-1304	39K	100	2.35	1.55	1.18	.94
65F586	M39014/02-1305	47K	100	2.35	1.55	1.18	.94
65F587	M39014/02-1306	56K	100	2.45	1.62	1.23	.98

Stk. No	Mil Type M39014/02	pF	VDC	1-24	25-49	50-99	100-249
65F588	M39014/02-1307	68K	100	2.45	1.62	1.23	.98
65F589	M39014/02-1309	82K	100	2.55	1.68	1.28	1.02
65F590	M39014/02-1310	100K	100	2.55	1.68	1.28	1.02
65F591	M39014/02-1313	120K	50	3.70	2.44	1.85	1.48
65F592	M39014/02-1314	150K	50	3.70	2.44	1.85	1.48
65F593	M39014/02-1315	180K	50	4.15	2.74	2.08	1.66
65F594	M39014/02-1316	220K	50	4.15	2.74	2.08	1.66
65F595	M39014/02-1317	270K	50	5.15	3.40	2.58	2.06
65F596	M39014/02-1318	330K	50	5.15	3.40	2.58	2.06
65F597	M39014/02-1319	390K	50	6.80	4.49	3.40	2.72
65F598	M39014/02-1320	470K	50	6.80	4.49	3.40	2.72
65F599	M39014/02-1412	560K	50	8.45	5.58	4.23	3.38
65F600	M39014/02-1413	680K	50	8.45	5.58	4.23	3.38
65F602	M39014/02-1414	820K	50	9.75	6.44	4.88	3.90
65F602	M39014/02-1415	1000K	50	9.75	6.44	4.88	3.90

MILITARY CERAMIC CAPACITORS



(Millimeters in parentheses)

Price Code

Code	1-24	25-49	50-99	100-249
A	.43	.28	.21	.17
B	.50	.33	.25	.20
C	.55	.36	.28	.22
D	.65	.43	.33	.26
E	.70	.46	.35	.28
F	.75	.50	.38	.30
G	.80	.53	.40	.32
H	.60	.40	.30	.24
I	.65	.43	.33	.26
J	.70	.46	.35	.28
K	.75	.50	.38	.30
L	.80	.53	.40	.32
M	1.45	.96	.73	.58
N	1.65	1.09	.83	.66
O	2.45	1.62	1.23	.98
P	3.40	2.24	1.70	1.36
Q	4.00	2.64	2.00	1.60
R	5.50	3.63	2.75	2.20

Ceramic capacitors manufactured to meet requirements of MIL-C-11015D/18D/19D/20C and exceeding many electrical and environmental requirements of the specification.

200 Volts

Stk. No.	Type CO52-	MIL No. CKO-	pF	Price Code
65F603	K100K2X5CA	5BX100K	10	A
65F604	K120K2X5CA	5BX120K	12	A
65F605	K150K2X5CA	5BX150K	15	A
65F606	K180K2X5CA	5BX180K	18	A
65F607	K220K2X5CA	5BX220K	22	A
65F608	K270K2X5CA	5BX270K	27	A
65F609	K330K2X5CA	5BX330K	33	A
65F610	K390K2X5CA	5BX390K	39	A
65F611	K470K2X5CA	5BX470K	47	A
65F612	K560K2X5CA	5BX560K	56	A
65F613	K680K2X5CA	5BX680K	68	A
65F614	K820K2X5CA	5BX820K	82	A
65F615	K101K2X5CA	5BX101K	100	A
65F616	K121K2X5CA	5BX121K	120	A
65F617	K151K2X5CA	5BX151K	150	A
65F618	K181K2X5CA	5BX181K	180	A
65F619	K221K2X5CA	5BX221K	220	A
65F620	K271K2X5CA	5BX271K	270	A
65F621	K331K2X5CA	5BX331K	330	A
65F622	K391K2X5CA	5BX391K	390	A
65F623	K471K2X5CA	5BX471K	470	A
65F624	K561K2X5CA	5BX561K	560	A
65F625	K681K2X5CA	5BX681K	680	A
65F626	K821K2X5CA	5BX821K	820	A
65F627	K102K2X5CA	5BX102K	1K	A

100 Volts

Stk. No.	Type No. CO52-	MIL. No. CKO-	pF	Pr Cd
65F628	K122K1X5CA	5BX122K	1.2K	B
65F629	K152K1X5CA	5BX152K	1.5K	B
65F630	K182K1X5CA	5BX182K	1.8K	B
65F631	K222K1X5CA	5BX222K	2.2K	B
65F632	K272K1X5CA	5BX272K	2.7K	B
65F633	K332K1X5CA	5BX332K	3.3K	B
65F634	K392K1X5CA	5BX392K	3.9K	B
65F635	K472K1X5CA	5BX472K	4.7K	B
65F636	K562K1X5CA	5BX562K	5.6K	B
65F637	K682K1X5CA	5BX682K	6.8K	C
65F638	K822K1X5CA	5BX822K	8.2K	C
65F639	K103K1X5CA	5BX103K	10K	C

100 Volts

Stk. No.	Type No. CO62-	MIL. No. CKO-	pF	Pr Cd
65F664	K123K1X5CA	6BX123K	12K	I
65F665	K153K1X5CA	6BX153K	15K	I
65F666	K183K1X5CA	6BX183K	18K	I
65F667	K223K1X5CA	6BX223K	22K	I
65F668	K273K1X5CA	6BX273K	27K	I
65F669	K333K1X5CA	6BX333K	33K	J
65F670	K393K1X5CA	6BX393K	39K	J
65F671	K473K1X5CA	6BX473K	47K	J
65F672	K563K1X5CA	6BX563K	56K	K
65F673	K683K1X5CA	6BX683K	68K	K
65F674	K823K1X5CA	6BX823K	82K	L
65F675	K104K1X5CA	6BX104K	100K	L

50 Volts

Stk. No.	CO62 Series Type No.	CKO Series Mil.No.	pF	Price Code
65F676	K124K5X5CA	6BX124K	120K	M
65F677	K154K5X5CA	6BX154K	150K	M
65F678	K184K5X5CA	6BX184K	180K	N
65F679	K224K5X5CA	6BX224K	220K	N
65F680	K274K5X5CA	6BX274K	270K	O
65F681	K334K5X5CA	6BX334K	330K	O
65F682	K394K5X5CA	6BX394K	390K	P
65F683	K474K5X5CA	6BX474K	470K	P
65F684	K564K5X5CA	6BX564K	560K	Q
65F685	K684K5X5CA	6BX684K	680K	Q
65F686	K824K5X5CA	6BX824K	820K	R
65F687	K105K5X5CA	6BX105K	1M	R

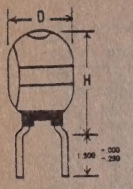
50 Volts

65F640	K123K5X5CA	5BX123K	12K	D
65F641	K153K5X5CA	5BX153K	15K	D
65F642	K183K5X5CA	5BX183K	18K	D
65F643	K223K5X5CA	5BX223K	22K	D
65F644	K273K5X5CA	5BX273K	27K	D
65F645	K333K5X5CA	5BX333K	33K	E
65F646	K393K5X5CA	5BX393K	39K	E
65F647	K473K5X5CA	5BX473K	47K	E
65F648	K563K5X5CA	5BX563K	56K	F
65F649	K683K5X5CA	5BX683K	68K	F
65F650	K823K5X5CA	5BX823K	82K	G
65F651	K104K5X5CA	5BX104K	100K	G

200 Volts

65F652	K122K2X5CA	6BX122K	1.2K	H
65F653	K152K2X5CA	6BX152K	1.5K	H
65F654	K182K2X5CA	6BX182K	1.8K	H
65F655	K222K2X5CA	6BX222K	2.2K	H
65F656	K272K2X5CA	6BX272K	2.7K	H
65F657	K332K2X5CA	6BX332K	3.3K	H
65F658	K392K2X5CA	6BX392K	3.9K	H
65F659	K472K2X5CA	6BX472K	4.7K	H
65F660	K562K2X5CA	6BX562K	5.6K	H
65F661	K682K2X5CA	6BX682K	6.8K	H
65F662	K822K2X5CA	6BX822K	8.2K	H
65F663	K103K2X5CA	6BX103K	10.0K	H

Solid Tantalum Capacitors



TDC DIPPED SOLID ELECTROLYTIC TANTALUM CAPACITORS

TDC tantalum capacitors have a hard, dip coated epoxy coating and are supplied with tinned nickel radial leads. They exhibit the same long shelf life and performance as other solid tantalum capacitors. Ideally suited for use in industrial, commercial and entertainment electronics. Low priced. Operating temperature −55°C to +85°C. Tolerance ±20%.

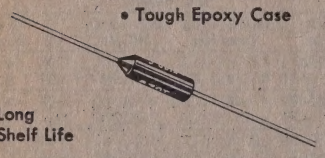
DIMENSIONS

Case Size	Max. Inches Dia. x Ht.	Lead Dia. In Inches (±.002)	Lead Spacing (±.015)	Case Markings
E	.175 x .350	.020 (#24AWG)	.250	
F	.250 x .500	.020 (#24AWG)	.250	Color Coded
G	.350 x .650	.025 (#22AWG)	.250	Stamped Capacity,
H	.409 x .750	.025 (#22AWG)	.250	Voltage & Tol.

Stock No.	Mfr's. Type TDC-	Cap. µF	WV DC	Case Size	EACH 1-24	25-49	50-99	100-499
60F3851	685M006EL	6.8	6	E	.78	.65	.52	.39
60F3852	476M006FL	47	6	F	.90	.75	.60	.45
60F3853	157M006GL	150	6	G	2.52	2.10	1.68	1.26
60F3854	337M006HL	330	6	H	4.62	3.85	3.08	2.31
60F3855	475M010EL	4.7	10	E	.78	.65	.52	.39
60F3856	336M010FL	33	10	F	.90	.75	.60	.45
60F3857	107M010GL	100	10	G	2.52	2.10	1.68	1.26
60F3858	227M010HL	220	10	H	4.62	3.85	3.08	2.31
60F3859	335M015EL	3.3	15	E	.78	.65	.52	.39
60F3860	226M015FL	22	15	F	.90	.75	.60	.45
60F3861	686M015GL	68	15	G	2.52	2.10	1.68	1.26
60F3862	157M015HL	150	15	H	4.62	3.85	3.08	2.31
60F3863	225M020EL	2.2	20	E	.78	.65	.52	.39
60F3864	156M020FL	15	20	F	.90	.75	.60	.45
60F3865	336M020GL	33	20	G	2.52	2.10	1.68	1.26
60F3866	476M020GL	47	20	G	2.52	2.10	1.68	1.26
60F3867	686M020HL	68	20	H	3.78	3.15	2.52	1.89
60F3868	107M020HL	100	20	H	4.62	3.85	3.08	2.31
60F3869	685M025FL	6.8	25	F	.90	.75	.60	.45
60F3870	106M025FL	10	25	F	.90	.75	.60	.45
60F3871	226M025GL	22	25	G	2.16	1.80	1.44	1.08
60F3872	476M025HL	47	25	H	3.30	2.75	2.20	1.65
60F3873	686M025HL	68	25	H	4.62	3.85	3.08	2.31
60F3874	105M035EL	1	35	E	.78	.65	.52	.39
60F3875	155M035EL	1.5	35	E	.78	.65	.52	.39
60F3876	225M035FL	2.2	35	F	.90	.75	.60	.45
60F3877	335M035FL	3.3	35	F	.90	.75	.60	.45
60F3878	475M035FL	4.7	35	F	.90	.75	.60	.45
60F3879	685M035FL	6.8	35	F	1.02	.85	.68	.51
60F3880	106M035FL	10	35	F	1.26	1.05	.84	.63
60F3881	156M035GL	15	35	G	2.52	2.10	1.68	1.26
60F3882	226M035GL	22	35	G	2.52	2.10	1.68	1.26
60F3883	336M035HL	33	35	H	3.90	3.25	2.60	1.95
60F3884	476M035HL	47	35	H	4.62	3.85	3.08	2.31
60F3885	104M050EL	.10	50	E	.90	.75	.60	.45
60F3886	154M050EL	.15	50	E	.90	.75	.60	.45
60F3887	224M050EL	.22	50	E	.90	.75	.60	.45
60F3888	334M050EL	.33	50	E	.90	.75	.60	.45
60F3889	474M050EL	.47	50	E	.90	.75	.60	.45
60F3890	684M050EL	.68	50	E	.90	.75	.60	.45
60F3891	105M050EL	1.0	50	E	.90	.75	.60	.45
60F3892	155M050FL	1.5	50	F	1.02	.85	.68	.51
60F3893	225M050FL	2.2	50	F	1.02	.85	.68	.51
60F3894	685M050GL	6.8	50	G	2.52	2.10	1.68	1.26
60F3895	106M050GL	10	50	G	2.82	2.35	1.88	1.41
60F3896	156M050GL	15	50	G	2.82	2.35	1.88	1.41
60F3897	226M050HL	22	50	H	5.40	4.50	3.60	2.70

TAC MOLDED SOLID ELECTROLYTIC TANTALUM CAPACITOR

- Small Uniform Size
- Tough Epoxy Case



- Long Shelf Life

Designed for high density applications. Impact resistant molded epoxy cases. ±10% tolerance. Oper. temp. −55°C to 85°C. #24 (.020") wire leads. 1½" ± ¼" long.

PRICE AND SIZE CHART

Key	Dia. x Lt.	1-24	25-49	50-99	100-499
E	.105 x .290	.89	.67	.56	.45
F	.105 x .290	.86	.65	.54	.44
F2	.105 x .290	.79	.59	.50	.40
G	.137 x .340	.79	.59	.50	.40
H	.137 x .340	.86	.65	.54	.44
I	.187 x .530	1.16	.87	.73	.58
I2	.187 x .530	1.52	1.14	.95	.76
J	.187 x .530	1.01	.76	.63	.51

Stk. No.	Type Tac-	Mfd	WVDC	Key
17F1627	156K003P02	15	3	F
17F1628	186K003P02	18	3	F
60F3664	686K003P04	68	3	I
60F3665	826K003P04	82	3	I2
17F1624	825K006P02	8.2	6	F
17F1625	106K006P02	10	6	F
60F3649	156K006P04	15	6	I
60F3652	186K006P04	18	6	I
60F3655	226K006P04	22	6	I
60F3657	276K006P04	27	6	I
60F3659	336K006P04	33	6	I
60F3661	396K006P04	39	6	I
60F3662	476K006P04	47	6	I
60F3663	566K006P04	56	6	I2
17F1619	335K010P02	3.3	10	F2
17F1620	395K010P02	3.9	10	F
17F1621	475K010P02	4.7	10	F
17F1622	565K010P02	5.6	10	F
17F1623	685K010P02	6.8	10	F
60F3593	825K010P04	8.2	10	I
60F3597	106K010P04	10	10	I
60F3645	126K010P04	12	10	I
60F3648	156K010P04	15	10	I
60F3651	186K010P04	18	10	I
60F3654	226K010P04	22	10	I
60F3656	276K010P04	27	10	I
60F3658	336K010P04	33	10	I
60F3660	396K010P04	39	10	I2
17F1618	275K015P02	2.7	15	F
60F3570	335K015P03	3.3	15	G
60F3575	395K015P04	3.9	15	I
60F3580	475K015P04	4.7	15	I
60F3584	565K015P04	5.6	15	I

Stk. No.	Type Tac-	Mfd	WVDC	Key
60F3588	685K015P04	6.8	15	I
60F3592	825K015P04	8.2	15	I
60F3596	106K015P04	10	15	I
60F3644	126K015P04	12	15	I
60F3647	156K015P04	15	15	I
60F3650	186K015P04	18	15	I
60F3653	226K015P04	22	15	I
17F1613	105K020P02	1.0	20	F2
17F1614	125K020P02	1.2	20	F2
17F1615	155K020P02	1.5	20	F2
17F1616	185K020P02	1.8	20	F
17F1617	225K020P02	2.2	20	F
60F3569	335K020P04	3.3	20	I
60F3574	395K020P04	3.9	20	I
60F3579	475K020P04	4.7	20	I
60F3583	565K020P04	5.6	20	I
60F3587	685K020P04	6.8	20	I
60F3591	825K020P04	8.2	20	I
60F3595	106K020P04	10	20	I
60F3599	126K020P04	12	20	I
60F3646	156K020P04	15	20	I
60F3556	125K025P03	1.2	25	G
60F3558	155K025P03	1.5	25	G
60F3560	185K025P03	1.8	25	G
60F3562	225K025P03	2.2	25	G
60F3565	275K025P04	2.7	25	I
60F3568	335K025P04	3.3	25	I
60F3573	395K025P04	3.9	25	I
60F3578	475K025P04	4.7	25	I
60F3582	565K025P04	5.6	25	I
60F3586	685K025P04	6.8	25	I
60F3590	825K025P04	8.2	25	I
60F3594	106K025P04	10	25	I
60F3598	126K025P04	12	25	I

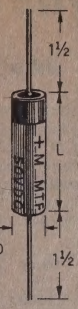
Stk. No.	Type Tac-	Mfd	WVDC	Key
17F1610	564K035P02	.56	35	F2
17F1611	684K035P02	.68	35	F2
17F1612	824K035P02	.82	35	F
60F3555	125K035P03	1.2	35	G
60F3564	275K035P04	2.7	35	I
60F3567	335K035P04	3.3	35	I
60F3572	395K035P04	3.9	35	I
60F3577	475K035P04	4.7	35	I
60F3581	565K035P04	5.6	35	I
60F3585	685K035P04	6.8	35	I
60F3589	825K035P04	8.2	35	I2
17F1600	823K050P02	.082	50	F
17F1601	104K050P02	.1	50	E
17F1603	154K050P02	.15	50	E
17F1604	184K050P02	.18	50	E
17F1605	224K050P02	.22	50	E
17F1606	274K050P02	.27	50	E
17F1607	334K050P02	.33	50	E
17F1608	394K050P02	.39	50	E
17F1609	474K050P02	.47	50	E
60F3550	564K050P03	.56	50	H
60F3551	684K050P03	.68	50	H
60F3552	824K050P03	.82	50	H
60F3553	105K050P03	1.0	50	H
60F3554	125K050P04	1.2	50	J
60F3557	155K050P04	1.5	50	J
60F3559	185K050P04	1.8	50	J
60F3561	225K050P04	2.2	50	J
60F3563	275K050P04	2.7	50	J
60F3566	335K050P04	3.3	50	J
60F3571	395K050P04	3.9	50	J
60F3576	475K050P04	4.7	50	J

Wet Slug Tantalum Capacitors

MALLORY

MTP TANTALUM CAPACITORS

Offers the greatest capacity of any tantalum type. Meets or exceeds MIL-STD-202 for high frequency vibration, shock, temperature and immersion cycling, moisture resistance, sleeving dielectric strength, and insulation resistance. Housed in silver cases with elastomer end seals. Completely insulated. Operating temperature from −50°C to +85°C. Tolerance ±20%.



PRICE AND SIZE LOCATOR

Case Size	Dia. x Lgth. Inches	1-24	25-49	50-99	100-499
A	.115 x .400	2.85	2.34	2.13	1.60
B	.145 x .590	3.42	2.80	2.61	1.93
C	.225 x .775	3.98	3.29	2.97	2.23
D	.115 x .312	2.83	2.33	2.11	1.59

Stk. No.	Mfr's Type MTP-	Cap. µF	WVDC @ 85°C	Max. D.C.L. at Max. WVDC in µA +25°C	Max. D.C.L. at Max. WVDC in µA +85°C	Max. DF @ 25°C	Code
60F2260	156M006P1D	15	6	2.0	6.0	35	D
60F2136	476M006P1A	47	6	2.0	6.0	33	A
60F2261	157M006P1B	150	6	2.0	8.0	37	B
13F314	187M006P1B	180	6	2.0	8.0	37	B
13F315	457M006P1C	450	6	2.0	10.0	50	C
60F2137	477M006P1C	470	6	2.0	10.0	50	C
60F2262	106M010P1D	10	10	2.0	6.0	20	D
60F2263	336M010P1A	33	10	2.0	6.0	30	A
60F2264	107M010P1B	100	10	2.0	8.0	33	B
13F316	127M010P1B	120	10	2.0	8.0	35	B
13F317	307M010P1C	300	10	2.0	10.0	35	C
60F2265	337M010P1C	330	10	2.0	10.0	35	C
60F2266	226M015P1A	22	15	2.0	6.0	33	A
60F2267	686M015P1B	68	15	2.0	8.0	27	B
13F318	806M015P1B	80	15	2.0	8.0	30	B
13F319	207M015P1C	200	15	2.0	10.0	30	C
60F2138	227M015P1C	220	15	2.0	10.0	30	C
60F2268	685M020P1D	6.8	20	2.0	6.0	20	D
60F2269	156M020P1A	15	20	2.0	6.0	25	A
60F2270	476M020P1B	47	20	2.0	8.0	25	B
13F320	606M020P1B	60	20	2.0	8.0	25	B
60F2271	157M020P1C	150	20	2.0	10.0	30	C
13F321	605M030P1D	6	30	2.0	6.0	20	D
13F322	106M030P1A	10	30	2.0	6.0	20	A
13F323	456M030P1B	45	30	2.0	8.0	25	B
13F324	127M030P1C	120	30	2.0	10.0	30	C
60F2272	475M035P1D	4.7	35	2.0	6.0	20	D
60F2139	106M035P1A	10	35	2.0	6.0	20	A
60F2140	107M035P1C	100	35	2.0	10.0	25	C
13F325	405M050P1D	4	50	2.0	6.0	20	D
13F326	685M050P1A	6.8	50	2.0	6.0	20	A
13F327	306M050P1B	30	50	2.0	8.0	20	B
60F2141	336M050P1B	33	50	2.0	8.0	20	B
60F2273	686M050P1C	68	50	2.0	10.0	20	C
13F328	786M050P1C	78	50	2.0	10.0	20	C
60F2274	335M060P1D	3.3	60	2.0	6.0	15	D
60F2275	475M060P1A	4.7	60	2.0	6.0	15	A
60F2277	106M060P1B	10	60	2.0	8.0	20	B
60F2278	156M060P1B	15	60	2.0	8.0	20	B
60F2142	226M060P1B	22	60	2.0	8.0	20	B
60F2143	336M060P1C	33	60	2.0	10.0	20	C
60F2144	476M060P1C	47	60	2.0	10.0	20	C
60F3850	686M060P1C	68	60	2.0	10.0	20	C

CMT TANTALUM CAPACITORS

Polar wet slug tantalum capacitor ideal for miniature circuits. This line offers much higher CV product per unit volume than other wet slug and solid types. Sealed in copper alloy case that is closed on an elastomer end seal. Anode lead-weld joint and end seal are epoxy resin encapsulated. Operating Temperature from −55°C to +85°C. Tolerance ±20%.

PRICE AND SIZE LOCATOR

Case Size	Dia. x Lgth. Inches	1-24	25-49	50-99	100-499
E	.115 x .403	2.62	1.97	1.67	1.34
F	.145 x .600	3.06	2.31	1.95	1.56
G	.225 x .778	3.75	3.09	2.79	1.96
H	.115 x .300	2.62	1.97	1.67	1.34

Stk. No.	Mfr's. Type CMT-	Cap. µF	WVDC @ 85°C	MAX DCL(µA) +25C	MAX DCL(µA) +85C	MAX DF 25°C	Case Size
15F619	156M006P1D	15	6	1.0	3.0	22	H
15F620	476M006P1A	47	6	2.0	6.0	38	E
15F621	157M006P1B	150	6	2.0	8.0	39	F
15F622	187M006P1B	180	6	2.0	8.0	40	F
15F623	457M006P1C	450	6	3.0	11.0	54	G
15F624	106M010P1D	10	10	1.0	3.0	20	H
15F625	306M010P1A	30	10	2.0	6.0	34	E
15F626	107M010P1B	100	10	2.0	8.0	30	F
15F627	127M010P1B	120	10	2.0	8.0	32	F
15F628	307M010P1C	300	10	3.0	12.0	39	G
15F629	206M015P1A	20	15	2.0	6.0	20	E
15F630	706M015P1B	70	15	2.0	8.0	30	F
15F631	806M015P1B	80	15	2.0	8.0	30	F
15F632	207M015P1C	200	15	3.0	12.0	30	G
15F633	685M020P1D	6.8	20	1.0	3.0	16	H
15F634	156M020P1A	15	20	2.0	6.0	18	E
15F649	506M020P1B	50	20	2.0	8.0	22	F
15F635	606M020P1B	60	20	2.0	8.0	28	F
15F636	157M020P1C	150	20	3.0	12.0	28	G
15F637	605M030P1D	6	30	1.5	5.0	16	H
15F638	106M030P1A	10	30	2.0	6.0	12	E
15F639	456M030P1B	45	30	2.0	8.0	22	F
15F640	107M030P1C	100	30	3.5	12.5	28	G
15F641	127M030P1C	120	30	4.0	15.0	28	G
15F642	475M035P1D	4.7	35	1.5	5.0	15	H
15F643	905M035P1A	9	35	2.0	6.0	15	E
15F644	107M035P1C	100	35	3.5	14.0	28	G
15F645	125M050P1D	1.2	50	1.0	3.0	20	H
15F650	305M050P1D	3	50	1.5	5.0	20	H
15F647	405M050P1D	4	50	1.5	5.0	12	H
15F648	685M0501PA	6.8	50	2.0	6.0	14	E
15F651	306M050P1B	30	50	2.0	8.0	18	F
15F652	686M050P1C	68	50	3.5	14.0	18	G
15F653	786M050P1C	78	50	4.0	16.0	18	G
15F654	105M060P1D	1	60	1.0	3.0	9	H
15F664	205M060P1D	2	60	1.5	5.0	11.0	H
15F655	335M060P1D	3.3	60	2.0	6.0	11	H
15F663	405M060P1A	4	60	2.0	6.0	11.5	E
15F656	565M060P1A	5.6	60	2.0	6.0	12	E
15F657	106M060P1B	10	60	2.0	8.0	13.5	F
15F658	156M060P1B	15	60	2.0	8.0	15	F
15F659	226M060P1B	22	60	2.0	8.0	18	F
15F660	336M060P1C	33	60	2.0	10.0	13.5	G
15F661	506M060P1C	50	60	3.0	12.0	15	G
15F662	686M060P1C	68	60	4.5	17.0	16.5	G

CTL TANTALUM ELECTROLYTIC CAPACITORS

The CTL is a miniature, polarized, sintered tantalum anode, liquid electrolyte capacitor. These capacitors, available in three case sizes, exhibit high MFD-Volt rating to volume ratios. The CTL capacitors are equivalent to style TLS except they come in copper alloy cases instead of silver. Capacitance tolerance ±20%. Operating temperature from −55°C to +85°C (at full rated voltage); −55°C to +125°C (with proper voltage derating).

PRICE AND SIZE LOCATOR

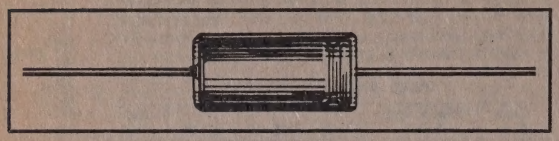
Case Size	Dia. x Lgth. Inches	1-24	25-49	50-99	100-499
A	.219 x .453	3.08	2.31	1.54	1.16
A2		3.32	2.49	1.66	1.25
B	.312 x .641	4.36	3.27	2.18	1.64
B2		5.92	4.44	2.96	2.22
C	.406 x .766	5.60	4.20	2.80	2.10
C2		6.72	5.04	3.36	2.52

Stk. No.	Type CTL-	µF	WV DC	Code
15F665	686M006P1A	68	6	A
15F666	567M006P1C	560	6	C
15F667	476M010P1A	47	10	A
15F668	187M010P1B	180	10	B
15F669	156M015P1A	15	15	A
15F670	127M015P1B	120	15	B
15F671	177M015P1C	170	15	C
15F672	277M015P1C	270	15	C
15F673	106M025P1A	10	25	A
15F674	226M025P1A	22	25	A
15F675	107M025P1B	100	25	B
15F676	187M025P1C	180	25	C
15F677	805M030P1A	8	30	A
15F678	156M030P1A	15	30	A
15F679	406M030P1B	40	30	B
15F680	107M030P1C	100	30	C
15F681	157M030P1C	150	30	C
15F682	505M050P1A	5	50	A
15F683	106M050P1A	10	50	A
15F684	256M050P1B	25	50	B
15F685	476M050P1B	47	50	B
15F686	826M050P1C	82	50	C
15F687	405M060P1A	4	60	A
15F688	396M060P1B	39	60	B
15F689	506M060P1C	50	60	C
15F691	355M075P1A	3.5	75	A
15F692	685M075P1A	6.8	75	A
15F693	156M075P1B	15	75	B
15F694	336M075P1B	33	75	B
15F695	566M075P1C	56	75	C
15F696	255M100P1A	2.5	100	A2
15F697	226M100P1B	22	100	B2
15F698	436M100P1C	43	100	C2
15F699	365M125P1A	3.6	125	A2
15F700	146M125P1B	14	125	B2

MALLORY

Electrolytic Capacitors

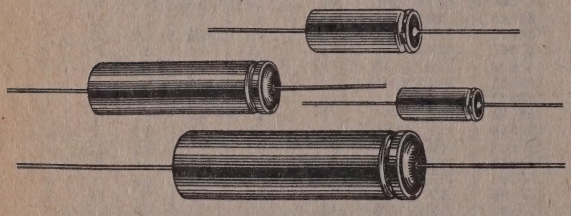
TCG TUBULAR COMPUTER GRADE CAPACITORS



Small tubular version of the Mallory type CG electrolytic capacitor. Meets present demands for high quality performance and high C/V product. Features can wall safety vent, wide variety of container sizes, PVC insulating sleeve, low ESR and long life, all welded construction. Temperature range: −40° to +85°C. Tolerance: 10 to 50 WVDC types, −10% +75%; 100 to 450 WVDC types, −10% +50%.

Stock No.	Type TCG-	Cap. µF	WV DC	Case Size	1-24	25-49	50-99	100-499
67F3004	102U010D1G	1000	10	7/16x1 3/8	1.66	1.24	.83	.63
67F3005	252U010L1C	2500	10	1x1 1/8	3.10	2.33	1.55	1.17
67F3006	502U010N1G	5000	10	1x1 5/8	3.42	2.57	1.71	1.29
67F3007	552U010N1L	5500	10	1x1 5/8	3.49	2.62	1.75	1.32
67F3008	103U010L3C	10000	10	7/8 x3 1/8	4.23	3.18	2.11	1.60
67F3009	122U015D2A	1200	15	7/16x2	1.82	1.37	.91	.69
67F3010	252U015G2L	2500	15	5/8 x2 5/8	3.19	2.40	1.60	1.21
67F3011	292U015G2L	2900	15	5/8 x2 5/8	3.24	2.43	1.62	1.22
67F3012	402U015N1L	4000	15	1x1 5/8	3.49	2.62	1.75	1.32
67F3013	632U015L2L	6300	15	7/8 x2 5/8	3.82	2.87	1.91	1.44
67F3014	822U015N2L	8200	15	1x2 5/8	4.12	3.09	2.06	1.55
67F3015	103U015N2L	10000	15	1x3 1/8	4.54	3.41	2.27	1.72
67F3016	121U025D0N	120	25	7/16x3/4	1.44	1.08	.72	.55
67F3017	231U025D1A	230	25	7/16x1	1.55	1.16	.78	.59
67F3018	501U025D1N	500	25	7/16x1 3/4	1.76	1.32	.88	.67
67F3019	102U025N1C	1000	25	1x1 1/8	3.10	2.33	1.55	1.17
67F3020	222U025J2L	2200	25	3/4 x2 5/8	3.62	2.72	1.81	1.37
67F3021	402U025L3C	4000	25	7/8 x3 1/8	4.23	3.18	2.11	1.60
67F3022	250U030B0L	25	30	5/16x5/8	1.28	.96	.64	.49
67F3025	151U030D1A	150	30	7/16x1	1.55	1.16	.78	.59
67F3026	251U030D1G	250	30	7/16x1 3/8	1.66	1.24	.83	.63
67F3027	501U030J1C	500	30	7/16x2 1/4	1.87	1.41	.94	.71
67F3028	112U030L1G	1100	30	5/8 x2 5/8	3.19	2.40	1.60	1.21
67F3029	242U030L2L	2400	30	7/8 x2 5/8	3.94	2.96	1.97	1.49
67F3030	302U030L2L	3000	30	7/8 x3 1/8	4.23	3.18	2.11	1.60
67F3031	500U050C0S	50	50	3/8 x 1 5/16	1.44	1.08	.72	.55
67F3032	101U050E1G	100	50	1/2 x1 3/8	2.46	1.85	1.23	.93
67F3033	151U050D1G	150	50	7/16x1 3/8	1.66	1.24	.83	.63
67F3034	251U050G1G	250	50	7/16x2 1/4	1.87	1.41	.94	.71
67F3035	291U050G1G	290	50	7/16x2 1/4	1.92	1.44	.96	.73
67F3036	501U050N1C	500	50	5/8 x2 5/8	3.19	2.40	1.60	1.21
67F3037	601U050L1G	600	50	5/8 x2 5/8	3.27	2.45	1.63	1.23
67F3038	112U050N2C	1100	50	1x2 1/8	3.85	2.89	1.92	1.45
67F3039	122U050L2C	1200	50	1x2 1/8	3.95	2.96	1.97	1.49
67F3040	232U050N2L	2300	50	1x3 1/8	4.54	3.41	2.27	1.72
67F3041	252U050N3C	2500	50	1x3 5/8	4.96	3.72	2.48	1.87
67F3043	100T150C0P	10	150	3/8 x 1 3/16	1.49	1.12	.74	.56
67F3044	250T150E1G	25	150	1/2 x1 3/8	2.62	1.97	1.31	.99
67F3045	500T150D1N	50	150	7/16x1 3/4	2.67	2.00	1.33	1.01
67F3046	101T150J1L	100	150	3/4 x1 5/8	3.27	2.45	1.63	1.23
67F3047	251T150L2C	250	150	7/8 x2 1/8	4.04	3.04	2.02	1.53
67F3048	561T150N3C	560	150	1x3 1/8	5.20	3.91	2.60	1.96
67F3049	101T250L2C	100	250	7/8 x2 1/8	4.04	3.04	2.02	1.53
67F3050	201T250N2L	200	250	1x3 1/8	5.10	3.83	2.55	1.93
67F3053	161T350N2L	160	350	1x3 5/8	5.59	4.20	2.79	2.11
67F3054	181T350N3C	180	350	1x3 5/8	5.78	4.34	2.89	2.18
13F3543	5ROT450E1G	5	450	1/2 x1 5/8	2.81	2.11	1.40	1.06
67F3056	100T450J1C	10	450	5/8 x1 5/8	3.22	2.42	1.61	1.22
13F3544	120T450J1C	12	450	5/8 x1 5/8	3.27	2.46	1.64	1.24
67F3057	200T450N1C	20	450	5/8 x2 5/8	3.46	2.60	1.73	1.31
67F3058	500T450N1L	50	450	1x2 1/8	4.20	3.16	2.10	1.59
13F3545	850T450N2L	85	450	1x3 1/8	5.25	3.94	2.62	1.98

TCX EXTENDED TEMPERATURE COMPUTER GRADE ELECTROLYTICS



- **−55°C to +105°C Operation**
- **Pressure Safety Vent**
- **Mylar Insulating Sleeve**
- **500 Hour Life Test**

The TCX capacitor is a tubular, axial lead, aluminum electrolytic capacitor. Designed to assure optimum CV product along with outstanding DC leakage current, low ESR, low impedance and temperature stability. A pressure safety vent is formed into the capacitor wall. Reverse voltage should not exceed 1.5 volts. Tolerance: 3-75 WVDC, −10% +75%; 75-100 WVDC, −10% +50%. Range: −55°C to +105°C. Storage: −75°C to +125°C, up to 200,000 feet altitude. Leads are 2 1/4" tinned copper wire, #20 AWG for case diameters of 1/2 and 5/8", #18 AWG for 3/4" and up. Dimensions are inches, diameter by length.

Stock No.	Type TCX-	µF	WV DC	Case Size	1-24	25-49	50-99	100-499
17F1908	162U006G1G	1600	6	5/8x1 3/8	3.16	2.37	1.58	1.19
17F1909	242U006L1C	2400	6	7/8 x1 1/8	3.64	2.73	1.82	1.37
17F1910	332U006G2C	3300	6	5/8x2 1/8	3.56	2.67	1.78	1.34
17F1911	482U006L1L	4800	6	7/8 x1 5/8	3.96	2.97	1.98	1.49
17F1912	652U006J2L	6500	6	3/4 x2 5/8	4.12	3.09	2.06	1.55
17F1913	962U006L2L	9600	6	7/8 x2 5/8	4.40	3.30	2.20	1.65
17F1914	123U006N2L	12000	6	1x2 5/8	5.04	3.78	2.52	1.89
17F1915	183U006N3L	18000	6	1x3 5/8	5.96	4.47	2.98	2.24
13F3546	552U010J2L	5500	10	3/4 x2 5/8	4.12	3.09	2.06	1.55
13F3547	103U010L3C	10000	10	7/8 x3 1/8	4.64	3.48	2.32	1.74
17F1916	711U015G1C	710	15	5/8 x1 1/8	3.04	2.28	1.52	1.14
17F1917	102U015J1C	1000	15	3/4 x1 1/8	3.36	2.52	1.68	1.26
17F1918	162U015J1G	1600	15	3/4 x1 3/8	3.48	2.61	1.74	1.31
17F1919	212U015J1L	2100	15	3/4 x1 5/8	3.60	2.70	1.80	1.35
17F1921	312U015L1L	3100	15	7/8 x1 5/8	3.96	2.79	1.98	1.49
17F1922	462U015L2C	4600	15	7/8 x2 1/8	4.16	3.12	2.08	1.56
17F1923	622U015L2L	6200	15	7/8 x2 5/8	4.40	3.30	2.20	1.65
17F1925	123U015N3L	12000	15	1x3 5/8	5.96	4.47	2.98	2.24
17F1926	561U025E2C	560	25	1/2 x2 1/8	3.28	2.46	1.64	1.23
17F1927	951U025J1G	950	25	3/4 x1 3/8	3.48	2.61	1.74	1.31
17F1928	122U025N1C	1200	25	1x1 1/8	4.04	3.03	2.02	1.52
17F1929	182U025L1L	1800	25	7/8 x1 5/8	3.96	2.97	1.98	1.49
17F1930	242U025N1L	2400	25	1x1 5/8	4.56	3.42	2.28	1.71
17F1931	372U025L2L	3700	25	7/8 x2 5/8	4.40	3.30	2.20	1.65
17F1932	722U025N3L	7200	25	1x3 5/8	5.96	4.47	2.98	2.24
17F1933	311U030G1C	310	30	5/8 x1 1/8	3.04	2.28	1.52	1.14
17F1934	471U030J1C	470	30	3/4 x1 1/8	3.36	2.52	1.68	1.26
17F1935	881U030N1C	880	30	1x1 1/8	4.04	3.03	2.02	1.52
17F1936	142U030J2C	1400	30	3/4 x2 1/8	3.88	2.91	1.94	1.46
17F1937	272U030L2L	2700	30	7/8 x2 5/8	4.40	3.30	2.20	1.65
17F1938	442U030N3C	4400	30	1x3 1/8	5.52	4.14	2.76	2.07
17F1939	361U040J1C	360	40	3/4 x1 1/8	3.36	2.52	1.68	1.26
17F1940	701U040N1C	700	40	1x1 1/8	4.04	3.03	2.02	1.52
17F1941	102U040L1L	1000	40	7/8 x1 5/8	3.96	2.97	1.98	1.49
17F1943	212U040L2L	2100	40	7/8 x2 5/8	4.40	3.30	2.20	1.65
17F1944	422U040N3L	4200	40	1x3 5/8	5.96	4.47	2.98	2.24
17F1945	111U050E1G	110	50	1/2 x1 3/8	3.04	2.28	1.52	1.14
17F1946	251U050G1G	250	50	5/8 x1 3/8	3.16	2.37	1.58	1.19
17F1947	371U050N1G	370	50	3/4 x1 3/8	4.28	3.21	2.14	1.61
17F1948	501U050G2C	500	50	5/8 x2 1/8	3.56	2.67	1.78	1.34
17F1949	711U050N1G	710	50	1x1 3/8	4.28	3.21	2.14	1.61
17F1950	951U050N1L	950	50	1x1 5/8	4.56	3.42	2.28	1.71
17F1951	142U050L2L	1400	50	7/8 x2 5/8	4.40	3.30	2.20	1.65
17F1952	192U050N2L	1900	50	1x2 5/8	5.04	3.78	2.52	1.89
17F1953	282U050N3L	2800	50	1x3 5/8	5.96	4.47	2.98	2.24
17F1954	650U075G1C	65	75	5/8x1 1/8	3.04	2.28	1.52	1.14
17F1955	101U075J1C	100	75	5/8x1 3/8	3.36	2.52	1.68	1.26
17F1956	141U075J1G	140	75	3/4 x1 3/8	3.48	2.61	1.74	1.31
17F1957	211U075L1G	210	75	7/8 x1 3/8	3.80	2.85	1.90	1.43
17F1958	281U075L1L	280	75	7/8 x1 5/8	3.96	2.97	1.98	1.49
17F1959	371U075J2L	370	75	3/4 x2 5/8	4.12	3.09	2.06	1.55
17F1960	561U075L2L	560	75	7/8 x2 5/8	4.40	3.30	2.20	1.65
17F1961	741U075N2L	740	75	1x2 5/8	5.04	3.78	2.52	1.89
17F1962	112U075N3L	1100	75	1x3 5/8	5.96	4.47	2.98	2.24
17F1963	350T100G1C	35	100	5/8x1 1/8	3.04	2.28	1.52	1.14
17F1964	550T100G1G	55	100	5/8 x1 3/8	3.16	2.37	1.58	1.19
17F1966	111T100L1G	110	100	7/8 x1 3/8	3.80	2.85	1.90	1.43
17F1967	151T100L1L	150	100	7/8 x1 5/8	3.96	2.97	1.98	1.49
17F1969	311T100L2L	310	100	7/8 x2 5/8	4.40	3.30	2.20	1.65
17F1970	621T100N3L	620	100	1x3 5/8	5.96	4.47	2.98	2.24

7

Computer-Grade Electrolytic Capacitors

MALLORY

TYPE CG

Operating life exceeds ten years. Pressure sensitive safety vent. Low ESR. PVC insulating sleeves. High ripple capabilities. 7/32" high, terminal posts. 10-32 screws. Sizes do not include terminals or sleeves. Tolerance: 1-150 WVDC, −10%, +75%; 200 WV and up, −10%, +50%. Maximum DC Leakage Current @ 25°C: 4 mA. Operating Temperature: −40 to +85°C. Although temperature range is as stated, tests have been conducted at 105°C with less than rated voltage without incurring immediate catastrophic failure. Can withstand 6 hrs. of vibration at 10-55 cps and return within 1 minute with max. amplitude vibration of .03". Wt. 3 oz.

Stock No.	Type	Mfd.	WV DC	DxL in.	1-24	25-49	50-99	100-249
17F1730	CG63U10B1	6,000	10	1 25/64 x 3 1/64	4.91	4.09	2.34	2.13
13F3549	CG752U00R2C	7,500	10	1 3/8 x 2 1/8	4.02	3.35	1.91	1.74
17F1731	CG14U10H1	10,000	10	1 49/64 x 3 1/64	6.53	5.44	3.11	2.83
26F631	CG152U25A1	1,500	25	1 25/64 x 2 1/64	3.73	3.10	1.76	1.61
17F1735	CG282U25B1	2,800	25	1 25/64 x 3 1/64	4.40	3.66	2.10	1.90
26F639	CG382U25C1	3,800	25	1 25/64 x 4 1/64	5.39	4.49	2.57	2.33
13F3550	CG323U025W4C	32,000	25	2 1/2 x 4 5/8	13.13	10.95	6.26	5.69
26F641	CG63U25K1	6,000	25	2 1/64 x 3 1/64	6.72	5.59	3.20	2.91
17F1737	CG1352U25E1	13,500	25	2 33/64 x 4 1/64	12.40	10.34	5.91	5.38
26F431	CG24U25F1	20,000	25	3 1/64 x 4 1/64	13.59	11.33	6.48	5.89
17F1738	CG212U35B1	2,100	35	1 25/64 x 3 1/64	4.50	3.75	2.15	1.95
17F1740	CG362U35H1	3,600	35	1 49/64 x 3 1/64	6.69	5.57	3.19	2.90
26F630	CG82U50A1	800	50	1 25/64 x 2 1/64	3.75	3.12	1.78	1.62
17F1743	CG152U50B1	1,500	50	1 25/64 x 3 1/64	4.67	3.89	2.21	2.01
26F633	CG23U50C1	2,000	50	1 25/64 x 4 1/64	5.12	4.27	2.44	2.22
17F1744	CG252U50H1	2,500	50	1 49/64 x 3 1/64	5.21	4.34	2.48	2.26
60F2130	CG332U50K1	3,300	50	2 1/64 x 3 1/64	6.75	5.63	3.22	2.93
26F424	CG452U50D1	4,500	50	2 1/64 x 4 1/64	7.41	6.18	3.53	3.21
17F1745	CG732U50E1	7,300	50	2 33/64 x 4 1/64	11.08	9.23	5.28	4.80
60F2133	CG14U50F1	10,000	50	3 1/64 x 4 1/64	13.88	11.57	6.61	6.01
26F429	CG1652U50G1	16,500	50	3 1/64 x 5 43/64	19.08	15.90	9.10	8.26
26F628	CG62U75A1	600	75	1 25/64 x 2 1/64	4.17	3.48	1.99	1.81
17F1715	CG13U75B1	1,000	75	1 25/64 x 3 1/64	4.88	4.06	2.33	2.11
26F632	CG152U75C1	1,500	75	1 25/64 x 4 1/64	5.90	4.93	2.81	2.56
17F1716	CG23U75H1	2,000	75	1 49/64 x 3 1/64	6.43	5.36	3.06	2.78
26F636	CG252U75K1	2,500	75	2 1/64 x 3 1/64	7.68	6.40	3.66	3.33
26F421	CG3451U75D1	3,450	75	2 1/64 x 4 1/64	8.34	6.69	3.97	3.61
13F3551	CG592U100X4C	5,900	100	3 x 4 1/8	19.62	16.33	9.34	8.49
26F643	CG822U75F1	8,200	75	3 1/64 x 4 1/64	15.02	12.52	7.16	6.51
60F2132	CG1252U75G1	12,500	75	3 1/64 x 5 43/64	19.62	16.34	9.34	8.49
60F2123	CG42U100A1	400	100	1 25/64 x 2 1/64	4.44	3.69	2.12	1.93
60F2126	CG13U100C1	1,000	100	1 25/64 x 4 1/64	5.85	4.87	2.78	2.54
17F1719	CG132U100H1	1,300	100	1 49/64 x 3 1/64	6.85	5.70	3.25	2.96
26F419	CG2251U100D1	2,250	100	2 1/64 x 4 1/64	10.17	8.48	4.85	4.41
26F640	CG532U100F1	5,300	100	3 1/64 x 4 1/64	18.27	15.23	8.70	7.92
26F426	CG832U100G1	8,300	100	3 1/64 x 5 43/64	24.95	20.79	11.89	10.81
26F627	CG2750U150A1	275	150	1 25/64 x 2 1/64	4.44	3.70	2.12	1.93
17F1721	CG52U150B1	500	150	1 25/64 x 3 1/64	5.25	4.37	2.49	2.27
26F416	CG1551U150D1	1,550	150	2 1/64 x 4 1/64	10.15	8.47	4.85	4.40
17F1722	CG252U150E1	2,500	150	2 33/64 x 4 1/64	14.41	12.00	6.87	6.24
26F422	CG362U150F1	3,600	150	3 1/64 x 5 43/64	18.28	15.23	8.70	7.92
60F2131	CG562U150G1	5,600	150	3 1/64 x 5 59/64	25.16	20.97	12.00	10.91
60F2119	CG181T200A1	180	200	1 25/64 x 2 1/64	4.22	3.52	2.01	1.83
60F2125	CG451T200C1	450	200	1 25/64 x 4 1/64	6.00	5.00	2.86	2.60
17F1723	CG551T200H1	550	200	2 1/64 x 4 1/64	6.61	5.51	3.15	2.87
26F414	CG13T200D1	1,000	200	2 1/64 x 4 1/64	9.90	8.24	4.71	4.29
26F420	CG2451T200F1	2,450	200	3 1/64 x 4 1/64	18.47	15.39	8.80	8.00
26F423	CG382T200G1	3,800	200	3 1/64 x 5 43/64	25.44	21.20	12.13	11.02
60F2120	CG141T250A1	140	250	1 25/64 x 2 1/64	5.02	4.19	2.39	2.18
17F1724	CG2750T250B1	275	250	1 25/64 x 3 1/64	5.72	4.77	2.73	2.48
60F2122	CG3750T250C1	375	250	1 25/64 x 4 1/64	6.20	5.16	2.96	2.69
26F413	CG82T250D1	800	250	2 1/64 x 4 1/64	10.11	8.42	4.82	4.38
26F638	CG33T250G1	3,000	250	3 1/64 x 5 43/64	26.89	22.41	12.82	11.65
17F1725	CG3250T300C1	325	300	1 25/64 x 4 1/64	6.43	5.36	3.06	2.78
26F412	CG72T300D1	700	300	2 1/64 x 4 1/64	10.65	8.88	5.08	4.61
26F637	CG262T300G1	2,600	300	3 1/64 x 5 43/64	28.54	23.79	13.61	12.37
60F2121	CG12T350A1	100	350	1 25/64 x 2 1/64	5.05	4.21	2.41	2.19
60F2118	CG251T350C1	250	350	1 25/64 x 4 1/64	6.34	5.28	3.02	2.75
60F2124	CG42T350K1	400	350	2 1/64 x 3 1/64	8.85	7.38	4.21	3.83
26F411	CG551T350D1	550	350	2 1/64 x 4 1/64	10.66	8.89	5.08	4.62
26F415	CG132T350F1	1,300	350	3 1/64 x 4 1/64	20.30	16.91	9.66	8.79
26F634	CG23T350G1	2,000	350	3 1/64 x 5 43/64	27.92	23.24	13.28	12.08
26F626	CG151T400C1	150	400	1 25/64 x 4 1/64	6.13	5.10	2.91	2.65
26F410	CG3250T400D1	325	400	2 1/64 x 4 1/64	9.46	7.88	4.51	4.10
26F624	CG41T450A1	40	450	1 25/64 x 6 1/64	4.13	3.45	1.97	1.79
26F625	CG111T450C1	110	450	1 25/64 x 4 1/64	5.70	4.76	2.71	2.48
26F409	CG241T450D1	240	450	2 1/64 x 4 1/64	9.41	7.84	4.48	4.08

TYPE CGS

Mylar sleeved maximum DC Leakage. Current: @ 25°C, 6ma. Operating Temperature: −40 to +85°C. Operating life exceeds ten years. Pressure sensitive safety vent. Low ESR. High ripple capabilities. 7/32" high terminal posts, 10-32 screws. Tolerance: 1-150 working volts DC, −10%, +75%; 200 working volts and up, −10%, +50%. Temperature tolerance and vibration capability same as Type CG. Shipping Weight, 3 oz.

10 WORKING VOLTS DC

Stock No.	Type	Mfd.	DxL in.	1-24	25-49	50-99	100-249
60F3666	CGS722U010BB1	7,200	1 25/64 x 2 1/64	4.20	3.50	2.00	1.82
60F3667	CGS203U010BF1	20,000	1 25/64 x 4 1/64	5.22	4.35	2.49	2.26
17F1792	CGS303U010DD1	30,000	2 1/64 x 3 1/64	5.91	4.93	2.82	2.56
13F3552	CGS154U010X3L	150,000	3 x 3 5/8	20.10	16.75	9.58	8.71

15 WORKING VOLTS DC

60F3669	CGS552U015BB1	5,500	1 25/64 x 2 1/64	3.87	3.23	1.84	1.68
60F3670	CGS103U015BD1	10,000	1 25/64 x 3 1/64	4.56	3.80	2.17	1.98
60F3671	CGS153U015BF1	15,000	1 25/64 x 4 1/64	5.31	4.43	2.53	2.30
17F1793	CGS233U015DD1	23,000	2 1/64 x 3 1/64	6.75	5.63	3.22	2.93
60F3672	CGS343U015DF1	34,000	2 1/64 x 4 1/64	8.13	6.78	3.88	3.52
60F3673	CGS503U015D11	50,000	2 1/64 x 5 43/64	10.32	8.60	4.92	4.47
60F3674	CGS803U015FF1	80,000	3 1/64 x 4 1/64	14.16	11.80	6.75	6.14
60F3675	CGS104U015FH1	100,000	3 1/64 x 5 1/64	17.61	14.68	8.39	7.63

25 WORKING VOLTS DC

60F3676	CGS302U025BB1	3,000	1 25/64 x 2 1/64	3.87	3.23	1.84	1.68
60F3677	CGS562U025BD1	5,600	1 25/64 x 3 1/64	4.83	4.03	2.30	2.09
60F3678	CGS822U025BF1	8,200	1 25/64 x 4 1/64	5.28	4.40	2.52	2.29
17F1794	CGS123U025DD1	12,000	2 1/64 x 3 1/64	5.91	4.93	2.82	2.56
60F3679	CGS183U025DF1	18,000	2 1/64 x 4 1/64	8.46	7.05	4.03	3.67
60F3680	CGS273U025DI1	27,000	2 1/64 x 5 43/64	9.63	8.03	4.59	4.17
60F3681	CGS433U025FF1	43,000	3 1/64 x 4 1/64	14.25	11.88	6.79	6.18
60F3682	CGS573U025FH1	57,000	3 1/64 x 5 1/64	17.91	14.93	8.54	7.76

40 WORKING VOLTS DC

17F1795	CGS222U040BB1	2,200	1 25/64 x 2 1/64	3.87	3.23	1.84	1.68
17F1796	CGS422U040BD1	4,200	1 25/64 x 3 1/64	5.19	4.33	2.47	2.25
17F1797	CGS622U040BF1	6,200	1 25/64 x 4 1/64	5.76	4.80	2.75	2.50
17F1798	CGS932U040DD1	9,300	2 1/64 x 3 1/64	6.75	5.63	3.22	2.93
17F1799	CGS133U040DF1	13,000	2 1/64 x 4 1/64	8.13	6.78	3.88	3.52
17F1800	CGS203U040DI1	20,000	2 1/64 x 5 13/64	14.16	11.80	6.75	6.14
17F1801	CGS323U040FF1	32,000	3 1/64 x 4 1/64	19.68	16.40	9.38	8.53
17F1802	CGS433U040FH1	43,000	3 1/64 x 5 1/64	18.18	15.15	8.67	7.88
17F1803	CGS503U040FJ1	50,000	3 1/64 x 5 5/64	20.82	17.35	9.92	9.02

50 WORKING VOLTS DC

60F3683	CGS162U050BB1	1,600	1 25/64 x 2 1/64	3.87	3.23	1.84	1.68
60F3684	CGS292U050BD1	2,900	1 25/64 x 3 1/64	5.16	4.30	2.46	2.24
60F3685	CGS432U050BF1	4,300	1 25/64 x 4 1/64	6.81	5.68	3.25	2.95
60F3686	CGS652U050DD1	6,500	2 1/64 x 3 1/64	7.14	5.95	3.40	3.09
60F3687	CGS962U050DF1	9,600	2 1/64 x 4 1/64	8.13	6.78	3.88	3.52
60F3688	CGS143U050DI1	14,000	2 1/64 x 5 43/64	10.47	8.73	4.99	4.54
60F3690	CGS303U050FH1	30,000	3 1/64 x 5 59/64	17.61	14.68	8.39	7.63

75 WORKING VOLTS DC

60F3691	CGS821U075BB1	820	1 25/64 x 2 1/64	3.81	3.18	1.82	1.65
60F3692	CGS152U075BD1	1,500	1 25/64 x 3 1/64	5.22	4.35	2.49	2.26
60F3693	CGS232U075BF1	2,300	1 25/64 x 4 1/64	5.07	4.23	2.42	2.20
60F3694	CGS342U075DD1	3,400	2 1/64 x 3 1/64	6.69	5.58	3.19	2.90
60F3695	CGS502U075DF1	5,000	2 1/64 x 4 1/64	8.37	6.98	3.99	3.63
60F3696	CGS752U075DI1	7,500	2 1/64 x 5 43/64	10.56	8.80	5.03	4.58
60F3697	CGS123U075FF1	12,000	3 1/64 x 4 1/64	15.96	13.30	7.61	6.92

100 WORKING VOLTS DC

60F3700	CGS122U100BD1	1,200	1 25/64 x 3 1/64	5.91	4.93	2.82	2.56
60F3703	CGS402U100DF1	4,000	2 1/64 x 4 1/64	10.29	8.58	4.90	4.46
13F3553	CGS182U100BF1	1,800	1 25/64 x 4 1/64	6.15	5.13	2.93	2.67

150 WORKING VOLTS DC

60F3707	CGS401U150BB1	400	1 25/64 x 2 1/64	4.44	3.70	2.12	1.92
60F3708	CGS112U150BF1	1,100	1 25/64 x 4 1/64	6.75	5.63	3.22	2.93
60F3711	CGS352U150DI1	3,500	2 1/64 x 5 43/64	13.94	11.62	6.64	6.04
13F3554	CGS872U150FJ1	8,700	3 1/64 x 4 1/64	34.56	28.80	16.47	14.98

250 WORKING VOLTS DC

60F3714	CGS201T250BB1	200	1 25/64 x 2 1/64	4.23	3.53	2.02	1.83
60F3715	CGS381T250BD1	380	1 25/64 x 3 1/64	5.19	4.33	2.47	2.25
60F3716	CGS551T250BF1	550	1 25/64 x 4 1/64	6.15	5.13	2.93	2.67
60F3717	CGS851T250DD1	850	2 1/64 x 3 1/64	8.04	6.70	3.83	3.48
60F3718	CGS122T250DF1	1,200	2 1/64 x 4 1/64	10.32	8.60	4.92	4.47
60F3721	CGS392T250FH1	3,900	3 1/64 x 5 1/64	25.95	21.63	12.37	11.25

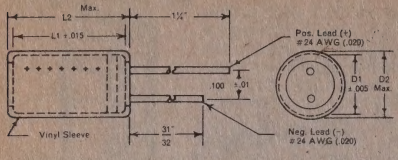
450 WORKING VOLTS DC

60F3722	CGS750T450BB1	75	1 25/64 x 2 1/64	4.44	3.70	2.12	1.92
60F3723	CGS141T450BD1	140	1 25/64 x 3 1/64	5.31	4.43	2.53	2.30
60F3724	CGS321T450DD1	320	2 1/64 x 3 1/64	9.06	7.55	4.32	3.93
13F3555	CGS152T450FH1	1,500	3 1/64 x 5 1/64	31.32	26.10	14.93	13.57

7

MALLORY Miniature Electrolytic Capacitors

VTT SINGLE ENDED ELECTROLYTICS



- **High Density**
- **Low Leakage**
- **Low ESR**
- **Polarity Encoded Leads**
- **Vinyl Sleeve**
- **–20°C to +85°C**

These miniature single-ended capacitors are ideal where space is at a premium. Made from the highest purity aluminum foil. Every unit offers low DCL, low equivalent series resistance, and has excellent humidity characteristics in a rugged aluminum case with a vinyl insulating sleeve. One inch long polarity encoded #24 wire leads, with the positive lead ¼" longer. Terminal connections are welded. From —40°C to +85°C. Tolerance —10%, +100%.

Stock No.	Type	μ F	WV DC	Size DXL	1-49	50-99	100-249	250-499
47F2420	VTT33B10	33	10	.248 x .472	.37	.26	.17	.14
47F2421	VTT100D10	100	10	.394 x .492	.40	.28	.18	.15
47F2422	VTT220F10	220	10	.394 x .630	.50	.35	.22	.18
47F2423	VTT330G10	330	10	.394 x .787	.60	.42	.26	.22
47F2424	VTT22B16	22	16	.248 x .472	.37	.26	.17	.14
47F2425	VTT47D16	47	16	.315 x .492	.40	.28	.18	.15
47F2426	VTT100E16	100	16	.394 x .630	.50	.35	.22	.18
47F2427	VTT220H16	220	16	.394 x .787	.60	.42	.26	.22
47F2428	VTT330H16	330	16	.512 x .787	.70	.49	.31	.26
47F2429	VTT470K16	470	16	.512 x .984	.86	.60	.38	.32
47F2430	VTT1000M16	1000	16	.630 x 1.240	1.42	.98	.62	.52
47F2433	VTT10B25	10	25	.248 x .472	.37	.26	.17	.14
47F2434	VTT33D25	33	25	.315 x .492	.42	.30	.19	.16
47F2435	VTT47E25	47	25	.394 x .492	.50	.35	.22	.18
47F2436	VTT100G25	100	25	.394 x .787	.56	.39	.25	.21
47F2437	VTT220K25	220	25	.512 x .787	.92	.64	.41	.34
47F2438	VTT330L25	330	25	.512 x .984	1.12	.78	.50	.41
47F2439	VTT470M25	470	25	.630 x .984	1.42	.98	.62	.52
47F2440	VTT1000N25	1000	25	.630 x 1.437	1.88	1.30	.83	.69
47F2442	VTT33E35	33	35	.394 x .492	.52	.36	.23	.19
47F2443	VTT47E35	47	35	.394 x .630	.97	.41	.26	.22
47F2444	VTT220K35	220	35	.512 x .984	1.10	.76	.48	.40
47F2445	VTT330M35	330	35	.630 x .984	1.98	1.38	.87	.73
47F2446	VTT470M35	470	35	.630 x 1.240	1.64	1.14	.72	.60
47F2448	VTT2R2A50	2.2	50	.248 x .472	.34	.24	.15	.13
47F2449	VTT3R3A50	3.3	50	.248 x .472	.37	.26	.17	.14
47F2450	VTT4R7B50	4.7	50	.248 x .472	.37	.26	.71	.14
47F2451	VTT33G50	33	50	.394 x .630	.60	.42	.27	.22
47F2452	VTT100K50	100	50	.512 x .787	.94	.66	.42	.35
47F2453	VTT220M50	220	50	.630 x .984	1.20	.83	.53	.44
47F2454	VTT330N50	330	50	.630 x 1.240	2.10	1.46	.93	.77
47F2455	VTT470N50	470	50	.630 x 1.614	2.60	1.80	1.14	.95
47F2456	VTTR47A63	47	63	.197 x .433	.37	.26	.17	.14
47F2457	VTT1A63	1	63	.197 x .433	.37	.26	.17	.14
47F2458	VTT10D63	10	63	.315 x .492	.54	.38	.24	.20
47F2459	VTT22G63	22	63	.394 x .492	.76	.53	.34	.28
47F2460	VTT47J63	47	63	.394 x .787	1.02	.71	.45	.38

7

HC CAPACITORS

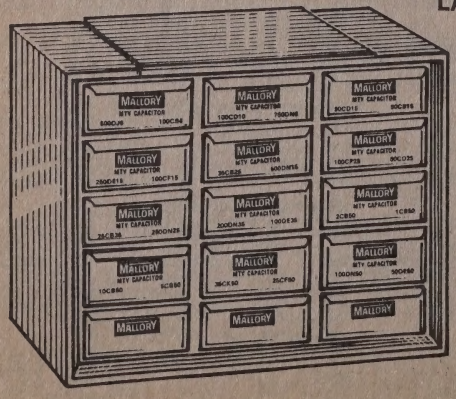
Plastic case electrolytics for high capacity, low-voltage applications such as dry disc rectifier filters, movie equipment, etc. All are polarized. Two screw terminals. 10 oz.

Stk. No.	Type	Mfd.	WV DC	Size	1-9	10-24	25-49	50-99
14F105	HC1560A	6000	15	1 13/16x3 3/8	9.78	8.15	4.97	3.76
14F106	HC2510A	1000	25	1 7/16x2 3/4	7.88	6.57	4.00	3.03
14F107	HC2520A	2000	25	1 7/16x3 3/8	8.56	7.13	4.36	3.29
14F108	HC2540A	4000	25	1 13/16x3 3/8	10.32	8.60	5.24	3.97
14F298	HC5040	4000	50	2 1/16x4 3/8	12.66	10.55	6.44	4.88
14F109	HC5005A	500	50	1 7/16x2 3/4	7.52	6.27	3.81	2.89
14F110	HC5010A	1000	50	1 7/16x3 3/8	8.16	6.80	4.14	3.15
14F111	HC5020A	2000	50	1 13/16x3 3/8	10.16	8.47	5.16	3.91
14F997	HC15010	1000	150	2 1/16x4 3/8	15.88	13.23	8.07	6.11
14F112	HC15010A	1000	150	1 13/16x4 3/8	15.96	13.30	8.11	6.15
14F113	HC20005A	500	200	1 13/16x3 3/8	13.56	11.30	6.90	5.21
14F114	HC45003	300	450	2 1/16x4 3/8	21.28	17.63	10.81	8.19

TYPE NP NON-POLARIZED HIGH CAP ELECTROLYTICS

Stk. No.	Type	Mfd.	WV	Size	1-9	10-24	25-49	50-99
14F136	NP1255A	500	125	1 13/16x4 3/8	15.96	13.30	8.11	6.15
14F134	NP3025	200	300	2 1/16x4 3/8	20.62	17.18	10.49	7.93
14F131	NP4505	50	450	1 13/16x3 3/8	14.70	12.25	7.47	5.65
14F132	NP4510	100	450	2 1/16x4 3/8	21.16	17.63	10.76	8.15

LAB SAMPLE KITS



- **Convenient 15-Drawer Stackable Cabinet**
- **Durable Capacitor Construction**
- **Mallobin Quality and Reliability**

VTT Mallobin—Contains 135 VTT capacitors. 45 different values with voltages ranging from 10 to 50 volts. Three capacitors of each value are provided in a handy 15 drawer cabinet which is stackable.
60F2296. NET 60.00

TT Mallobin—Contains 30 TT capacitors. 15 different values with voltages ranging from 15 to 50 volts. Two capacitors of each value are provided in a handy 15 drawer cabinet which is stackable.
60F2295. NET 21.95

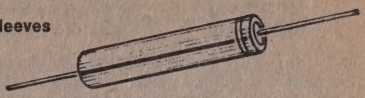
TT Miniature Electrolytic Capacitors

MALLORY

TT Miniature Electrolytic Capacitors

TT miniature tubular aluminum capacitors are made from high purity aluminum foil, deep-etched to provide maximum capacity per unit volume. Etched cathode construction assures long hum-free operation. Utilizes all-welded construction; exhibits exceptionally low DCL and ESR. Supplied in aluminum case with insulating sleeve. Temperature range: —55°C to +85°C (3 through 100 WVDC), —30°C to +85°C on everything else. Tolerance: —10 +75%, 1-100 WVDC; —10 +50%, 100-150 WVDC.

- Low ESR
- Low DCL
- All Welded Construction
- Clear Insulating Sleeves



Stock No.	Type	μF	WV DC	Case Sizes DxL	1-49	50-99	100-249	250-499
55F2670	TT3X5	5	3	¼x⅜	.60	.48	.35	.29
55F2671	TT3X25	25	3	¼x⅜	.60	.48	.35	.29
55F2672	TT3X50	50	3	¼x⅜	.60	.48	.35	.29
55F2673	TT3X100A	100	3	5/16x⅜	.67	.55	.40	.31
55F2674	TT3X150A	150	3	5/16x⅜	.71	.57	.43	.34
55F2675	TT3X200C	200	3	⅜x¾	.71	.57	.43	.34
55F2676	TT3X250B	250	3	⅜x¾	.71	.57	.43	.34
55F2677	TT3X300A	300	3	⅜x¾	.71	.57	.43	.34
55F2678	TT3X400A	400	3	⅜x⅞	.75	.60	.45	.36
55F2679	TT3X500A	500	3	⅜x⅞	.81	.65	.48	.39
55F2680	TT3X590	590	3	⅜x1	.81	.65	.48	.39
55F2681	TT3X1000A	1000	3	½x1	1.11	.90	.66	.53
55F2682	TT3X1500	1500	3	7/16x1⅜	1.11	.90	.66	.53
55F2683	TT3X2500	2500	3	7/16x2	1.24	1.00	.74	.59
55F2684	TT3X3600A	3600	3	⅝x1⅜	1.31	1.05	.78	.61
55F2685	TT6X1	1	6	¼x⅝				
55F2686	TT6X2	2	6	¼x⅝				
55F2687	TT6X3	3	6	¼x⅝	.60	.48	.35	.29
55F2688	TT6X4	4	6	¼x⅝				
55F2689	TT6X5	5	6	¼x⅝				
55F2690	TT6X6	6	6	¼x⅝				
55F2691	TT6X8	8	6	¼x⅝				
55F2692	TT6X10	10	6	¼x⅝	.60	.48	.35	.29
55F2693	TT6X15	15	6	¼x⅝				
55F2694	TT6X20	20	6	¼x⅝				
55F2695	TT6X25	25	6	¼x⅝				
55F2696	TT6X30	30	6	¼x⅝				
55F2697	TT6X35	35	6	¼x⅝	.60	.48	.35	.29
55F2698	TT6X40	40	6	¼x⅝				
55F2699	TT6X50A	50	6	¼x⅝				
55F2700	TT6X60B	60	6	¼x⅝	.67	.55	.40	.31
55F2701	TT6X75A	75	6	¼x⅝	.67	.55	.40	.31
55F2702	TT6X80B	80	6	¼x⅝	.67	.55	.40	.31
55F2703	TT6X100A	100	6	5/16x⅝	.71	.57	.43	.34
55F2704	TT6X150A	150	6	5/16x⅝	.73	.58	.43	.34
55F2705	TT6X200B	200	6	⅜x¾	.76	.60	.45	.36
55F2706	TT6X250A	250	6	⅜x¾	.75	.60	.45	.36
55F2707	TT6X300B	300	6	⅜x¾	.75	.60	.45	.36
55F2708	TT6X400A	400	6	⅜x1	.80	.65	.48	.37
55F2709	TT6X560	560	6	⅜x1⅛	.87	.70	.51	.41
55F2710	TT6X1000A	1000	6	½x1	1.24	1.00	.74	.59
55F2711	TT6X1500A	1500	6	7/16x1¾	1.29	1.03	.77	.61
55F2712	TT6X2000A	2000	6	⅝x1	1.38	1.12	.82	.66
55F2713	TT6X3000	3000	6	½x2	1.45	1.17	.86	.69
55F2714	TT12X5	5	12	¼x⅝	.60	.48	.35	.29
55F2715	TT12X10	10	12	¼x⅝				
55F2716	TT12X15	15	12	¼x⅝				
55F2717	TT12X25A	25	12	¼x⅝	.60	.48	.35	.29
55F2718	TT12X35A	35	12	¼x⅝				
55F2719	TT12X50A	50	12	¼x⅝	.67	.55	.40	.32
55F2720	TT12X100A	100	12	5/16x⅝	.71	.57	.43	.34
55F2721	TT12X250A	250	12	⅜x⅞	.82	.65	.49	.39
55F2722	TT12X450A	450	12	⅜x1⅛	1.11	.88	.66	.52
55F2723	TT12X500	500	12	7/16x1	1.11	.88	.66	.52
55F2724	TT12X600	600	12	7/16x1⅛	1.11	.88	.66	.52
55F2725	TT12X1000B	1000	12	½x1¼	1.29	1.03	.77	.61
55F2726	TT12X1500A	1500	12	⅝x1⅛	1.38	1.12	.82	.65
55F2727	TT12X2000A	2000	12	⅝x1⅜	1.27	1.03	.75	.60
55F2728	TT15X1	1	15	¼x⅜	.60	.48	.35	.28
55F2729	TT15X2	2	15	¼x⅜	.60	.48	.35	.28
55F2730	TT15X3	3	15	¼x⅜				
55F2731	TT15X4	4	15	¼x⅜				
55F2732	TT15X5	5	15	¼x⅜	.60	.48	.35	.28
55F2733	TT15X6	6	15	¼x⅜				
55F2734	TT15X8	8	15	¼x⅜				
55F2735	TT15X10	10	15	¼x⅜				
55F2736	TT15X15	15	15	¼x⅜				
55F2737	TT15X20A	20	15	¼x⅜	.60	.48	.35	.28
55F2738	TT15X25A	25	15	¼x⅜				
55F2739	TT15X30A	30	15	¼x⅜	.67	.55	.40	.32
55F2740	TT15X35A	35	15	¼x⅜	.67	.55	.40	.32
55F2741	TT15X40A	40	15	¼x⅜	.67	.55	.40	.32
55F2742	TT15X50A	50	15	¼x⅜	.60	.48	.35	.28
55F2743	TT15X75A	75	15	¼x¾	.71	.57	.31	.34
55F2744	TT15X100A	100	15	5/16x⅜	.75	.60	.45	.35
55F2745	TT15X150A	150	15	5/16x¾	.75	.60	.45	.35
55F2746	TT15X200A	200	15	⅜x¾	.82	.65	.49	.39
55F2747	TT15X260A	260	15	⅜x⅞	.82	.65	.49	.39
55F2748	TT15X350A	350	15	⅜x1⅛	.85	.68	.51	.40
55F2749	TT15X400	400	15	⅜x1⅛	1.11	.90	.66	.52
55F2750	TT15X500	500	15	⅜x1⅜	1.11	.90	.66	.52
55F2751	TT15X600	600	15	⅜x1½	1.11	.90	.66	.52
55F2752	TT15X800	800	15	7/16x1⅜	1.24	.98	.72	.58
55F2653	TT15X1000B	1000	15	½x1¼	1.16	.93	.69	.55
55F2754	TT15X1500A	1500	15	⅝x1⅛	1.40	1.12	.83	.66
55F2755	TT25X1	1	25	¼x⅜	.60	.48	.35	.28
55F2756	TT25X2	2	25	¼x⅜	.60	.48	.35	.28
55F2757	TT25X3	3	25	¼x⅜	.60	.48	.35	.28
55F2758	TT25X4	4	25	¼x⅜				
55F2759	TT25X5	5	25	¼x⅜				
55F2760	TT25X6	6	25	¼x⅜	.60	.48	.35	.28
55F2761	TT25X8	8	25	¼x⅜				
55F2762	TT25X10	10	25	¼x⅜				
55F2763	TT25X15A	15	25	¼x⅜	.60	.48	.35	.28
55F2764	TT25X20A	20	25	¼x⅜	.67	.55	.40	.32
55F2765	TT25X25B	25	25	¼x⅜	.67	.55	.40	.32
55F2766	TT25X30A	30	25	¼x⅜	.67	.55	.40	.32
55F2767	TT25X35A	35	25	¼x¾	.67	.55	.40	.32
55F2768	TT25X50A	50	25	5/16x1 1/16	.71	.57	.42	.33
55F2769	TT25X75A	75	25	⅜x¾	.71	.57	.42	.33
55F2770	TT25X100B	100	25	⅜x¾	.75	.60	.45	.35
55F2771	TT25X150	150	25	⅜x1	.82	.65	.49	.39
55F2772	TT25X200	200	25	⅜x1⅛	.85	.68	.51	.40
55F2773	TT25X300	300	25	⅜x1½	1.11	.90	.66	.52
55F2774	TT25X400	400	25	7/16x1⅜	1.13	.90	.66	.53
55F2775	TT25X500A	500	25	½x1⅜	1.16	.93	.69	.55
55F2776	TT25X600	600	25	7/16x1¾	1.40	1.12	.83	.66
55F2777	TT25X800	800	25	½x1¾	1.16	.90	.69	.55
55F2778	TT50X1	1	50	¼x⅜				
55F2779	TT50X2	2	50	½x⅜				
55F2780	TT50X3	3	50	¼x⅜	.60	.48	.35	.28
55F2781	TT50X4	4	50	¼x⅜				
55F2782	TT50X5A	5	50	¼x⅜				
55F2783	TT50X6B	6	50	5/16x1 1/16	.60	.48	.35	.28
55F2784	TT50X8A	8	50	¼x⅜	.60	.48	.35	.28
55F2785	TT50X10B	10	50	¼x⅜	.67	.55	.40	.32
55F2786	TT50X15A	15	50	¼x¾	.67	.55	.40	.32
55F2787	TT50X20B	20	50	5/16x⅜	.71	.57	.43	.34
55F2788	TT50X25A	25	50	5/16x1 1/16	.71	.57	.43	.34
55F2789	TT50X35A	35	50	⅜x¾	.71	.57	.43	.34
55F2790	TT50X50B	50	50	⅜x¾	.78	.63	.46	.37
55F2791	TT50X75	75	50	⅜x1	.80	.65	.48	.38
55F2792	TT50X100	100	50	⅜x1⅛	.87	.70	.51	.41
55F2793	TT50X150A	150	50	½x1	1.16	.93	.69	.55
55F2794	TT50X200	200	50	7/16x1⅜	1.13	.90	.66	.53
55F2795	TT50X250A	250	50	½x1⅜	1.16	.93	.69	.55
55F2796	TT50X300	300	50	7/16x2	1.47	1.18	.88	.69
45F2797	TT50X350A	350	50	⅝x1⅛	1.47	1.18	.88	.69
55F2798	TT50X400A	400	50	⅝x1¼	1.47	1.18	.88	.69
55F2799	TT50X450	450	50	½x2	1.71	1.38	1.02	.81
55F2800	TT100X2	2	100	¼x⅜	.65	.53	.38	.31
55F2801	TT100X3	3	100	¼x⅜	.75	.60	.45	.35
55F2802	TT100X6A	6	100	5/16x1 1/16	.78	.63	.46	.37
55F2803	TT100X10	10	100	⅜x¾	.80	.63	.48	.37
55F2804	TT100X15	15	100	⅜x⅞	.80	.65	.48	.38
55F2805	TT100X20	20	100	⅜x1	.85	.68	.51	.40
55F2806	TT100X25A	25	100	⅜x1	.93	.75	.55	.44
55F2807	TT100X30	30	100	⅜x1⅜	.93	.75	.55	.44
55F2808	TT100X40	40	100	7/16x1⅜	1.24	1.00	.74	.58
55F2809	TT100X45	45	100	7/16x1½	1.31	1.05	.78	.62
55F2810	TT100X50	50	100	7/16x1¾	1.40	1.12	.83	.66
55F2811	TT100X65	65	100	7/16x2	1.47	1.18	.88	.70
55F2812	TT150X1	1	150	¼x⅜	.67	.53	.40	.31
55F2813	TT150X2	2	150	¼x⅜	.67	.53	.40	.31
55F2814	TT150x3	3	150	5/16x⅜	.75	.60	.45	.35
55F2815	TT150X4	4	150	⅜x⅜	.78	.63	.46	.37
55F2816	TT150X5A	5	150	⅜x⅜	.78	.63	.46	.37
55F2817	TT150X6	6	150	⅜x¾	.78	.63	.46	.37
55F2818	TT150X8	8	150	⅜x⅞	.78	.63	.46	.37
55F2819	TT150X10	10	150	⅜x⅞	.80	.65	.48	.38
55F2820	TT150X12	12	150	⅜x1	.89	.72	.52	.42
55F2821	TT150X15	15	150	⅜x1⅛	.89	.72	.52	.42
55F2822	TT150X20	20	150	⅜x1⅜	.93	.75	.55	.44
55F2823	TT150X25	25	150	7/16x1⅜	1.24	1.00	.74	.58
55F2824	TT150X30	30	150	7/16x1½	1.24	1.00	.74	.58
55F2825	TT150X35	35	150	7/16x1¾	1.31	1.05	.78	.62

7

MALLORY

Electrolytic Capacitors and Hardware

TC METAL TUBULAR CAPACITORS

- Tolerance from −10% to +100%
- Rated Up to 85°C.

TC Electrolytic with Mylar Sleeve. Single section capacitor with clear mylar insulating sleeve. Sizes shown are for base can, without sleeve. More capacitance and voltage in a smaller sized can. Tolerance: −10% +100%. Temperature: rated up to 85°C.

Stock No.	Type	Mfd.	WV DC	Can Size Dia. x Len.	1-24	25-49	50-99	100-249
14F153	TC1505C	500	15	⅜x1⅜	1.47	1.12	.96	.82
14F443	TC1501C	1000	15	½x1¼	1.95	1.51	1.26	1.02
16F1689	TC1520C	2000	15	⅝x1⅜	2.32	1.75	1.41	1.21
14F363	TC1530A	3000	15	⅞x1⅝	3.05	2.13	1.84	1.63
14F364	TC1540A	4000	15	⅞x1⅞	3.49	3.05	2.25	1.88
14F365	TC1550B	5000	15	⅞x2⅝	3.86	3.49	2.63	2.05
16F1693	TC25025B	250	25	7/16x1	1.44	1.11	.93	.76
16F1695	TC2510A	1000	25	⅝x1½	3.10	2.06	1.76	1.40
16F1696	TC2515B	1500	25	¾x2⅛	3.30	2.49	1.89	1.25
16F1697	TC2520A	2000	25	⅞x1⅞	3.83	2.23	1.72	1.32
14F366	TC2530	3000	25	⅞x2⅝	3.98	2.37	1.87	1.51
14F367	TC2540	4000	25	1x2⅝	4.12	2.54	2.03	1.83
14F368	TC2550	5000	25	1x2¾	4.47	2.70	2.24	2.02
14F369	TC50150A	1500	50	1x2⅝	3.44	2.66	2.28	1.82
14F370	TC50200A	2000	50	1x2¾	3.89	2.99	2.56	2.04
14F371	TC50300	3000	50	1x3 1/16	4.13	3.18	2.73	2.16
14F372	TC50500A	5000	50	1⅜x3⅜	4.64	3.58	3.07	2.43
14F373	TC75101A	100	75	⅝x1⅜	1.73	1.11	.89	.71
14F374	TC75251A	250	75	¾x1⅝	2.27	1.46	1.16	.98
14F375	TC75501A	500	75	⅞x2⅛	2.90	1.86	1.50	1.22
14F376	TC10101B	100	100	¾x1⅜	1.63	1.25	1.07	.85
14F377	TC10151A	150	100	¾x1⅞	1.90	1.22	.96	.81
14F378	TC10251A	250	100	⅞x1⅞	2.59	1.67	1.35	1.19
14F379	TC10501A	500	100	1x2⅝	2.89	1.86	1.50	1.22
14F380	TC10102	1000	100	1x3⅞	5.20	4.00	3.42	2.73
14F171	TC47A	30	150	⅝x1⅛	1.49	1.14	.99	.78
14F172	TC48A	40	150	¾x1⅛	1.54	1.18	1.01	.80
14F173	TC49A	50	150	⅞x1⅜	1.56	1.09	.88	.72
16F1703	TC492A	80	150	¾x1⅜	1.73	1.23	1.01	.84
16F1704	TC493B	100	150	¾x1⅝	1.93	1.39	1.05	.90
26F990	TC50XB	5	250	½x1⅛	1.31	1.01	.86	.68
16F1707	TC51A	8	250	⅝x1⅛	1.28	.98	.77	.65
16F1708	TC52A	10	250	⅝x1⅛	1.31	1.02	.81	.68
14F381	TC53A	12	250	⅝x1⅛	1.39	1.04	.84	.68
14F382	TC54C	16	250	⅝x1⅜	1.45	1.09	.88	.72
16F1709	TC55B	20	250	¾x1⅛	1.50	1.18	.95	.76
14F383	TC57B	30	250	¾x1⅜	1.59	1.25	.99	.84
16F1710	TC58A	40	250	¾x1⅝	1.72	1.26	1.02	.95
16F1711	TC59B	50	250	¾x1⅞	1.87	1.35	1.11	.91
16F1712	TC1265B	100	250	⅞x2⅝	2.69	1.76	1.42	1.16
14F384	TC1266	160	250	1x2⅝	2.85	2.11	1.55	1.30
14F385	TC1267	225	250	1x3⅛	3.29	2.53	2.16	1.72
14F386	TC593B	150	300	1x3⅛	3.36	2.47	1.96	1.62
14F387	TC594	200	300	1x3⅞	4.96	3.06	2.50	1.94
14F388	TC595A	2	350	½x1⅛	1.31	1.01	.86	.68
16F1713	TC60A	5	350	⅝x1⅛	1.19	.87	.71	.62
14F389	TC61C	8	350	⅝x1⅜	1.31	1.01	.81	.68
16F1714	TC62B	10	350	⅝x1⅜	1.39	1.08	.86	.70
14F390	TC63B	12	350	¾x1⅛	1.45	1.11	.88	.71
14F391	TC64B	16	350	¾x1⅜	1.53	1.09	.95	.79
14F024	TC65B	20	350	¾x1⅜	1.59	1.19	.98	.83
14F392	TC67B	40	350	⅞x1⅝	1.93	1.46	1.16	.97
26F991	TC68B	60	350	⅞x2⅛	2.14	1.59	1.23	1.11
67F3000	TC69B	100	350	⅞x2⅝	3.34	2.01	1.50	1.31
14F393	TC692A	150	350	1x3⅝	4.07	2.66	2.09	1.74
14F394	TC695B	2	450	⅝x1⅛	1.40	1.08	.92	.72
67F3001	TC697B	4	450	⅝x1⅛	1.26	.96	.76	.67
14F176	TC70B	5	450	¾x1⅛	1.47	1.13	.98	.78
14F177	TC71C	8	450	¾x1⅛	1.54	1.19	1.13	.89
14F178	TC72B	10	450	⅞x1⅜	1.61	1.23	1.06	.84
14F395	TC73B	12	450	⅞x1⅜	1.65	1.27	1.09	.86
14F396	TC74B	16	450	¾x1⅝	1.53	1.18	.98	.79
14F180	TC75A	20	450	⅞x1⅝	1.70	1.28	1.07	.88
14F397	TC77B	30	450	1x1⅝	1.87	1.45	1.17	.97
14F182	TC78A	40	450	1x2⅛	1.97	1.53	1.22	.99
14F183	TC79B	50	450	1x2⅛	2.30	1.70	1.39	1.18
67F3002	TC795A	60	450	1x2⅝	2.57	1.94	1.68	1.40
14F184	TC80B	80	450	1x3⅛	3.10	2.34	2.03	1.62
14F398	TC805A	100	450	1⅜x2 13/16	3.34	2.45	2.04	1.71
67F3003	TC807	100	450	1x3⅞	3.34	2.45	2.04	1.71
14F399	TC808	160	450	1⅜x3⅜	5.20	4.02	3.42	2.72

For special needs in Mallory Capacitors see your nearest NEWARK Branch

FP AND WP CAPACITORS

Vertical mounting dry electrolytics for all filter and audio bypass circuits, and TV apps. Includes deep etched anodes & etched cathodes. Hermetically sealed in aluminum cases. Negative can; separate positive terms. provided. With mounting washers.

Stock No.	Type	Mfd.	WV	Size	1-24	25-49	50-99	100-249
14F216	WP039A	1000	15	B	2.62	1.87	1.51	1.06
14F243	WP042A	3000	15	E	4.57	3.27	2.62	1.84
60F2105	FP042.8A	10000	15	D	10.31	7.37	5.92	4.15
14F214	WP057A	500	25	B	2.26	1.62	1.30	.91
14F215	WP059	1000	25	E	3.38	2.41	1.94	1.36
60F2106	FP060.2	2000	25	G	4.43	3.17	2.55	1.79
60F2107	FP060.4A	4000	25	F	6.82	4.87	3.92	2.75
60F2108	FP060.6A	5000	25	D	8.17	5.85	4.70	3.30
14F212	WP065	500	50	E	3.00	2.15	1.73	1.21
14F245	WP068A	1500	50	E	4.33	3.10	2.49	1.75
60F2110	FP070A	2000	50	D	5.19	3.71	2.98	2.09
14F205	FP144A	20	450	C	2.09	1.50	1.20	.84
14F207	FP146	40	450	A	2.45	1.76	1.41	.99
14F208	FP149	80	450	F	3.33	2.39	1.91	1.35
14F973	FP150A	100	450	F	3.83	2.74	2.20	1.55
DUAL SECTION								
14F219	FP231A	10-10	450-450	C	2.56	1.84	1.47	1.04
14F220	FP234A	20-20	450-450	A	2.70	1.93	1.55	1.09
14F222	FP238A	40-40	450-450	F	3.98	2.85	2.29	1.61
14F223	FP240	50-50	450-450	D	4.35	3.11	2.50	1.75
14F262	FP288A	40-40	500-500	F	4.57	3.27	2.62	1.84
TRIPLE SECTION								
14F263	FP311.5A	40-40-40	150-150-150	C	2.83	2.02	1.62	1.14
14F275	FP375.8	10-10-10	450-450-450	A	3.00	2.15	1.73	1.21
14F278	FP376.5A	20-20-20	450-450-450	E	3.87	2.77	2.22	1.56
14F234	FP377.1A	40-40-40	450-450-450	D	5.01	3.58	2.87	2.02
14F235	FP378	80-40-20	450-450-450	H	5.30	3.78	3.05	2.14
QUADRUPLE SECTION								
14F239	FP434	10-10-10-10		D	3.60	2.57	2.07	1.48
14F240	FP444A	20-20-20-20		F	5.01	3.58	2.87	2.02

Key	Size	Key	Size	Key	Size	Key	Size
A	1x2½	C	1x1¾	E	1⅜x2	G	1⅜x1¾
B	1x1½	D	1⅜x3	F	1⅜x2½	H	1⅜x4

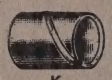
CAPACITOR HARDWARE FOR FP & WP CAPACITORS

MOUNTING PLATES FIG. G

G

Stock No.	Type	Size	1-499	500-999	1000-Up
14F401	MP-4	1″	.17	.07	.06
14F402	MP-6	1⅜″	.17	.07	.06
14F404	BP4	1″	.17	.07	.06
14F406	BP6	1⅜″	.17	.07	.06

INSULATING SLEEVES FIG. K



K

14F425	CE5	1⅜x2″	.20	.10	.08
14F426	CE6	1⅜x3″			
14F427	CE7	1x2½″			
14F429	CE9	1⅜x2½″			
14F430	CE10	1⅜x4″			
60F2116	CE13	1x1¾″			

MOUNTING CLIPS FIG. L

For Mounting Tubular Components

L

14F414	TH13	⅜″	.17	.15	.12
14F415	TH15	½″	.13	.11	.09
14F416	TH17	⅝″	.13	.11	.09
14F417	TH19	¾″	.14	.12	.10
14F418	TH21	⅞″	.15	.13	.10
14F419	TH23	1″	.15	.13	.10
14F420	TH25	1⅜″	.16	.13	.11

MOUNTING CLAMPS FIG. M

For Mounting Computer Grade Caps

M

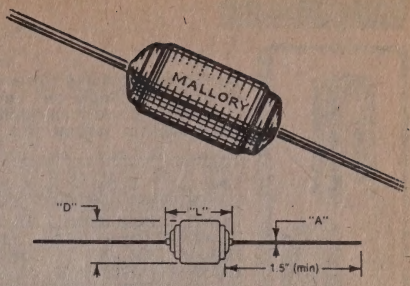
14F409	VR1	1-1 1/16″	.37	.14	.12
14F410	VR3	1⅜-1 7/16″	.37	.14	.12
14F411	VR4	1½-1 9/16″	.40	.17	.14
14F412	VR6	1¾-1 13/16″	.43	.25	.18
14F413	VR8	2-2 1/16″	.48	.26	.20
60F2292	VR10	2½-2 9/16″	.51	.29	.21
60F2113	VR12	3-3⅛″	.58	.31	.23

Polystyrene Capacitors

MALLORY

Provides the ultimate in temperature stability and humidity protection. Can replace mica, film, paper and ceramic types in most applications. Insulation resistance: SXK & SXL types greater than 100 megohms; SXM and SX types greater than 100,000 megohms. Temperature range: −40°C to +85°C. Tolerance: SX types ±1 pF values 5-18 pF; all others ±5%; SXK, SXL and SXM types ±2.5%.

Code	NET				Code	NET				Code	NET			
	1-24	25-99	100-249	250-499		1-24	25-99	100-249	250-499		1-24	25-99	100-249	250-49
A	.32	.23	.19	.17	M	.27	.20	.16	.15	Y	.36	.27	.22	.19
B	.28	.21	.17	.15	N	.30	.22	.18	.16	Z	.33	.23	.20	.17
C	.30	.22	.18	.16	O	.53	.39	.32	.28	AA	.31	.23	.19	.17
D	.34	.24	.20	.18	P	.35	.25	.21	.18	BB	.50	.37	.30	.27
E	.40	.29	.24	.21	R	.40	.30	.25	.22	CC	.57	.41	.34	.30
F	.48	.35	.29	.25	S	.51	.37	.31	.27	DD	.64	.46	.38	.34
G	.52	.38	.31	.29	T	2.91	2.11	1.76	1.56	EE	.53	.39	.32	.28
H	.62	.45	.37	.33	U	.25	.18	.15	.13	FF	.44	.32	.27	.24
J	.72	.52	.43	.38	V	.24	.17	.14	.12	GG	.24	.17	.14	.12
K	.31	.23	.19	.17	W	.45	.33	.28	.24					
L	.26	.19	.15	.14	X	.27	.20	.17	.15					



RATED VOLTAGE @ +40°C, 33 WVDC

Stk. No.	Type	Cap., pF	Max. Size, In. Dia. x Lg.	Code
20F100	SXK310	100	.118 x .315	A
20F101	SXK312	120	.118 x .315	A
20F102	SXK315	150	.122 x .315	A
20F103	SXK318	180	.122 x .315	A
20F104	SXK322	220	.126 x .315	A
20F105	SXK327	270	.130 x .315	B
20F106	SXK333	330	.134 x .315	B
20F107	SXK339	390	.142 x .315	B
20F108	SXK347	470	.146 x .315	B
20F109	SXK356	560	.150 x .315	B
20F110	SXK368	680	.154 x .315	B
20F111	SXK382	820	.157 x .315	B
20F112	SXK210	1,000	.161x .315	B
20F113	SXK212	1,200	.150 x .473	C
20F114	SXK215	1,500	.154 x .473	C
20F115	SXK218	1,800	.165 x .473	C
20F116	SXK222	2,200	.173 x .473	C
20F117	SXK227	2,700	.193 x .473	C
20F118	SXK233	3,300	.205 x .473	C
20F119	SXK239	3,900	.217 x .473	C
20F120	SXK247	4,700	.236 x .473	C
20F121	SXK256	5,600	.220 x .670	D
20F122	SXK268	6,800	.236 x .670	D
20F123	SXK282	8,200	.252 x .670	D
20F124	SXK110	10,000	.272 x .670	D
20F125	SXK112	12,000	.291 x .670	E
20F126	SXK115	15,000	.323 x .670	E
20F127	SXK118	18,000	.350 x .670	F
20F128	SXK122	22,000	.386 x .670	F
20F129	SXK125	25,000	.407 x .670	F
20F130	SXK127	27,000	.421 x .670	F
20F131	SXK133	33,000	.402 x .670	G
20F132	SXK139	39,000	.453 x .670	G
20F133	SXK147	47,000	.480 x .670	G
20F134	SXK156	56,000	.520 x .670	H
20F135	SXK168	68,000	.563 x .670	H
20F136	SXK182	82,000	.626 x .670	J
20F137	SXK010	100,000	.670 x .670	J

RATED VOLTAGE @ +40°C, 63 WVDC

Stk. No.	Type	Cap., pF	Max. Size, In. Dia. x Lg.	Code
20F138	SXL482	82	.122 x .315	K
20F139	SXL310	100	.122 x .315	K
20F140	SXL312	120	.126 x .315	K
20F141	SXL315	150	.126 x .315	K
20F142	SXL318	180	.126 x .315	K
20F143	SXL322	220	.130 x .315	L
20F144	SXL327	270	.134 x .315	L
20F145	SXL333	330	.138 x .315	L
20F146	SXL339	390	.146 x .315	L
20F147	SXL347	470	.154 x .315	L
20F148	SXL356	560	.157 x .315	L
20F149	SXL368	680	.169 x .315	L
20F150	SXL382	820	.177 x .315	L
20F151	SXL210	1,000	.173 x .473	L
20F152	SXL212	1,200	.189 x .473	M
20F153	SXL215	1,500	.213 x .473	M
20F154	SXL218	1,800	.224 x .473	M
20F155	SXL222	2,200	.232 x .473	M
20F156	SXL227	2,700	.244 x .473	M
20F157	SXL233	3,300	.256 x .473	M
20F158	SXL239	3,900	.280 x .473	M
20F159	SXL247	4,700	.303 x .473	M
20F160	SXL256	5,600	.276 x .670	N
20F161	SXL268	6,800	.287 x .670	N
20F162	SXL282	8,200	.303 x .670	N
20F163	SXL110	10,000	.319 x .670	N
20F164	SXL111	11,000	.303 x .867	P
20F165	SXL112	12,000	.303 x .867	P
20F166	SXL113	13,000	.315 x .867	P
20F167	SXL115	15,000	.323 x .867	P
20F168	SXL116	16,000	.330 x .867	R
20F169	SXL118	18,000	.346 x .867	R
20F170	SXL120	20,000	.358 x .867	R
20F171	SXL122	22,000	.378 x .867	S
20F172	SXL124	24,000	.388 x .867	S
20F173	SXL125	25,000	.402 x .867	FF

RATED VOLTAGE @ +40°C, 160 WVDC

Stk. No.	Type	Cap., pF	Max. Size, In. Dia. x Lg.	Code
20F174	SXM420	20	.173 x .315	T
20F175	SXM433	33	.173 x .315	U
20F176	SXM439	39	.181 x .315	U
20F177	SXM447	47	.185 x .315	U
20F178	SXM456	56	.177 x .315	U
20F179	SXM468	68	.165 x .315	U
20F180	SXM482	82	.146 x .315	U
20F181	SXM310	100	.154 x .315	U
20F182	SXM312	120	.161 x .315	U
20F183	SXM315	150	.169 x .315	U
20F184	SXM318	180	.173 x .315	U
20F185	SXM322	220	.177 x .315	U
20F186	SXM327	270	.181 x .315	U
20F187	SXM330	300	.185 x .315	U
20F188	SXM333	330	.189 x .315	U
20F189	SXM336	360	.194 x .315	U
20F190	SXM339	390	.201 x .315	U
20F191	SXM343	430	.204 x .315	U
20F192	SXM347	470	.209 x .315	U
20F193	SXM350	500	.211 x .315	U
20F194	SXM351	510	.213 x .315	U
20F195	SXM356	560	.213 x .315	U
20F196	SXM360	600	.220 x .315	U
20F197	SXM362	620	.222 x .473	U
20F198	SXM368	680	.228 x .473	U
20F199	SXM375	750	.232 x .473	U
20F200	SXM382	820	.236 x .473	U
20F201	SXM391	910	.240 x .473	U
20F202	SXM210	1,000	.244 x .473	GG
20F203	SXM211	1,100	.250 x .473	U
20F204	SXM212	1,200	.256 x .473	U
20F205	SXM213	1,300	.262 x .473	U
20F206	SXM215	1,500	.268 x .473	U
20F207	SXM216	1,600	.272 x .473	U
20F208	SXM218	1,800	.280 x .473	U
20F209	SXM220	2,000	.285 x .473	U
20F210	SXM222	2,200	.228 x .670	U
20F211	SXM224	2,400	.236 x .670	U
20F212	SXM227	2,700	.252 x .670	U
20F213	SXM230	3,000	.268 x .670	U
20F214	SXM233	3,300	.280 x .670	X
20F215	SXM236	3,600	.295 x .670	X
20F216	SXM239	3,900	.307 x .670	X
20F217	SXM243	4,300	.324 x .670	X
20F218	SXM247	4,700	.335 x .670	X
20F219	SXM250	5,000	.340 x .670	X
20F220	SXM251	5,100	.310 x .867	Z
20F221	SXM256	5,600	.315 x .867	Z
20F222	SXM262	6,200	.325 x .867	Z
20F223	SXM268	6,800	.335 x .867	Z
20F224	SXM275	7,500	.346 x .867	Z
20F225	SXM282	8,200	.358 x .867	Z
20F226	SXM291	9,100	.370 x .867	Z
20F227	SXM110	10,000	.382 x .867	Z
20F228	SXM111	11,000	.405 x .867	Y
20F229	SXM112	12,000	.417 x .687	Y
20F230	SXM113	13,000	.434 x .867	Y
20F231	SXM115	15,000	.452 x .867	Y
20F232	SXM116	16,000	.422 x 1.260	W
20F233	SXM118	18,000	.429 x 1.260	W
20F234	SXM120	20,000	.440 x 1.260	W
20F235	SXM122	22,000	.465 x 1.260	O
20F236	SXM124	24,000	.485 x 1.260	O
20F237	SXM125	25,000	.492 x 1.260	EE

MALLOBIN® MERCHANDISERS

Two 15 drawer cabinets filled with popular voltages and values. 73 different values. 210 capacitors total.

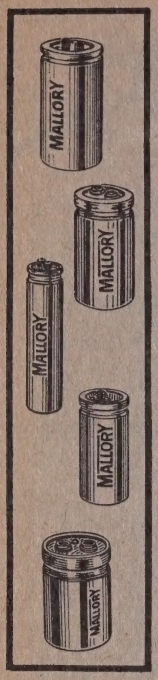
Stock No.	Mallory Part No.	Net
20F311	SX301	80.58

RATED VOLTAGE @ +40°C, 630 WVDC

Stk. No.	Type	Cap., pF	Max. Size, In. Dia. x Lg.	Code
20F238	SX420	20	.173 x .473	V
20F239	SX422	22	.173 x .473	V
20F240	SX424	24	.173 x .473	V
20F241	SX426	26	.186 x .473	V
20F242	SX427	27	.173 x .473	V
20F243	SX430	30	.173 x .473	V
20F244	SX433	33	.173 x .473	V
20F245	SX436	36	.178 x .473	V
20F246	SX439	39	.181 x .473	V
20F247	SX443	43	.183 x .473	V
20F248	SX447	47	.185 x .473	V
20F249	SX456	56	.189 x .473	V
20F250	SX462	62	.191 x .473	V
20F251	SX468	68	.193 x .473	V
20F252	SX475	75	.195 x .473	V
20F253	SX482	82	.197 x .473	V
20F254	SX491	91	.199 x .473	V
20F255	SX310	100	.201 x .473	V
20F256	SX311	110	.203 x .473	V
20F257	SX312	120	.205 x .473	V
20F258	SX313	130	.207 x .473	V
20F259	SX315	150	.209 x .473	V
20F260	SX316	160	.211 x .473	V
20F261	SX318	180	.213 x .473	V
20F262	SX320	200	.217 x .473	V
20F263	SX322	220	.220 x .473	V
20F264	SX324	240	.222 x .473	V
20F265	SX327	270	.224 x .473	V
20F266	SX330	300	.226 x .473	V
20F267	SX333	330	.228 x .473	V
20F268	SX336	360	.232 x .473	V
20F269	SX339	390	.236 x .473	V
20F270	SX343	430	.242 x .473	V
20F271	SX347	470	.248 x .473	V
20F272	SX351	510	.214 x .670	V
20F273	SX356	560	.217 x .670	V
20F274	SX362	620	.226 x .670	V
20F275	SX368	680	.232 x .670	V
20F276	SX375	750	.244 x .670	V
20F277	SX382	820	.248 x .670	V
20F278	SX391	910	.256 x .670	V
20F279	SX210	1,000	.264 x .670	V
20F280	SX211	1,100	.276 x .670	X
20F281	SX212	1,200	.283 x .670	X
20F282	SX213	1,300	.291 x .670	X
20F283	SX215	1,500	.299 x .670	X
20F284	SX216	1,600	.305 x .670	X
20F285	SX218	1,800	.319 x .670	X
20F286	SX220	2,000	.329 x .670	X
20F287	SX222	2,200	.339 x .670	X
20F288	SX224	2,400	.352 x .670	X
20F289	SX225	2,500	.355 x .670	X
20F290	SX227	2,700	.362 x .670	X
20F291	SX230	3,000	.366 x .670	X
20F292	SX233	3,300	.378 x .867	AA
20F293	SX236	3,600	.388 x .867	AA
20F294	SX239	3,900	.398 x .867	AA
20F295	SX243	4,300	.414 x .867	AA
20F296	SX247	4,700	.425 x .867	AA
20F297	SX250	5,000	.445 x .867	AA
20F298	SX251	5,100	.447 x .867	P
20F299	SX256	5,600	.453 x .867	P
20F300	SX262	6,200	.470 x .867	P
20F301	SX268	6,800	.480 x .867	P
20F302	SX275	7,500	.498 x .867	P
20F303	SX282	8,200	.516 x .867	P
20F304	SX291	9,100	.532 x .867	P
20F305	SX110	10,000	.555 x .867	P
20F306	SX112	12,000	.520 x 1.260	BB
20F307	SX115	15,000	.563 x 1.260	BB
20F308	SX118	18,000	.598 x 1.260	CC
20F309	SX122	22,000	.650 x 1.260	DD
20F310	SX125	25,000	.690 x 1.260	DD

7

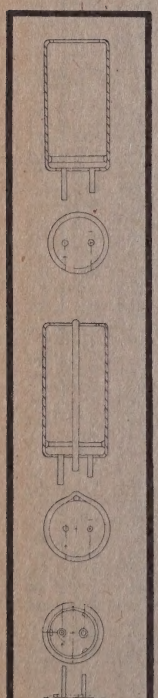
Power Supply Capacitors



CGR COMPUTER GRADE CAPACITORS

Low ESR, high ripple current power supply filtering capacitor in aluminum can. Low DC leakage current plus high ripple current capability over broad temperature and frequency ranges. Has been successfully utilized as an output capacitor in some high frequency switching regulator power supplies. Ripple capability up to 35.9 amperes at 20kHz at +85°C. Oper. Temp.: —55°C to +85°C. Tolerance: —10% +75%. For Price Quotes on Larger Quantities Contact Newark

Stk. No.	Type	Cap.	Size	V	1-24	25-49
13F3670	CGR533U6R3V3C	53,000	2 x 3⅛	6.3	12.27	10.23
13F3671	CGR264U6R3X5L	260,000	3 x 5⅝	6.3	39.63	33.03
13F3672	CGR802U7R5R1N	8,000	1⅜ x 1¾	7.5	5.43	4.53
13F3673	CGR343U7R5U3C	34,000	1¾ x 3½	7.5	10.32	8.60
13F3674	CGR423U7R5R5C	42,000	1⅜ x 5½	7.5	11.25	9.38
13F3675	CGR473U7R5V3C	47,000	2 x 3½	7.5	12.27	10.23
13F3676	CGR723U7R5U5L	72,000	1¾ x 5⅝	7.5	14.94	12.45
13F3677	CGR793U7R5W3C	79,000	2½ x 3½	7.5	19.08	15.90
13F3678	CGR993U7R5V5L	99,000	2 x 5⅝	7.5	17.07	14.23
13F3679	CGR164U7R5W5L	160,000	2½ x 5⅝	7.5	29.70	24.75
13F3680	CGR204U7R5X5C	200,000	3 x 5½	7.5	39.63	33.03
13F3681	CGR234U7R5X5L	230,000	3 x 5⅝	7.5	43.59	36.33
13F3682	CGR572U012R1N	5,700	1⅜ x 1¾	12	5.97	4.98
13F3683	CGR183U012V2C	18,000	2 x 2⅛	12	10.32	8.60
13F3684	CGR343U012R5L	34,000	1⅜ x 5⅝	12	11.25	9.38
13F3685	CGR563U012V4L	56,000	2 x 4⅝	12	15.51	12.93
13F3686	CGR943U012W4L	94,000	2½ x 4⅝	12	25.09	20.88
13F3687	CGR104U012W5C	100,000	2½ x 5½	12	28.80	24.00
13F3688	CGR144U012X5C	140,000	3 x 5½	12	39.63	33.03
13F3689	CGR164U012X5L	160,000	3 x 5⅝	12	43.59	36.33
13F3690	CGR772U016R2C	7,700	1⅜ x 2½	16	5.97	4.98
13F3691	CGR163U016U2L	16,000	1¾ x 2⅝	16	10.23	8.53
13F3692	CGR203U016R4C	20,000	1⅜ x 4½	16	8.97	7.48
13F3693	CGR303U016V3C	30,000	2 x 3½	16	12.27	10.23
13F3694	CGR423U016V4C	42,000	2 x 4½	16	14.97	12.48
13F3695	CGR463U016U5L	46,000	1¾ x 5⅝	16	15.51	12.93
13F3696	CGR513U016W3C	51,000	2½ x 3½	16	19.08	15.90
13F3697	CGR104U016W5L	100,000	2½ x 5⅝	16	36.21	30.18
13F3698	CGR144U016X5L	140,000	3 x 5⅝	16	43.59	36.33
13F3699	CGR302U020R1N	3,000	1⅜ x 1¾	16	5.43	4.53
13F3700	CGR103U020R3L	10,000	1⅜ x 3⅝	20	8.70	7.25
13F3701	CGR133U020V2L	13,000	2 x 2⅝	20	10.23	8.53
13F3702	CGR243U020U5C	24,000	1¾ x 5½	20	13.50	11.25
13F3703	CGR303U020W3C	30,000	2½ x 3½	20	16.89	14.08
13F3704	CGR373U020V5L	37,000	2 x 5⅝	20	19.08	15.90
13F3705	CGR483U020X3L	48,000	3 x 3⅝	20	25.32	21.10
13F3706	CGR633U020W5L	63,000	2½ x 5⅝	20	27.54	22.95
13F3707	CGR883U020X5L	88,000	3 x 5⅝	20	39.63	33.03
13F3708	CGR222U030R1N	2,200	1⅜ x 1¾	30	5.43	4.53
13F3709	CGR103U030R4L	10,000	1⅜ x 4⅝	30	10.23	8.53
13F3710	CGR123U030V3C	12,000	2 x 3½	30	11.34	9.45
13F3711	CGR273U030V5L	27,000	2 x 5⅝	30	17.94	14.95
13F3712	CGR303U030W4C	30,000	2½ x 4½	30	20.70	17.25
13F3713	CGR353U030X3L	35,000	3 x 3⅝	30	26.85	22.38
13F3714	CGR463U030W5L	46,000	2½ x 5⅝	30	26.94	22.45
13F3715	CGR633U030X5L	63,000	3 x 5⅝	30	43.59	36.33
13F3716	CGR142U040R1N	1,400	1⅜ x 1¾	30	5.19	4.33
13F3717	CGR742U040R5C	7,400	1⅜ x 5½	30	9.54	7.95
13F3718	CGR962U040V3L	9,600	2 x 3⅝	30	11.34	9.45
13F3719	CGR173U040V5L	17,000	2 x 5⅝	30	14.52	12.10
13F3720	CGR223U040W4L	22,000	2½ x 4⅝	30	19.08	15.90
13F3721	CGR263U040W5C	26,000	2½ x 5½	30	20.70	17.25
13F3722	CGR313U040X4L	31,000	3 x 4⅝	30	27.84	23.20
13F3723	CGR403U040X5L	40,000	3 x 5⅝	30	35.85	29.88
13F3724	CGR102U050R1N	1,000	1⅜ x 1¾	50	5.07	4.23
13F3725	CGR622U050R5L	6,200	1⅜ x 5⅝	50	9.90	8.25
13F3726	CGR762U050V3C	7,600	2 x 3½	50	11.94	9.95
13F3727	CGR163U050V5L	16,000	2 x 5⅝	50	15.51	12.93
13F3728	CGR213U050W4L	21,000	2½ x 4⅝	50	20.70	17.25
13F3729	CGR273U050W5L	27,000	2½ x 5⅝	50	25.05	20.88



VPR ALUMINUM ELECTROLYTIC CAPACITORS

Designed for use in high frequency switching regulators where low impedance and inductance is required. Low ESR and excellent μF stability allows VPR to handle high ripple current at high frequency and make VPR an ideal by pass and coupling capacitor in EDP equipment. Oper. Temp.: —55°C to +105°C. Tol.: —10% +75%. For Price Quotes on Larger Quantities Contact Newark

Stock No.	Type	MFD	V	Size (In.)	1-9	10-24
13F3730	VPR881U6R3E1A	880	6.3	½ x 1	2.00	1.60
13F3731	VPR132U6R3E1E	1,300	6.3	½ x 1¼	2.05	1.64
13F3732	VPR292U6R3J1L	2,900	6.3	¾ x 1⅝	5.50	4.40
13F3733	VPR412U6R3L1L	4,100	6.3	⅞ x 1⅝	6.10	4.88
13F3734	VPR562U6R3N1L	5,600	6.3	1 x 1⅝	6.95	5.56
13F3735	VPR722U6R3J3C	7,200	6.3	¾ x 3⅛	6.35	5.08
13F3736	VPR103U6R3L3C	10,000	6.3	⅞ x 3⅛	7.45	5.96
13F3737	VPR183U6R3N3L	18,000	6.3	1 x 3⅝	8.80	7.04
13F3738	VPR781U7R5E1A	780	7.5	½ x 1	2.00	1.60
13F3739	VPR172U7R5E1L	1,700	7.5	½ x 1⅝	2.15	1.72
13F3740	VPR262U7R5J1L	2,600	7.5	¾ x 1⅝	5.50	4.40
13F3741	VPR372U7R5L1L	3,700	7.5	⅞ x 1⅝	6.10	4.88
13F3742	VPR492U7R5N1L	4,900	7.5	1 x 1⅝	6.95	5.56
13F3743	VPR642U7R5J3C	6,400	7.5	¾ x 3⅛	6.35	5.08
13F3744	VPR972U7R5L3C	9,700	7.5	⅞ x 3⅛	7.45	5.96
13F3745	VPR163U7R5N3L	16,000	7.5	1 x 3⅝	8.80	7.04
13F3746	VPR661U010E1A	660	10	½ x 1	2.00	1.60
13F3747	VPR142U010E1L	1,400	10	½ x 1⅝	2.15	1.72
13F3748	VPR212U010J1L	2,100	10	¾ x 1⅝	5.50	4.40
13F3749	VPR312U010L1L	3,100	10	⅞ x 1⅝	6.10	4.88
13F3750	VPR422U010N1L	4,200	10	1 x 1⅝	6.95	5.56
13F3751	VPR542U010J3C	5,400	10	¾ x 3⅛	6.35	5.08
13F3752	VPR822U010L3C	8,200	10	⅞ x 3⅛	7.45	5.96
13F3753	VPR133U010N3L	13,000	10	1 x 3⅝	8.80	7.04
13F3754	VPR561U012E1A	560	12	½ x 1	2.00	1.60
13F3755	VPR122U012E1L	1,200	12	½ x 1⅝	2.15	1.72
13F3756	VPR152U012L1C	1,500	12	⅞ x 1⅛	5.60	4.48
13F3757	VPR182U012J1L	1,800	12	¾ x 1⅝	5.50	4.40
13F3758	VPR362U012N1L	3,600	12	¾ x 2⅝	6.95	5.56
13F3759	VPR462U012J3C	4,600	12	¾ x 3⅛	6.35	5.08
13F3760	VPR702U012L3C	7,000	12	⅞ x 3⅛	7.45	5.96
13F3761	VPR113U012N3L	11,000	12	1 x 3⅝	8.80	7.04
13F3762	VPR501U016E1A	500	16	½ x 1	2.00	1.60
13F3763	VPR162U016J1L	1,600	16	¾ x 1⅝	5.50	4.40
13F3764	VPR232U016L1L	2,300	16	⅞ x 1⅝	6.10	4.88
13F3765	VPR322U016N1L	3,200	16	1 x 1⅝	6.95	5.56
13F3766	VPR412U016J3C	4,100	16	¾ x 3⅛	6.35	5.08
13F3767	VPR622U016L3C	6,200	16	⅞ x 3⅛	7.45	5.96
13F3768	VPR103U016N3L	10,000	16	1 x 3⅝	8.80	7.04
13F3769	VPR641U025E1L	640	25	½ x 1⅝	2.15	1.72
13F3770	VPR941U025J1L	940	25	¾ x 1⅝	5.50	4.40
13F3771	VPR132U025L1L	1,300	25	⅞ x 1⅝	6.10	4.88
13F3772	VPR182U025N1L	1,800	25	¾ x 2⅝	6.95	5.56
13F3773	VPR232U025J3C	2,300	25	¾ x 2⅛	6.35	5.08
13F3774	VPR352U025L3C	3,500	25	⅞ x 3⅛	7.45	5.96
13F3775	VPR592U025N3L	5,900	25	1 x 3⅝	8.80	7.04
13F3776	VPR161U040E1A	160	40	½ x 1	2.00	1.60
13F3777	VPR361U040E1L	360	40	½ x 1⅝	2.15	1.72
13F3778	VPR541U040J1L	540	40	¾ x 1⅝	5.50	4.40
13F3779	VPR761U040L1L	760	40	⅞ x 1⅝	6.10	4.88
13F3780	VPR102U040N1L	1,000	40	1 x 1⅝	6.95	5.56
13F3781	VPR132U040J3C	1,300	40	¾ x 3⅛	6.35	5.08
13F3782	VPR202U040L3C	2,000	40	⅞ x 3⅛	7.45	5.96
13F3783	VPR332U040N3L	3,300	40	1 x 3⅝	8.80	7.04
13F3784	VPR111U050E1A	110	50	½ x 1	2.00	1.60
13F3785	VPR251U050E1L	250	50	½ x 1⅝	2.15	1.72
13F3786	VPR421U050J1L	420	50	¾ x 1⅝	5.50	4.40
13F3787	VPR601U050L1L	600	50	⅞ x 1⅝	6.10	4.88
13F3788	VPR811U050N1L	810	50	1 x 1⅝	6.95	5.56
13F3789	VPR961U050J3C	960	50	¾ x 3⅛	6.35	5.08
13F3790	VPR142U050L3C	1,400	50	⅞ x 3⅛	7.45	5.96
13F3791	VPR242U050N3L	2,400	50	1 x 3⅝	8.80	7.04
13F3792	VPR620U075E1A	62	75	½ x 1	2.00	1.60
13F3793	VPR141U075E1L	140	75	½ x 1⅝	2.15	1.72
13F3794	VPR231U075J2L	230	75	¾ x 1⅝	6.20	4.96
13F3795	VPR331U075L1L	330	75	⅞ x 1⅝	6.10	4.88
13F3796	VPR451U075N1L	450	75	1 x 1⅝	6.95	5.56
13F3797	VPR541U075J3C	540	75	¾ x 3⅛	6.35	5.08
13F3798	VPR811U075L3C	810	75	⅞ x 3⅛	7.45	5.96
13F3799	VPR132U075N3L	1,300	75	1 x 3⅝	8.40	6.72
13F3800	VPR340U100E1A	34	100	½ x 1	2.00	1.60
13F3801	VPR780U100E1L	78	100	½ x 1⅝	2.15	1.72
13F3802	VPR131U100J1L	130	100	¾ x 1⅝	5.50	4.40
13F3803	VPR181U100L1L	180	100	⅞ x 1⅝	6.10	4.88
13F3804	VPR251U100N1L	250	100	1 x 1⅝	6.95	5.56
13F3805	VPR361U100J3L	360	100	¾ x 3⅝	6.75	5.40
13F3806	VPR541U100L3L	540	100	⅞ x 3⅝	7.95	6.36
13F3807	VPR631U100N3C	630	100	1 x 3⅛	8.40	6.72

Electrolytic Capacitors

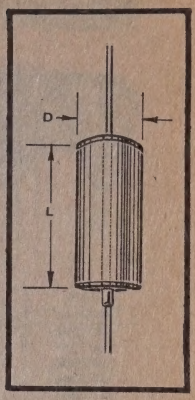
MALLORY

THF SOLID ELECTROLYTIC TANTALUM CAPACITORS

THF solid tantalum capacitors offer low impedance to ripple current at frequencies above 1kHz to 100kHz. Configuration sintered anodes provide lower ESR than conventional tantalum capacitors which means lower power losses and results in savings by substituting one THF for up to four CSR 13 capacitors. Operating Temperature Range: —80°C to 125°C.

Case Code	Shrink-Fit Insulated Case Dimensions				Overall Dimensions		Lead Diameter
	D		L		C MAX		A
	+.016 −.010 in.	.41 .25 mm	±.031 in.	±.79 mm	in.	mm	+.005 −.001 in.	+.127 −.025 mm
F	.289	7.34	.686	17.4	.822	20.9	.025	.635
G	.351	8.91	.786	19.9	.922	23.4	.025	.635

Stock No.	Type	WVDC @ 85°C	Cap.	Case Code	Each 1-24	Each 25-49
13F3808	THF276K020P1F	20V	27	F	2.98	2.55
13F3830	THF336K020P1F		33	F	2.98	2.55
13F3809	THF476K020P1F		47	F	3.22	2.76
13F3810	THF566K020P1G		56	G	4.76	4.08
13F3811	THF107K020P1G		100	G	5.00	4.29
13F3812	THF825K035P1F	35V	8.2	F	2.84	2.43
13F3813	THF226K035P1F		22	F	3.22	2.76
13F3814	THF276K035P1G		27	G	4.76	4.08
13F3815	THF476K035P1G		47	G	5.00	4.29
13F3816	THF565K050P1F	50V	5.6	F	2.77	2.37
13F3817	THF186K050P1F		18	F	4.16	3.57
13F3818	THF226K050P1G		22	G	5.32	4.56
13F3819	THF157K006P1F	6V	150	F	3.22	2.76
13F3820	THF187K006P1F		180	F	3.29	2.82
13F3821	THF227K006P1G		220	G	4.83	4.14
13F3822	THF337K006P1G		330	G	5.00	4.29
13F3823	THF826K010P1F	10V	82	F	3.15	2.70
13F3824	THF127K010P1F		120	F	3.36	2.88
13F3825	THF187K010P1G		180	G	5.00	4.29
13F3826	THF227K010P1G		220	G	5.00	4.29
13F3827	THF566K015P1F	15V	56	F	3.05	2.61
13F3828	THF686K015P1F		68	F	3.22	2.76
13F3829	THF157K015P1G		150	G	5.00	4.29

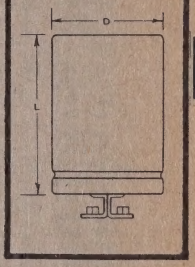


SFC LOW IMPEDANCE CAPACITORS

SFC capacitors feature welded plate to terminal connections and massive bus type terminals for lower ESR, impedance and inductance at high frequency than conventional computer grade capacitors. This improved efficiency designs the SFC for applications where high ripple current is encountered or in accepting and releasing charge effectively, and also allows size and weight economy for multiple capacitor banks. Oper. Temp.: —40°C to +85°C. Tol: —0% +100%.

Case Code	No Outer Sleeve		Outer Insulation		Weight
	D±0.031	L±0.062	D Max.	L Max.	Grams
X4C	3.000	4.125	3.078	4.250	555
X5L	3.000	5.625	3.078	5.750	666

Stk. No.	Type SFC-	Cap. MFDS	WVDC	Case Code	Each 1-24	Each 25-49
13F3831	563006X4C3	56,000	6	X4C	30.25	24.75
13F3832	104006X5L3	100,000	6	X5L	35.75	29.25
13F3833	4737R5X4C3	47,000	7.5	X4C	30.25	24.75
13F3834	6837R5X5L3	68,000	7.5	X5L	35.75	29.25
13F3835	333010X4C3	33,000	10	X4C	30.25	24.75
13F3836	563010X5L3	56,000	10	X5L	35.75	29.25
13F3837	273015X4C3	27,000	15	X4C	34.78	28.46
13F3838	183020X4C3	18,000	20	X4C	29.28	23.96
13F3839	273020X5L3	27,000	20	X5L	29.28	23.96
13F3840	153025X4C3	15,000	25	X4C	29.28	23.96
13F3841	223025X5L3	22,000	25	X5L	34.78	28.46
13F3842	123030X4C3	12,000	30	X4C	29.28	23.96
13F3843	183030X5L3	18,000	30	X5L	34.78	28.46
13F3844	822040X4C3	8,200	40	X4C	29.28	23.96
13F3845	123040X5L3	12,000	40	X5L	34.78	28.46
13F3846	103050X5L3	10,000	50	X5L	34.78	28.46



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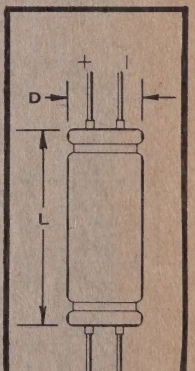
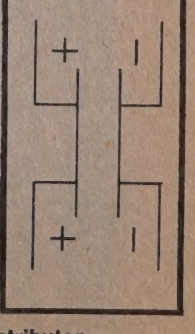
QLA ALUMINUM ELECTROLYTIC CAPACITOR

- **Low Impedance Above 10kHz**
- **Ideal for Use In Switching Regulators**
- **Low Impedance**
- **High Ripple Current Capability**
- **Wide Operating Temperature Range**
- **Useful in High Frequency Coupling**
- **Long Shelf Life**

Four-terminal feed-through device designed to provide low inductance and low impedance at operating frequencies well above 10kHz. Offers an inductance limit of 2nH making it ideal for use in switching regulators. Offered in axial lead form with positive and negative leads at both ends. Either end may be used for input with the opposite end as the output to filter high frequency ripple. High capacitance value combined with low impedance and inductance losses allow the electrolytic capacitor to be considered for high frequency applications. SPECIFICATIONS Capacitance: To 12,000μF. Voltage: 7.5 to 200VDC. Tolerance: —10%+75%, —10%+50%. Temperature: —55°C to +105°C. Case Sizes: From ¾" x 1⅝" to 1" x 3⅜".

Stock No.	Type QLA	Cap. (mf)	WVDC	Size D x L	Each 1-24	Each 25-49
13F3847	202U7R5J1L	2,000	7.5	¾ x 1⅝	8.88	4.44
13F3848	502U7R5J3C	5,000	7.5	⅞ x 3⅛	11.60	5.80
13F3849	622U7R5N2C	6,200	7.5	1 x 2⅛	13.64	6.82
13F3850	902U7R5N2L	9,000	7.5	1 x 2⅝	14.76	7.38
13F3851	143U7R5N3L	14,000	7.5	1 x 3⅜	17.56	8.78
13F3852	172U010J1L	1,700	10	¾ x 1⅝	8.88	4.44
13F3853	302U010J2L	3,000	10	⅞ x 2⅝	11.12	5.56
13F3854	512U010N2C	5,100	10	1 x 2⅛	13.64	6.82
13F3855	752U010N2L	7,500	10	1 x 2⅝	14.76	7.38
13F3856	123U010N3L	12,000	10	1 x 3⅜	17.56	8.78
13F3857	142U016J1L	1,400	16	¾ x 1⅝	8.88	4.44
13F3858	272U016L2C	2,700	16	⅞ x 2⅛	11.60	5.80
13F3859	422U016N2C	4,200	16	1 x 2⅛	13.64	6.82
13F3860	642U016L3L	6,400	16	⅞ x 3⅝	14.60	7.30
13F3861	103U016N3L	10,000	16	1 x 3⅜	17.56	8.78
13F3862	122U020J1C	1,200	20	¾ x 1⅝	8.88	4.44
13F3863	242U020L2C	2,400	20	⅞ x 2⅛	11.60	5.80
13F3864	342U020L2L	3,400	20	⅞ x 2⅝	12.72	6.36
13F3865	532U020N2L	5,300	20	1 x 2⅝	14.76	7.38
13F3866	862U020N3L	8,600	20	1 x 3⅜	17.56	8.78
13F3867	701U030J1L	700	30	¾ x 1⅝	8.88	4.44
13F3868	162U030L2C	1,600	30	⅞ x 2⅛	11.60	5.80
13F3869	222U030L2L	2,200	30	⅞ x 2⅝	12.72	6.36
13F3870	302U030L3C	3,000	30	⅞ x 3⅛	13.60	6.80
13F3871	452U030N3L	4,500	30	1 x 3⅜	17.56	8.78
13F3872	301U050J1L	300	50	¾ x 1⅝	8.88	4.44
13F3873	701U050L2C	700	50	⅞ x 2⅛	11.60	5.80
13F3874	102U050L2L	1,000	50	⅞ x 2⅝	12.72	6.36
13F3875	162U050N3C	1,600	50	1 x 3⅛	16.32	8.16
13F3876	202U050N3L	2,000	50	1 x 3⅜	17.56	8.78
13F3877	351U075L1L	350	75	⅞ x 1⅝	10.72	5.36
13F3878	851U075L3C	850	75	⅞ x 3⅛	13.60	6.80
13F3879	132U075N3L	1,300	75	1 x 3⅜	17.56	8.78
13F3880	171T100J2C	170	100	¾ x 2⅛	9.56	4.78
13F3881	431T100L2L	430	100	⅞ x 2⅝	12.72	6.36
13F3882	851T100N3L	850	100	1 x 3⅜	17.56	8.78
13F3883	900T150J2C	90	150	¾ x 2⅛	9.56	4.78
13F3884	201T150N2C	200	150	1 x 2⅛	13.64	6.82
13F3885	471T150N3L	470	150	1 x 3⅜	17.56	8.78
13F3886	500T200J1L	50	200	¾ x 1⅝	8.88	4.44
13F3887	151T200L2L	150	200	⅞ x 2⅝	12.72	6.36
13F3888	321T200N3L	320	200	1 x 3⅜	17.56	8.78

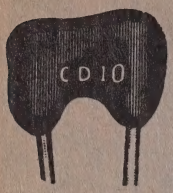




For Price Quotes On Larger Quantities and Items Not Listed, Contact Your Newark Distributor.

Cornell-Dubilier Dipped Mica Capacitors

CD SERIES DIPPED MICA CAPACITORS



Feature multi-coat dipped process to meet rigid humidity requirements. Conform to EIA specs. Meets requirements of MIL-C-5. Operating temperature: −55° to +125°C. Tolerance: ±5% or 0.5pF, whichever greater. Operating potential 500 WVDC. (*)-3000V. (**)-100V. Tinned copperweld leads, except CD6 & CD7; have tinned brass leads. All units meet 10-2000 cycle vibration tests.

TYPE CD10-CM04

Stock Number	Type CD10	pF	1-24	25-99	100-499	500-999
15F1338	CD050D03	5	.41	.27	.21	.17
15F1339	CD100D03	10	.49	.33	.25	.21
15F2600	CD100J03	10	.49	.33	.25	.21
15F1340	CD120J03	12	.34	.23	.17	.15
15F1341	CD150J03	15	.34	.23	.17	.15
15F1342	CD180J03	18	.34	.23	.17	.15
15F863	ED200J03	20	.34	.23	.17	.15
15F1344	ED220J03	22	.34	.23	.17	.15
15F1345	ED240J03	24	.35	.24	.18	.15
15F1346	ED270J03	27	.35	.24	.18	.15
15F1347	ED300J03	30	.35	.24	.18	.15
15F1348	ED330J03	33	.35	.24	.18	.15
15F1350	ED390J03	39	.35	.24	.18	.15
15F1352	ED470J03	47	.36	.24	.18	.15
15F1353	ED510J03	51	.36	.24	.18	.15
15F1354	ED560J03	56	.38	.25	.19	.16
15F1355	ED620J03	62	.38	.25	.19	.16
15F1356	ED680J03	68	.38	.26	.20	.16
15F1358	ED820J03	82	.39	.26	.20	.16
15F1360	FD101J03	100	.41	.27	.21	.17
15F1362	FD121J03	120	.42	.28	.21	.18
15F1364	FD151J03	150	.50	.34	.25	.21
15F1366	FD181J03	180	.57	.38	.29	.24
15F1367	FD201J03	200	.61	.41	.37	.26
15F1369	FD241J03	240	.68	.46	.34	.29
15F2240	FA331J03**	330	.68	.46	.34	.29

TYPE CD15-CM05

Stock Number	Type CD15	pF	1-24	25-99	100-499	500-999
15F884	CD010D03	1	.33	.22	.17	.14
15F867	CD020D03	2	.33	.22	.17	.14
15F866	CD030D03	3	.33	.22	.17	.14
15F1203	CD050D03	5	.33	.22	.17	.14
15F968	CD070D03	7	.33	.22	.17	.14
15F1204	CD100D03	10	.35	.24	.18	.15
15F2601	CD100J03	10	.35	.24	.18	.15
15F873	CD100K03	10	.35	.24	.18	.15
15F889	CD120J03	12	.35	.24	.18	.15
15F2602	CD150J03	15	.35	.24	.18	.15
15F1207	CD180J03	18	.35	.24	.18	.15
15F2603	ED200J03	20	.29	.19	.15	.12
15F1209	ED220J03	22	.29	.19	.15	.12
15F1210	ED240J03	24	.29	.19	.15	.12
15F973	ED270G03	27	.31	.21	.16	.13
15F1211	ED270J03	27	.29	.19	.15	.12
15F1212	ED300J03	70	.29	.19	.15	.12
15F967	ED330G03	33	.31	.21	.16	.13
15F1213	ED330J03	33	.29	.19	.15	.12
15F1214	ED360J03	36	.29	.19	.15	.12
15F972	ED390G03	39	.31	.21	.16	.13
15F1215	ED390J03	39	.29	.19	.15	.12
15F871	ED430J03	43	.29	.19	.15	.12
15F1217	ED470J03	47	.29	.19	.15	.12
15F870	ED500J03	50	.29	.19	.15	.12
15F1219	ED510J03	51	.29	.19	.15	.12
15F978	ED560G03	56	.31	.21	.16	.13
15F1220	ED560J03	56	.29	.19	.15	.12
15F1221	ED620J03	62	.29	.19	.15	.12
15F971	ED680G03	68	.31	.21	.16	.13
15F891	ED820G03	82	.31	.21	.16	.13
15F876	FD910J03	91	.29	.20	.15	.13
15F979	FD101F03	100	.38	.26	.19	.16
15F872	FD101G03	100	.33	.22	.17	.14
15F1226	15FD101J03	100	.29	.20	.15	.13
15F879	FD111J03	110	.32	.21	.16	.13
15F893	FD121G03	120	.34	.23	.17	.15
15F2604	FD121J03	120	.32	.21	.16	.13
15F974	FD151G03	150	.37	.25	.19	.16
15F1230	15FD151J03	150	.33	.23	.17	.14
15F883	FD161J03	160	.36	.24	.18	.15
15F1232	15FD181J03	180	.39	.26	.20	.17
15F976	FD201G03	200	.43	.29	.22	.18
15F1233	15FD201J03	200	.39	.26	.20	.17
15F975	FD221G03	220	.46	.31	.23	.19

TYPE CD15-CM05 (Cont'd)

Stock Number	Type CD15	pF	1-24	25-99	100-499	500-999
15F1234	15FD221J03	220	.42	.28	.21	.18
15F880	FD251J03	250	.44	.30	.23	.19
15F977	FD271G03	270	.52	.35	.26	.22
15F970	FD331G03	330	.60	.40	.31	.26
15F1240	15FD331J03	330	.55	.37	.28	.23
15F1241	15FD391J03	390	.60	.40	.30	.25
15F2605	FD471J03	470	.67	.45	.34	.28
15F2606	FD501J03	500	.72	.48	.36	.30
15F2607	FD511J03	510	.72	.48	.36	.30
15F864	FC561J03*	560	.72	.48	.36	.30
15F969	FC621J03*	620	.78	.52	.39	.33
15F2608	FC681J03*	680	.85	.57	.43	.36
15F875	FC751J03*	750	.91	.60	.45	.38
15F2609	FC821J03*	820	.98	.66	.49	.41
15F2610	FA102J03	1000	.93	.62	.47	.39

TYPE CD19-CM06

Stock Number	Type CD19	pF	1-24	25-99	100-499	500-999
15F1243	FD471J03	470	.48	.32	.24	.20
15F1245	FD511J03	510	.48	.32	.24	.20
15F1246	FD561J03	560	.48	.32	.24	.20
15F1247	FD621J03	620	.53	.36	.27	.22
15F1248	FD681J03	680	.53	.36	.27	.22
15F1249	FD751J03	750	.58	.39	.29	.24
15F1250	FD821J03	820	.58	.39	.29	.24
15F1251	FD911J03	910	.63	.42	.32	.27
15F1252	FD102J03	1000	.63	.42	.32	.27
15F1253	FD112J03	1100	.64	.43	.32	.27
15F1254	FD122J03	1200	.64	.43	.32	.27
15F1256	FD152J03	1500	.76	.51	.38	.32
15F1258	FD182J03	1800	.87	.58	.44	.37
15F1259	FD202J03	2000	.93	.62	.47	.39
15F1260	FD222J03	2200	.98	.65	.49	.41
15F1261	FD242J03	2400	1.07	.72	.54	.45
15F1263	FD272J03	2700	1.18	.79	.60	.50
15F1264	FD302J03	3000	1.27	.85	.64	.53
15F1265	FD332J03	3300	1.38	.92	.69	.58
15F1267	FD392J03	3900	1.69	1.13	.85	.71
15F1268	FD432J03	4300	1.86	1.24	.93	.78
15F1269	FD472J03	4700	2.08	1.39	1.04	.87
15F1271	FD512J03	5100	2.14	1.43	1.07	.89

TYPE CD30-CM07

Stock Number	Type CD30	pF	1-99	100-249	250-499	500-999
15F1272	FD562J03	5600	1.93	.97	.87	.81
15F1273	FD622J03	6200	2.09	1.05	.94	.87
15F1274	FD682J03	6800	2.32	1.17	1.05	.97
15F1275	FD752J03	7500	2.51	1.26	1.13	1.05
15F1276	FD822J03	8200	2.72	1.36	1.23	1.14
15F1278	FD103J03	10000	3.28	1.64	1.48	1.37

100 WVDC

Stock Number	Type	pF	1-24	25-99	100-499	500-999
15F982	CD7FA331J03	330	.95	.63	.48	.40
15F1736	CD7FA391G03	390	1.57	1.04	.78	.65
15F983	CD7FA391J03	390	1.00	.67	.50	.42
15F1738	CD7FA471G03	470	1.66	1.11	.83	.69
15F1739	CD7FA511G03	510	1.71	1.14	.85	.71
15F1742	CD7FA681G03	680	2.27	1.52	1.14	.95
15F986	CD7FA821J03	820	1.57	1.04	.78	.65
15F1746	CD7FA102G03	1000	2.98	1.99	1.49	1.24
15F981	CD7FA102J03	1000	1.85	1.23	.93	.77
15F1748	CD7FA122G03	1200	3.17	2.11	1.59	1.32
15F1750	CD7FA152G03	1500	3.93	2.62	1.97	1.64

MINIATURE MICA-DIELECTRIC CAPACITORS

300 WVDC

Stock Number	Type	pF	1-24	25-99	100-499	500-999
15F1729	CD7FC201G03	200	1.10	.74	.55	.46
15F987	CD7FC201J03	200	.73	.49	.37	.31
15F1730	CD7FC221G03	220	1.12	.75	.56	.47
15F988	CD7FC221J03	220	.77	.51	.39	.32
15F1731	CD7FC241G03	240	1.19	.79	.60	.50
15F989	CD7FC271J03	270	.85	.57	.43	.36
15F990	CD7FC301J03	300	.87	.58	.44	.37

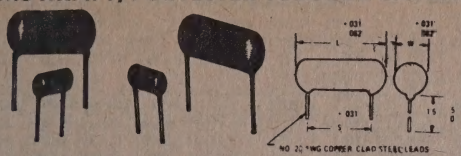
500 WVDC

Stock Number	Type	pF	1-24	25-99	100-499	500-999
15F991	CD7FD151J03	150	.67	.45	.34	.28
15F992	CD7FD181J03	180	.70	.47	.35	.29
15F1725	CD7FD131G03	130	1.05	.71	.53	.44

7

Cornell-Dubilier Capacitors

DPMS KRAFT/POLYESTER TUBULAR CAPACITOR



High impact, dipped casing protects against moisture, soldering iron contact, other mechanical damage. Leads formed for PC wiring. Temperature characteristic stable within temperature range of −55° to +125°C at full rated voltage. Type DPMS meets applicable parts of MIL-C-25 regarding moisture resistance and immersion cycling. Leads are #20 AWG tinned copper clad steel wire. 2000 Volt values are available.

200 VOLTS

Stk. No.	Type	Mfd.	Size	EACH 1-24	25-99	100-Up
15F1600	DPMS2S2	.02	.350x.855	.36	.23	.14
15F1603	DPMS2P1	.1	.470x1.180	.38	.28	.17
67F2002	DPMS2P2	.2	.565x1.300	.66	.45	.26
15F1605	DPMS2P22	.22	.590x1.300	.66	.45	.26
67F2005	DPMS2P5	.5	.730x1.600	1.10	.84	.48

400 VOLTS

67F2006	DPMS4S1	.01	.390x.660	.33	.20	.13
67F2011	DPMS4S47	.047	.415x1.150	.39	.25	.15
67F2012	DPMS4S5	.05	.415x1.150	.39	.26	.17
67F2014	DPMS4P1	.1	.520x1.180	.54	.37	.23
67F2020	DPMS4P5	.5	.850x1.600	1.15	.87	.53

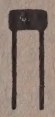
600 VOLTS

15F1609	DPMS6D1	.001	.340x.660	.32	.18	.12
15F1610	DPMS6D2	.002	.340x.660			
15F1611	DPMS6D25	.0025	.340x.660			
67F2025	DPMS6D33	.0033	.370x.660	.32	.18	.12
67F2027	DPMS6D39	.0039	.370x.660			
67F2029	DPMS6D47	.0047	.400x.690			
15F1613	DPMS6D5	.005	.400x.690	.33	.20	.12
67F2031	DPMS6D6	.006	.415x.690			
67F2032	DPMS6D68	.0068	.430x.690	.33	.20	.12
15F1614	DPMS6S1	.01	.390x.870	.36	.23	.14
67F2036	DPMS6S12	.012	.400x.870	.36	.23	.14
15F1615	DPMS6S2	.02	.445x.870	.36	.24	.15
67F2038	DPMS6S22	.022	.470x.870	.36	.24	.15
15F1616	DPMS6S3	.03	.415x1.150	.40	.28	.18
15F1617	DPMS6S47	.047	.490x1.150	.46	.32	.20
15F1618	DPMS6S5	.05	.490x1.150	.52	.36	.22
15F1620	DPMS6P1	.1	.640x1.300	.57	.41	.24
15F1622	DPMS6P22	.22	.750x1.560	1.06	.83	.48
15F1623	DPMS6P25	.25	.830x1.560	1.11	.92	.58

1600 VOLTS

67F2067	DPMS16S1	.01	.525x1.180	.74	.49	.27
67F2069	DPMS16S2	.02	.570x1.600	1.06	.75	.42
67F2070	DPMS16S22	.022	.585x1.600	1.06	.75	.42
67F2072	DPMS16S33	.033	.695x1.600	1.12	.86	.46
67F2074	DPMS16S47	.047	.785x1.600	1.12	.86	.46
67F2075	DPMS16S5	.05	.815x1.600	1.12	.86	.46

CD6 SERIES
DIPPED MICA CAPACITORS



- **Microminiature**
- **Silver Mica Capacitors**

Microminiature, radial lead capacitors. Temperature range; −55°C to +125°C. Capacitance tolerance; ±1 pf (C); ±.5pf (D); ±2% (G); ±5% (J).

300 WVDC

Stk. No.	Type	pF	1-24	25-99	100-499	500-999
15F897	CD6EC820J03	82	.64	.43	.32	.27
15F900	CD6FC101J03	100	.64	.43	.32	.27
15F1722	CD6FC101G03	100	1.01	.67	.51	.42
15F1723	CD6FC111G03	101	1.04	.69	.52	.43
15F901	CD6FC121J03	120	.66	.44	.33	.28
15F1724	CD6FC121G03	120	1.04	.69	.52	.43

500 WVDC

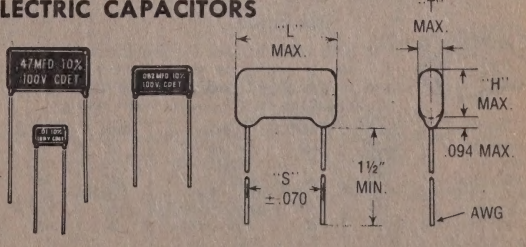
15F1700	CD6CD030C03	3	.39	.26	.20	.17
15F1701	CD6CD050C03	5	.39	.26	.20	.17
15F1703	CD6CD120K03	12	.64	.43	.32	.27
15F1705	CD6CD200J03	20	.44	.30	.22	.19
15F1706	CD6CD220J03	22				
15F1707	CD6CD240J03	24	.47	.31	.24	.20
15F1708	CD6ED270J03	27				
15F1709	CD6ED300J03	30				
15F1710	CD6ED330J03	33				
15F1711	CD6ED360J03	76				
15F1712	CD6ED390J03	39	.48	.33	.25	.20
15F1713	CD6ED430J03	43				
15F1714	CD6ED470J03	47				
15F1716	CD6ED560G03	56	.80	.54	.41	.34
15F1718	CD6ED680G03	68	.89	.60	.45	.37
15F1719	CD6ED750G03	75	.89	.60	.45	.37
15F906	CD6CD050D03	5	.65	.43	.33	.27
15F903	CD6CD100D03	10	.65	.43	.33	.27
15F904	CD6CD150J03	15	.64	.43	.32	.27
15F907	CD6CD180J03	18	.64	.43	.32	.27
15F908	CD6ED500J03	50	.52	.35	.26	.22
15F909	CD6ED510J03	51	.52	.35	.26	.22
15F902	CD6ED560J03	56	.52	.35	.26	.22
15F905	CD6ED620J03	62	.52	.35	.26	.22
15F910	CD6ED680J03	68	.56	.38	.28	.24
15F911	CD6ED750J03	75	.56	.38	.28	.24

DMT POLYESTER FILM DIELECTRIC CAPACITORS

General purpose capacitors feature close capacitance tolerances, high insulation resistance, better capacitance stability, low dissipation factor, and excellent moisture resistance. Encased in brown plastic combination coating for superior protection against extremes of humidity and temperature. Non-inductive extended foil construction assures low losses; directly attached to tinned, copperclad steel wire leads. Types DMTIDT through DMTIST are dual voltage rated 100 VDC at 125°C and 200 VDC at 85°C. Types DMTIS-15 through DMTIP47 are rated only at 100 VDC at 125°C. Capacitance, voltage rating and type designation are clearly marked on encasement.

Lead Wire Size: AWG #22 (.635 MM)

Stk. No.	Type	Mfd.	Size "T" x "L"	EACH 1-24	25-99	100-499	500-999
15F2185	DMT1D1	.001	.190x.437	.20	.13	.09	.07
15F2186	DMT1D15	.0015	.200x.437	.20	.13	.09	.07
15F2187	DMT1D22	.0022	.210x.437	.20	.13	.09	.07
15F2188	DMT1D33	.0033	.210x.437	.20	.13	.09	.07
15F2189	DMT1D47	.0047	.210x.437	.20	.13	.09	.07
15F2190	DMT1D68	.0068	.210x.437	.20	.13	.09	.07
15F2191	DMT1S1	.01	.250x.437	.20	.13	.09	.07
14F2192	DMT1S15	.015	.290x.437	.20	.13	.09	.07
15F2193	DMT1S22	.022	.260x.437	.20	.13	.09	.07

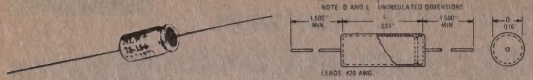


Lead Wire Size: AWG #20 (.812 MM).

Stk. No.	Type	Mfd.	Size "T" x "L"	EACH 1-24	25-99	100-499	500-999
15F2194	DMT1S33	.033	.275x.562	.21	.14	.09	.08
15F2195	DMT1S47	.047	.275x.562	.22	.14	.10	.08
15F2196	DMT1S68	.068	.275x.562	.23	.15	.10	.08
15F2197	DMT1P1	.1	.330x.718	.26	.17	.11	.09
15F2198	DMT1P15	.15	.360x.718	.31	.21	.14	.11
15F2199	DMT1P22	.22	.375x.843	.37	.24	.16	.13
15F2200	DMT1P33	.33	.430x1.000	.42	.27	.18	.15
15F2201	DMT1P47	.47	.600x1.125	.48	.32	.21	.17

Cornell Dubilier Aluminum Electrolytics

NLW ELECTROLYTIC CAPACITORS



Type NLW. Rugged physical construction. Hermetically sealed aluminum foil electrolytic capacitors. Low leakage currents; freedom from shorts. Long shelf and operating life. Suitable for printed circuits. Tinned copper leads with plastic sleeves. Temperature range, −40°C to +105°. Tol. −10% to +75%.

Stock No.	Type NLW	Cap. µF	WV DC	D x L	1-24	25-99	100-249	250-499
15F1007	200-3	200	3	5/16 x 3/4	.84	.58	.36	.30
15F2087	450-3	450	3	3/8 x 7/8	.96	.65	.41	.34
47F833	100-6	100	6	5/16 x 5/8	.84	.58	.36	.30
47F834	200-6	200	6	3/8 x 3/4	.88	.60	.38	.31
15F2090	250-6	250	6	3/8 x 7/8	.92	.63	.39	.32
15F2091	300-6	300	6	3/8 x 7/8	.92	.63	.39	.32
15F1028	5-16	5	16	1/4 x 1/2	.60	.41	.26	.21
15F1029	10-16	10	16	1/4 x 1/2	.60	.41	.26	.21
15F1030	20-16	20	16	1/4 x 1/2	.60	.41	.26	.21
15F1087	25-16	25	16	1/4 x 5/8	.60	.41	.26	.21
15F1063	50-16	50	16	5/16 x 5/8	.67	.46	.29	.24
15F1064	100-16	100	16	5/16 x 3/4	.88	.60	.38	.31
15F2096	150-16	150	16	3/8 x 3/4	.92	.63	.39	.32
15F2097	200-16	200	16	3/8 x 7/8	.96	.65	.41	.34
47F838	300-16	300	16	3/8 x 1 1/4	.99	.68	.42	.35
47F839	450-16	450	16	3/8 x 1 1/2	1.09	.75	.47	.38
47F840	1-25	1	25	1/4 x 1/2	.60	.41	.26	.21
47F841	2-25	2	25	1/4 x 1/2	.60	.41	.26	.21
15F2098	3-25	3	25	1/4 x 1/2	.60	.41	.26	.21
47F842	5-25	5	25	1/4 x 1/2	.60	.41	.26	.21
15F1092	8-25	8	25	1/4 x 1/2	.60	.41	.26	.21
15F1034	10-25	10	25	1/4 x 1/2	.60	.41	.26	.21
15F1035	15-25	15	25	1/4 x 1/2	.60	.41	.26	.21
15F1763	25-25	25	25	5/16 x 3/8	.67	.46	.29	.24
15F1094	35-25	35	25	5/16 x 5/8	.67	.46	.29	.24
15F1765	50-25	50	25	5/16 x 3/4	.84	.58	.36	.30
15F1766	100-25	100	25	3/8 x 3/4	.92	.63	.39	.32
47F843	150-25	150	25	3/8 x 1	.96	.65	.41	.34
47F844	200-25	200	25	3/8 x 1 1/4	1.02	.70	.43	.36
47F845	250-25	250	25	3/8 x 1 1/2	1.09	.75	.47	.38
15F1096	1-50	1	50	1/4 x 1/2	.60	.41	.26	.21
15F1097	2-50	2	50	1/4 x 1/2	.60	.41	.26	.21
15F1767	4-50	4	50	1/4 x 1/2	.60	.41	.26	.21
15F1037	5-50	5	50	1/4 x 1/2	.60	.41	.26	.21
15F1038	10-50	10	50	1/4 x 5/8	.67	.46	.29	.24
15F1144	15-50	15	50	5/16 x 5/8	.67	.46	.29	.24
15F1039	20-50	20	50	5/16 x 3/4	.84	.58	.36	.30
15F1145	25-50	25	50	5/16 x 3/4	.84	.58	.36	.30
15F1066	30-50	30	50	3/8 x 5/8	.88	.60	.38	.31
15F2101	35-50	35	50	3/8 x 3/4	.88	.60	.38	.31
15F1147	40-50	40	50	3/8 x 3/4	.92	.63	.39	.32
15F1768	50-50	50	50	3/8 x 7/8	.92	.63	.39	.32
15F1067	75-50	75	50	3/8 x 1	.96	.65	.41	.34
47F846	100-50	100	50	3/8 x 1 1/4	.99	.68	.42	.35
47F847	125-50	125	50	3/8 x 1 1/2	1.09	.75	.47	.38
15F1040	2-100	2	100	1/4 x 1/2	.67	.46	.29	.24
15F1045	10-100	10	100	3/8 x 3/4	.88	.60	.38	.31
15F1047	20-100	20	100	3/8 x 1	.96	.65	.41	.34
47F849	25-100	25	100	3/8 x 1	.99	.68	.42	.34
15F2102	1-150	1	150	1/4 x 1/2	.67	.46	.29	.24
15F1148	2-150	2	150	1/4 x 5/8	.67	.46	.29	.24
15F1049	5-150	5	150	3/8 x 5/8	.84	.58	.36	.30
15F1051	8-150	8	150	3/8 x 7/8	.88	.60	.38	.31
15F1052	10-150	10	150	3/8 x 7/8	.92	.63	.39	.32
47F850	20-150	20	150	3/8 x 1 1/2	1.02	.70	.43	.36
47F851	25-150	25	150	3/8 x 1 1/2	1.09	.75	.47	.38

WBR CAP-KIT

The type WBR tubular electrolytic assortment is ideal for prototype shops, laboratory work, and general maintenance. The kit includes one of each of the most popular WBR ratings.

Type	µF	WVDC	Type	Mfd.	WVDC
WBR1000-16	1000	16	WBR60-150	60	150
WBR10-50	10	50	WBR100-150	100	150
WBR100-50	100	50	WBR160-250	160	250
WBR250-50	250	50	WBR50-450	50	450
WBR500-50	500	50	WBR100-450	100	450
WBR1000-50	1000	50	WBR20-500	20	500
WBR2000-50	2000	50			

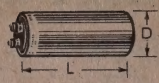
15F480. NET 22.08

CASE CODE AND UNINSULATED CASE SIZES

Last two digits of CDE No. indicate case size (FAH6500-15-A1). Add 1/16" to dia. and 3/8" to lgth. for size including sleeve.

Code	Size, In. Dia. x L.	Code	Size, In. Dia. x L.	Code	Size, In. Dia. x L.
A1	1 3/8 x 2 1/8	B2	2 x 3 1/8	C6	2 1/2 x 5 5/8
A2	1 3/8 x 3 1/8	B3	2 x 4 1/8	D3	3 x 4 1/8
A3	1 3/8 x 4 1/8	C3	2 1/2 x 4 1/8	D6	3 x 5 5/8

COMPUTER GRADE HIGH CAPACITANCE TYPE FAH

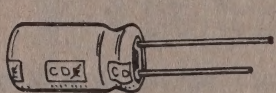


Low leakage current, minimum ESR, high 120cps ripple currents, molded terminal block with safety vent seal, provided with screw terminals, plastic insulating sleeve. Oper. Temp. Range: −40°C to +85°C. Tol: 3-50 VDC, −10 +100%; 51-350 VDC, −10 +75%; 351-450 VDC, −10 +50%.

Stk. No.	Type	VDC	µF	1-24	25-49	50-99	100-Up
15F597	FAH6000-10-A1	10	6000	3.29	2.65	2.29	1.86
15F602	FAH4600-15-A1	15	4600	3.29	2.65	2.29	1.86
67F2361	FAH12000-15-A2	15	12000	3.80	3.05	2.64	2.15
15F604	FAH21000-15-B2	15	21000	5.75	4.63	4.00	3.25
67F2364	FAH42500-15-B3	15	42500	6.69	5.38	4.66	3.78
67F2366	FAH100000-15-D3	15	100000	13.75	11.06	9.57	7.77
67F2367	FAH3700-25-A1	25	3700	3.29	2.65	2.29	1.86
67F2368	FAH6000-25-A2	25	6000	3.80	3.05	2.64	2.15
67F2369	FAH11000-25-A3	25	11000	4.14	3.33	2.88	2.34
67F2371	FAH39500-25-C3	25	39500	9.73	7.83	6.77	5.50
15F608	FAH55000-25-D3	25	55000	13.75	11.06	9.57	7.77
67F2372	FAH59000-25-D3	25	59000	13.75	11.06	9.57	7.77
67F2373	FAH84000-25-D6	25	84000	18.06	14.52	12.56	10.21
67F2375	FAH6300-40-A3	40	6300	4.14	3.33	2.88	2.34
67F2376	FAH12000-40-B2	40	12000	5.75	4.63	4.00	3.25
67F2377	FAH14500-40-B3	40	14500	6.69	5.38	4.66	3.78
67F2378	FAH23500-40-C3	40	23500	9.73	7.83	6.77	5.50
67F2380	FAH3000-50-A2	50	3000	3.80	3.05	2.64	2.15
67F2381	FAH4500-50-A3	50	4500	4.14	3.33	2.88	2.34
67F2382	FAH7000-50-B2	50	7000	5.75	4.63	4.00	3.25
67F2383	FAH9500-50-B3	50	9500	6.69	5.38	4.66	3.78
67F2384	FAH20000-50-C3	50	20000	9.73	7.83	6.77	5.50
67F2385	FAH23000-50-D3	50	23000	13.75	11.06	9.57	7.77
67F2386	FAH40000-50-D6	50	40000	18.06	14.52	12.56	10.21
67F2387	FAH2600-75-A3	75	2600	5.18	4.16	3.60	2.93
67F2388	FAH4100-75-B2	75	4100	6.56	5.27	4.56	3.71
67F2389	FAH6500-75-B3	75	6500	8.12	6.53	5.65	4.59
67F2390	FAH10500-75-C3	75	10500	12.31	9.90	8.56	6.96
15F611	FAH14000-75-D3	75	14000	16.05	12.91	11.17	9.07
67F2391	FAH16000-75-D3	75	16000	16.05	12.91	11.17	9.07
67F2393	FAH800-100-A1	100	800	3.54	2.85	2.46	2.00
67F2394	FAH1650-100-A3	100	1650	5.18	4.16	3.60	2.93
67F2397	FAH9000-100-C6	100	9000	15.13	12.17	10.53	8.55
67F2402	FAH4100-150-C3	150	4100	12.31	9.90	8.56	6.96
67F2405	FAH250-200-A1	200	250	3.54	2.85	2.46	2.00
67F2408	FAH1500-200-B3	200	1500	8.12	6.53	5.65	4.59
67F2410	FAH5500-200-D6	200	5500	21.62	17.39	15.04	12.22
67F2411	FAH530-250-A3	250	530	5.18	4.16	3.60	2.93
15F613	FAH240-300-A2	300	240	4.35	3.50	3.02	2.46
67F2416	FAH1050-300-B3	300	1050	8.12	6.53	5.65	4.59
15F614	FAH2100-300-D3	300	2100	16.05	12.91	11.17	9.07
67F2418	FAH100-350-A1	350	100	3.54	2.85	2.46	2.00
67F2420	FAH420-350-B2	350	420	6.56	5.27	4.56	3.71
67F2425	FAH500-400-B3	400	500	8.12	6.53	5.65	4.59
15F615	FAH50-450-A1	450	50	3.54	2.85	2.46	2.00
15F617	FAH220-450-B2	450	220	6.56	5.27	4.56	3.71
15F618	FAH330-450-B3	450	330	8.12	6.53	5.65	4.59

Vertical Miniature Printed Circuit Style

Type PC is a single ended, metal cased aluminum electrolytic. Designed for vertical mounting on printed circuit boards. Continuous duty operation over temperature range of −40°C to +85°C.



Lead Spacing, Dimensions "S"

Case Dia. "D" inches	Lead Space "S" inches	AWG. Wire Size
.312	.140	#24 (.020)
.375	.200	#22 (.025)
.50	.200	#22 (.025)
.625	.300	#22 (.025)

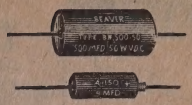
Stk. No.	Type	Cap. Mfd.	WVDC	1-24	25-99	100-249	250-499
15F935	PC100-10	100	10	.39	.29	.20	.17
15F941	PC100-16	100	16	.44	.33	.22	.19
15F942	PC200-16	200	16	.50	.38	.25	.21
15F943	PC500-16	500	16	.83	.62	.42	.35
15F944	PC1000-16	1000	16	1.16	.87	.58	.49
15F945	PC10-25	10	25	.28	.21	.14	.12
15F946	PC25-25	25	25	.30	.23	.15	.13
15F948	PC50-25	50	25	.39	.29	.20	.17

Stk. No.	Type	Cap. Mfd.	WVDC	1-24	25-99	100-249	250-499
15F950	PC100-25	100	25	.50	.38	.25	.12
15F951	PC150-25	150	25	.66	.50	.33	.28
15F952	PC250-25	250	25	.76	.57	.38	.32
15F954	PC200-35	200	35	.79	.60	.40	.33
15F955	PC1-50	1	50	.26	.20	.13	.11
15F956	PC5-50	5	50	.28	.21	.14	.21
15F958	PC10-50	10	50	.32	.24	.16	.14
15F959	PC20-50	20	50	.36	.27	.18	.15
15F961	PC50-50	50	50	.50	.38	.25	.21
15F962	PC100-50	100	50	.66	.50	.33	.28

Cornell-Dubilier Capacitors

WBR TUBULAR ALUMINUM ELECTROLYTICS

Compact aluminum cased. All welded construction. Has plastic sleeve, except 600V and 700V which has cardboard. Temp. −40°C to +85°C to 450V.



16VDC RATED—20VDC SURGE

Stock No.	Type	Mfd.	D x L	1-24	25-99	100-249	250-499
67F2301	WBR100-16	100	0.322 x 0.812	.95	.73	.40	.33
15F159	WBR250-16	250	0.385 x 1.062	1.15	.89	.48	.41
15F160	WBR500-16	500	0.510 x 1.473	1.36	1.04	.57	.48
15F165	WBR1000-16	1000	0.635 x 1.723	1.69	1.30	.71	.59
15F166	WBR2000-16	2000	0.760 x 2.036	2.03	1.56	.85	.71
15F194	WBR3000-16	3000	0.760 x 2.536	2.57	1.97	1.08	.90
15F195	WBR4000-16	4000	0.885 x 2.536	2.98	2.28	1.25	1.04
15F196	WBR5000-16	5000	1.010 x 2.223	3.38	2.59	1.41	1.18
67F2302	WBR10000-16	10000	1.135 x 3.598	4.20	3.22	1.75	1.47

25VDC RATED—30VDC SURGE

15F317	WBR10-25	10	0.260 x 0.562	.79	.60	.33	.28
15F319	WBR25-25	25	0.322 x 0.687	.85	.65	.36	.30
15F320	WBR50-25	50	0.322 x 0.812	.88	.68	.37	.31
15F321	WBR100-25	100	0.385 x 0.812	1.09	.83	.46	.38
15F162	WBR250-25	250	0.510 x 1.473	1.53	1.17	.64	.54
15F163	WBR500-25	500	0.635 x 1.473	1.98	1.52	.83	.69
15F112	WBR1000-25	1000	0.760 x 1.723	3.28	2.55	1.37	1.14
15F113	WBR2000-25	2000	0.760 x 2.536	4.03	3.08	1.68	1.40

35VDC RATED—40VDC SURGE

67F2303	WBR100-35	100	0.385 x 1.062	1.09	.83	.46	.38
67F2304	WBR150-35	150	0.510 x 1.098	1.19	.91	.50	.42
67F2305	WBR300-35	300	0.635 x 1.098	1.59	1.22	.67	.56
67F2306	WBR500-35	500	0.635 x 1.473	1.98	1.52	.83	.69
67F2307	WBR1000-35	1000	0.760 x 1.723	3.28	2.55	1.37	1.14
67F2308	WBR2000-35	2000	0.885 x 2.536	4.03	3.08	1.68	1.40
67F2309	WBR3000-35	3000	1.010 x 2.536	4.62	3.53	1.93	1.61
67F2310	WBR5500-35	5500	1.135 x 3.599	5.75	4.41	2.40	2.01

50VDC RATED—65VDC SURGE

15F322	WBR1-50	1	0.260 x 0.562	.71	.55	.30	.25
15F323	WBR2-50	2	0.260 x 0.562	.71	.55	.30	.25
15F325	WBR5-50	5	0.260 x 0.562	.79	.60	.33	.28
15F326	WBR10-50	10	0.260 x 0.687	.79	.60	.33	.28
15F327	WBR25-50	25	0.322 x 0.812	.85	.65	.36	.30
67F2313	WBR50-50	50	0.385 x 0.812	.98	.76	.41	.35
15F164	WBR100-50	100	0.385 x 0.937	1.09	.83	.46	.38
15F199	WBR150-50	150	0.510 x 1.473	1.23	.94	.52	.43
15F198	WBR250-50	250	0.510 x 1.473	1.56	1.19	.65	.54
15F197	WBR500-50	500	0.635 x 1.098	2.06	1.57	.86	.72
15F114	WBR1000-50	1000	0.635 x 1.473	3.46	2.64	1.44	1.20
15F536	WBR1500-50	1500	0.760 x 1.723	4.25	3.25	1.77	1.48
15F537	WBR2000-50	2000	0.885 x 2.036	4.79	3.66	2.00	1.67
15F347	WBR3000-50	3000	1.010 x 2.223	5.40	4.13	2.25	1.88
67F2315	WBR5000-50	5000	1.010 x 2.723	6.40	4.89	2.67	2.23

75VDC RATED—95VDC SURGE

67F2316	WBR150-75	150	0.635 x 1.473	1.49	1.14	.62	.52
67F2317	WBR275-75	275	0.760 x 1.723	1.76	1.35	.74	.62
67F2318	WBR500-75	500	0.885 x 2.036	2.88	2.21	1.20	1.01
67F2319	WBR1000-75	1000	1.010 x 2.536	3.46	2.64	1.44	1.20

150VDC RATED—175VDC SURGE

15F330	WBR4-150	4	0.322 x 0.812	.92	.70	.39	.32
15F331	WBR8-150	8	0.385 x 0.812	1.02	.78	.43	.36
15F332	WBR10-150	10	0.385 x 0.937	1.09	.83	.46	.38
15F334	WBR16-150	16	0.385 x 1.062	1.12	.86	.47	.39
15F313	WBR20-150	20	0.385 x 1.312	1.19	.91	.50	.42
15F862	WBR30-150	30	0.385 x 1.562	1.29	.99	.54	.45
15F124	WBR40-150	40	0.635 x 1.473	1.59	1.22	.67	.56
15F125	WBR50-150	50	0.635 x 1.473	1.69	1.30	.71	.59
15F126	WBR80-150	80	0.635 x 1.473	1.90	1.45	.79	.67
15F167	WBR100-150	100	0.760 x 1.473	1.96	1.51	.82	.69
15F168	WBR150-150	150	0.760 x 1.723	2.07	1.58	.86	.72

150VDC RATED—175VDC SURGE (Cont.)

Stock No.	Type	Mfd.	D x L	1-24	25-99	100-249	250-499
15F098	WBR200-150	200	0.885 x 2.036	2.61	2.00	1.09	.91
15F118	WBR250-150	250	1.010 x 1.723	3.22	2.47	1.34	1.13
15F099	WBR300-150	300	1.010 x 2.223	3.82	2.93	1.60	1.34

250VDC RATED—300VDC SURGE

15F993	WBR4-250	4	0.510 x 1.098	.88	.68	.37	.31
15F994	WBR8-250	8	0.510 x 1.473	1.36	1.04	.57	.48
15F995	WBR12-250	12	0.510 x 1.473	1.39	1.07	.58	.49
15F115	WBR16-250	16	0.635 x 1.098	1.53	1.17	.64	.54
15F116	WBR20-250	20	0.760 x 1.098	1.69	1.30	.71	.59
15F117	WBR40-250	40	0.760 x 1.473	1.86	1.43	.78	.65
15F305	WBR50-250	50	0.635 x 1.723	1.93	1.48	.81	.68
15F306	WBR60-250	60	0.760 x 1.723	2.00	1.53	.84	.70
67F2335	WBR80-250	80	0.760 x 2.036	2.30	1.77	.96	.81
15F119	WBR100-250	100	0.885 x 1.723	2.54	1.95	1.06	.89
67F2336	WBR160-250	160	0.885 x 2.036	2.81	2.15	1.17	.98
67F2337	WBR225-250	225	1.010 x 2.223	4.23	3.24	1.77	1.48

350VDC RATED—400VDC SURGE

15F886	WBR4-350	4	0.510 x 1.098	1.36	1.04	.57	.48
15F890	WBR20-350	20	0.760 x 1.473	1.80	1.38	.75	.63
15F892	WBR40-350	40	0.760 x 1.723	2.07	1.58	.86	.72
15F894	WBR60-350	60	0.760 x 2.536	2.51	1.92	1.05	.88
15F896	WBR100-350	100	1.010 x 2.036	3.11	2.39	1.30	1.09
67F2340	WBR160-350	160	1.135 x 2.536	3.93	3.05	1.64	1.37
15F122	WBR200-350	200	1.010 x 4.098	4.50	3.45	1.88	1.57

450VDC RATED—525VDC SURGE

15F102	WBR1-450	1	0.635 x 1.098	1.42	1.08	.60	.50
15F103	WBR2-450	2	0.635 x 1.098	1.42	1.08	.60	.50
15F104	WBR4-450	4	0.635 x 1.098	1.46	1.12	.61	.51
67F2342	WBR5-450	5	0.635 x 1.098	1.46	1.12	.61	.51
15F105	WBR8-450	8	0.760 x 1.098	1.59	1.22	.67	.56
15F106	WBR10-450	10	0.760 x 1.098	1.76	1.35	.74	.62
15F107	WBR12-450	12	0.760 x 1.098	1.86	1.43	.78	.65
15F108	WBR16-450	16	0.760 x 1.473	2.03	1.56	.85	.71
15F109	WBR20-450	20	0.760 x 1.723	2.30	1.77	.96	.81
15F110	WBR30-450	30	0.885 x 1.723	2.46	1.88	1.03	.86
15F111	WBR40-450	40	0.885 x 2.036	2.81	2.15	1.17	.98
15F147	WBR60-450	60	1.010 x 2.223	3.01	2.31	1.26	1.05
15F148	WBR80-450	80	1.010 x 2.723	3.38	2.59	1.41	1.18
15F169	WBR100-450	100	1.010 x 3.598	4.06	3.11	1.70	1.42
67F2346	WBR225-450	225	1.385 x 3.661	6.02	4.61	2.51	2.10

500VDC RATED—550VDC SURGE

15F100	WBR8-500	8	0.760 x 1.098	2.37	1.82	.99	.83
67F2350	WBR10-500	10	0.635 x 1.723	2.37	1.82	.99	.83
15F101	WBR16-500	16	0.760 x 1.723	2.71	2.08	1.13	.95
15F146	WBR30-500	30	0.885 x 1.723	3.11	2.39	1.30	1.09
67F2351	WBR40-500	40	0.885 x 2.536	3.45	2.65	1.44	1.21
67F2352	WBR60-500	60	1.010 x 2.536	3.55	2.72	1.49	1.24

600VDC RATED—650VDC SURGE

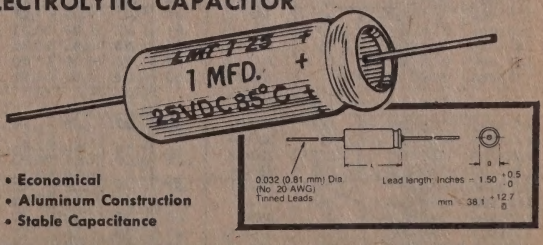
15F183	WBR4-600	4	0.687 x 2.437	4.15	3.18	1.73	1.45
15F184	WBR20-600	20	0.937 x 3.687	5.01	3.84	2.09	1.75

700VDC RATED—750VDC SURGE

15F190	WBR10-700	10	0.937 x 3.187	4.82	3.70	2.01	1.69
15F192	WBR16-700	16	0.937 x 4.312	5.29	4.05	2.21	1.85

TYPE LMT SUB-MINIATURE ELECTROLYTIC CAPACITOR

Stk. No.	Type	Cap. Mfd.	WVDC	D x L	1-24	25-49	50-99	100-249
15F912	LMT50-16	50	16	.340 x .750	.49	.39	.32	.22
15F913	LMT100-16	100	16	.340 x .875	.54	.43	.36	.24
15F914	LMT1-25	1	25	.276 x .625	.42	.33	.28	.19
15F916	LMT5-25	5	25	.276 x .625	.42	.33	.28	.19
15F917	LMT10-25	10	25	.276 x .625	.43	.34	.29	.19
15F918	LMT15-25	15	25	.340 x .680	.43	.34	.29	.19
15F919	LMT25-25	25	25	.340 x .840	.49	.39	.32	.22
15F920	LMT50-25	50	25	.400 x .840	.54	.43	.36	.24
15F921	LMT100-25	100	25	.440 x .875	.54	.43	.36	.24
15F922	LMT1-50	1	50	.276 x .625	.42	.33	.28	.19
15F923	LMT2-50	2	50	.276 x .625	.42	.33	.29	.19
15F924	LMT5-50	5	50	.276 x .625	.43	.34	.29	.19
15F925	LMT10-50	10	50	*.340 x .750	.49	.39	.32	.22
15F926	LMT25-50	25	50	*.440 x .750	.54	.43	.36	.24
15F927	LMT100-50	100	50	.440 x .840	.68	.54	.45	.30
15F929	LMT1-50	1	150	*.440 x 1.375	.47	.37	.31	.21



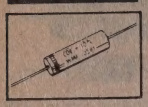
- **Economical**
- **Aluminum Construction**
- **Stable Capacitance**

Type LMT is a metal cased, hermetically sealed, all welded aluminum electrolytic capacitor. Vibration and shock resistant. All terminal connections are welded to eliminate the possibility of open or intermittent contacts due to mechanical stresses and age. Temperature range; −40°C to +85°C (−40°F to +185°F). Capacitance tolerance; −10 +100%.

7

Cornell-Dubilier Capacitors and Decades

WMF MYLAR DIELECTRIC FILM ENCASED



Mylar film wrapping. End sealed with a high density thermo-setting plastic. Miniscule in size. High resistance to humidity. Full rated voltage @ 85C, 50% rated voltage @125C. Temp. range: −55 to +125°C. Tol.: ±10%.

50 WVDC

Stk. No.	Type	Mfd.	DxL (in.)	1-24	25-49	50-99	100-499
15F2104	WMF05P1	.1	.250x1 3/16	.39	.30	.24	.20
15F2105	WMF05P12	.12	.275x1 3/16	.40	.31	.24	.20
15F2106	WMF05P15	.15	.285x1 3/16	.40	.31	.24	.20
15F2107	WMF05P18	.18	.315x1 3/16	.41	.32	.25	.21
15F2108	WMF05P22	.22	.330x1 3/16	.43	.33	.26	.22
15F2109	WMF05P27	.27	.390x1 3/16	.47	.36	.28	.24
15F2110	WMF05P33	.33	.400x1 3/16	.51	.39	.30	.26
15F2111	WMF05P39	.39	.375x1 1/16	.56	.43	.33	.28
15F2112	WMF05P47	.47	.375x1 1/16	.62	.47	.37	.31
15F2113	WMF05P5	.50	.395x1 1/16	.63	.48	.37	.32
15F2314	WMF05P56	.56	.450x1 1/16	.74	.56	.44	.37
15F2115	WMF05P68	.68	.490x1 1/16	.79	.60	.47	.40
15F2116	WMF05P82	.82	.505x1 1/16	.97	.74	.58	.49
15F2117	WMF05W1	1.0	.500x1 3/8	1.10	.84	.65	.55
15F2118	WMF05W2	2.0	.600x1 5/8	1.81	1.39	1.08	.91
15F2119	WMF05W3	3.0	.730x1 7/8	2.54	1.94	1.51	1.27
15F2120	WMF05W4	4.0	.760x1 7/8	3.00	2.29	1.78	1.50
15F2121	WMF05W5	5.0	.850x1 7/8	3.73	2.85	2.22	1.87

100 WVDC

15F1450	WMF1D1	.001	.156x1/2				
15F1837	WMF1D12	.0012	.156x1/2				
15F1451	WMF1D15	.0015	.156x1/2				
15F1452	WMF1D22	.0022	.156x1/2				
15F1839	WMF1D27	.0027	.156x1/2				
15F1453	WMF1D33	.0033	.156x1/2				
15F1840	WMF1D39	.0039	.156x1/2				
15F1454	WMF1D47	.0047	.156x1/2				
15F1841	WMF1D5	.005	.156x1/2				
15F1842	WMF1D56	.0056	.156x1/2				
15F1455	WMF1D68	.0068	.175x1/2	.32	.25	.19	.16
15F1843	WMF1D82	.0082	.175x1/2				
15F1456	WMF1S1	.01	.200x1/2				
15F1844	WMF1S12	.012	.215x1/2				
15F1457	WMF1S15	.015	.235x1/2				
15F1845	WMF1S18	.018	.255x1/2				
15F1458	WMF1S22	.022	.275x5/8				
15F1846	WMF1S27	.027	.300x5/8				
15F1459	WMF1S33	.033	.300x5/8				
15F1847	WMF1S39	.039	.245x3/4				
15F1848	WMF1S5	.05	.270x3/4	.33	.25	.20	.17
15F1849	WMF1S56	.056	.270x3/4	.34	.26	.21	.17
15F1461	WMF1S68	.068	.280x3/4	.35	.27	.21	.18
15F1850	WMF1S82	.082	.270x7/8	.36	.27	.21	.18
15F1462	WMF1P1	.1	.290x7/8	.36	.27	.21	.18
15F1460	WMF1S47	.047	.265x3/4	.33	.25	.20	.17
15F1463	WMF1P15	.15	.335x7/8	.36	.28	.22	.18
15F1464	WMF1P22	.22	.385x1	.39	.30	.23	.20
15F1465	WMF1P33	.33	.415x1 1/8	.46	.35	.28	.23
15F1466	WMF1P47	.47	.475x1 1/4	.55	.42	.33	.28
15F1467	WMF1P68	.68	.570x1 1/4	.72	.55	.43	.36
15F1468	WMF1W1	1.0	.625x1 1/2	.99	.76	.59	.50
15F1470	WMF1W1P5	1.5	.715x1 5/8	1.35	1.03	.80	.68
15F1471	WMF1W2	2.0	.800x1 3/4	1.63	1.25	.97	.82

200 WVDC

15F1472	WMF2D1	.001	.156x1/2				
15F1474	WMF2D22	.0022	.156x1/2				
15F1475	WMF2D33	.0033	.160x1/2				
15F1476	WMF2D47	.0047	.170x1/2	.32	.25	.19	.16
15F1478	WMF2S1	.01	.230x1/2				
15F1480	WMF2S22	.022	.275x5/8				
15F1481	WMF2S33	.033	.270x3/4				
15F1482	WMF2S47	.047	.320x3/4	.33	.25	.20	.17
15F1483	WMF2S68	.068	.350x3/4	.35	.27	.21	.18
15F1484	WMF2P1	.1	.410x7/8	.43	.33	.26	.22
15F1485	WMF2P15	.15	.500x7/8	.45	.34	.27	.23
15F1486	WMF2P22	.22	.500x1 1/8	.48	.36	.28	.24
15F1487	WMF2P33	.33	.550x1 1/8	.54	.41	.32	.27
15F1488	WMF2P47	.47	.600x1 1/4	.61	.47	.36	.31
15F1489	WMF2P68	.68	.650x1 5/8	.72	.55	.43	.36
15F1490	WMF2W1	1.0	.750x1 3/4	.99	.76	.59	.50
15F1493	WMF2W2	2.0	.980x1 7/8	1.63	1.25	.97	.82

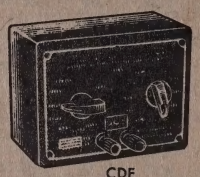
400 WVDC

15F1498	WMF4D47	.0047	.200x5/8	.36	.27	.22	.18
15F1500	WMF4S1	.01	.300x5/8				
15F1502	WMF4S22	.022	.320x3/4	.36	.28	.22	.18
15F1503	WMF4S33	.033	.350x7/8				
15F1504	WMF4S47	.047	.400x7/8	.37	.29	.22	.19
15F1505	WMF4S68	.068	.390x1	.40	.31	.24	.20
15F1506	WMF4P1	.1	.465x1	.41	.31	.24	.21
15F1507	WMF4P15	.15	.515x1 1/4	.43	.33	.26	.22
15F1508	WMF4P22	.22	.565x1 3/8	.49	.38	.29	.25
15F1510	WMF4P47	.47	.700x1 5/8	.95	.72	.56	.48
15F1511	WMF4P68	.68	.790x1 3/4	1.16	.88	.69	.58
15F1512	WMF4W1	1.0	.875x2	1.38	1.05	.82	.69
15F1513	WMF4W1P25	1.25	.950x2	1.51	1.15	.90	.76
15F1514	WMF4W1P5	1.5	.975x2 1/4	1.71	1.31	1.02	.86
15F1515	WMF4W2	2.0	1.250x2 1/4	2.24	1.71	1.33	1.12

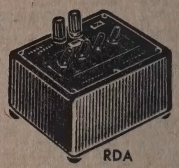
600 WVDC

Stk. No.	Type	Mfd.	DxL (in.)	1-24	25-49	50-99	100-499
15F1516	WMF6D1	.001	.170x3/4				
15F1520	WMF6D47	.0047	.234x3/4				
15F1522	WMF6S1	.01	.290x3/4	.41	.32	.25	.21
15F1524	WMF6S22	.022	.335x7/8				
15F1525	WMF6S33	.033	.350x1				
15F1526	WMF6S47	.047	.415x1	.41	.32	.25	.21
15F1528	WMF6P1	.1	.520x1 3/8	.54	.41	.32	.27
15F1530	WMF6P22	.22	.660x1 5/8	.63	.49	.38	.32
15F1936	WMF6P47	.47	.855x2	1.39	1.06	.83	.70
15F1930	WMF6P68	.68	.970x2	1.86	1.42	1.10	.93
15F1931	WMF6W1	1.0	1.165x2 1/2	2.93	2.24	1.74	1.47
15F1934	WMF6W2	2.0	1.460x3	4.79	3.66	2.84	2.40

CAPACITOR AND RESISTOR DECADES



CDE



RDA

CD Capacitor and RD Resistor Decade boxes provide precision values for breadboarding and substitution. Direct-reading value ranges, six-way molded nylon terminal posts, and calibration chart for capacitance boxes to improve accuracy. Capacitor decade box CDE uses toggle switches, all-other boxes have rotary-type switches. Resistor decade box RDC rated at 2 watts maximum, types RDA and RDB rated at 10 watts maximum dissipation. Individual capacitor boxes available in tantalum electrolytic type. Size: 3 13/16x5x3 3/8", weight 2 lbs.

CAPACITOR DECADE RATINGS

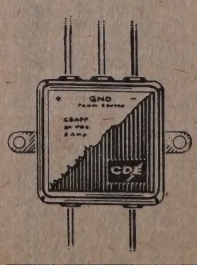
Type	Tol.	Dielectric	Max. Volt.	Min.	Max.	Steps
CDA-2	±2%	Silv. Mica	600VDC, 220VAC	.0001	.011	.0001
CDB-3	±3%	Paper		.01	1.1	.01
CDC-3	±3%	Paper		1.0	10.0	1.0
CDE	-10%, +50%	Etched Cath. Alum. Elec.	450VDC	10	150	10

RESISTOR DECADE RATINGS

		Resistance, Ohms				
Type	Resistor	L. Range	H. Range	Max.	Step	Tol.
RDA	Wire Wound	1-10	10-100	110	1	*
RDB	Non-Induc. W. Wound	100-1K	1K-10K	11K	100	+3%
RDC	Carbon Precision	10K-100K	100K-1M	1.1M	10K	+1%

(*) Low Range ±5%, High Range ±3%

Stock No.	Type	1-9	10-Up	Stock No.	Type	1-9	10-Up
62F657	CDA-2	22.81	20.74	62F655	RDA	36.12	32.84
62F645	CDB-3	26.86	24.42	62F656	RDB	27.67	25.16
62F646	CDC-3	36.31	33.01	62F654	RDC	27.13	24.66
62F647	CDE	23.53	21.39				



TYPE IF FILTERS

5 amp portable devices designed for RFI suppression of fluorescent light sources, office machines and other small appliances. Electrical appliances are plugged into line sockets provided.

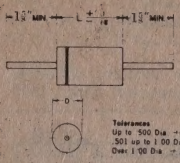
Stock No.	Type	Volts	1-24	25-99	100-Up
48F007	IF24	277VAC	2.68	2.15	1.61
48F006	IF54	110-220 AC/DC	8.42	6.74	5.04

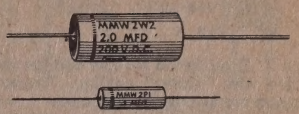
Cornell-Dubilier Capacitors

CDE

TYPE MMW MINIATURE POLYESTER TUBULARS

Metallized polyester dielectric capacitor features extremely small sizes and is ideally suited for application in miniature transistorized circuits and compact, miniaturized military, industrial, and commerical equipment. Metallized polyester film dielectric section tightly wound and encased in tough film wrapper. Epoxy end seals bonded to the wrapper and leads. Has excellent resistance to humidity and moisture as well as capacitance stability over the operating temperature range of −55°C to +85°C at full rated voltage. May be operated to maximum temperature of +125°C with voltage derated to 50% of the +85°C value. Tolerance: ±20%. Average shpg. wt. 3 oz.





400 V DCW

Stock No.	Type No.	Cap. Mfd.	D x L Inches	1-24	25-49	50-99	100-499
67F2136	MMW4S1	.01	.180x9/16	.66	.50	.39	.33
67F2137	MMW4S15	.015	.180x1 1/16	.69	.52	.40	.35
67F2138	MMW4S22	.022	.210x1 1/16	.69	.52	.40	.35
67F2139	MMW4S33	.033	.250x1 1/16	.72	.54	.42	.36
67F2140	MMW4S47	.047	.300x1 1/16	.75	.56	.44	.38
67F2142	MMW4P1	.1	.325x1	.84	.63	.49	.42
67F2170	MMW4P47	.47	.520x1 1/2	1.34	1.01	.79	.67
67F2172	MMW4W1	1.0	.675x1 3/4	1.91	1.44	1.12	.96
67F2174	MMW4W2	2.0	.950x1 3/4	2.90	2.17	1.69	1.45

600 V DCW

Stock No.	Type No.	Cap. Mfd.	D x L Inches	1-24	25-49	50-99	100-499
67F2145	MMW6S1	.01	.200x3/4	.69	.52	.40	.35
67F2146	MMW6S15	.015	.250x3/4	.72	.54	.42	.36
67F2149	MMW6S47	.047	.325x1 1/16	.84	.63	.49	.42
67F2150	MMW6S68	.068	.400x1 1/16	.90	.67	.52	.45
67F2151	MMW6P1	.1	.450x1 1/16	.96	.72	.56	.48
67F2153	MMW6P22	.22	.575x1 1/4	1.25	.94	.73	.63
67F2176	MMW6P47	.47	.675x1 3/4	1.88	1.41	1.10	.94
67F2178	MMW6W1	1.0	.950x1 3/4	3.01	2.26	1.76	1.51

50 V DCW

Stock No.	Type No.	Cap. Mfd.	D x L Inches	1-24	25-49	50-99	100-499
67F2127	MMW05P1	.1	.170x1 1/16	.75	.56	.44	.38
67F2129	MMW05P22	.22	.215x1 1/16	.90	.67	.52	.45
67F2154	MMW05P33	.33	.265x1 1/16	1.02	.76	.59	.51
67F2155	MMW05P47	.47	.315x1 1/16	1.05	.79	.61	.53
67F2156	MMW05P68	.68	.280x1	1.13	.85	.66	.57
67F2157	MMW05W1	1.0	.325x1	1.27	.95	.74	.64
67F2158	MMW05W1P5	1.5	.340x1 1/4	1.52	1.14	.89	.76
67F2159	MMW05W2	2.0	.405x1 1/4	1.83	1.37	1.07	.92
67F2160	MMW05W3	3.0	.500x1 1/4	2.22	1.67	1.30	1.11
67F2162	MMW05W5	5.0	.510x1 3/4	3.12	2.34	1.82	1.56

200 V DCW

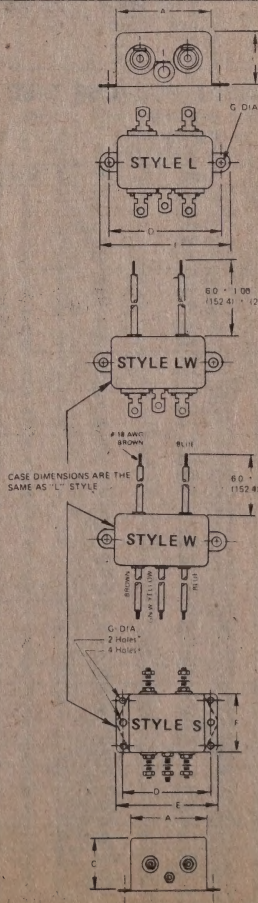
Stock No.	Type No.	Cap. Mfd.	D x L Inches	1-24	25-49	50-99	100-499
67F2130	MMW2S33	.033	.180x9/16	.69	.52	.40	.35
67F2131	MMW2S47	.047	.200x9/16	.69	.52	.40	.35
67F2133	MMW2P1	.1	.240x1 1/16	.75	.56	.44	.38
67F2135	MMW2P22	.22	.340x1 1/16	.90	.67	.52	.45
67F2163	MMW2P33	.33	.390x1 1/16	1.02	.76	.59	.51
67F2164	MMW2P47	.47	.370x1	1.05	.79	.61	.53
67F2165	MMW2P68	.68	.420x1	1.13	.85	.66	.57
67F2166	MMW2W1	1.0	.500x1	1.27	.95	.74	.64
67F2168	MMW2W2	2.0	.620x1 1/4	1.83	1.37	1.07	.92

APF POWER LINE FILTERS

Filters for most electro-magnetic interference (EMI) applications. For line-to-line and line-to-ground uses. Rated Voltage; 115-250 VAC, 50-60 Hz. Tested Di-electric strength; 2100 VDC. Leakage Current; 0.5 mA at 115 VAC. Insertion Loss Curves; measured in 50 ohm system per MIL-STD-220. UL recognition for data processing. Applications Include: business and office machines, computer systems, calculators, disc drives, microwave ovens, plus other major uses.

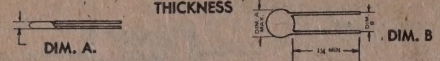
Stock No.	Type	Rating Amps	A ± .031	B ± .031	C ± .031	D ± .016	E ± .031	F ± .016	G ± .005	1-24	25-49	50-99	100-499
15F1098	APF110L	1	1.81	1.00	1.00	2.12	2.50	.....	187	7.83	6.58	5.98	5.06
15F1102	APF120L	1	1.81	1.00	1.00	2.12	2.50	.....	187	8.69	7.30	6.64	5.62
15F1103	APF120LW	1	1.81	1.00	1.00	2.12	2.50	.....	187	8.86	7.44	6.76	5.73
15F1114	APF210L	2	1.81	1.00	1.00	2.12	2.50	.....	187	7.83	6.58	5.98	5.06
15F1115	APF210LW	2	1.81	1.00	1.00	2.12	2.50	.....	187	8.24	6.92	6.29	5.32
15F1116	APF210W	2	1.81	1.00	1.00	2.12	2.50	.....	187	9.90	8.32	7.56	6.40
15F1123	APF240L	2	2.00	2.00	1.12	2.38	2.75	.....	187	12.62	10.60	9.64	8.16
15F1125	APF240W	2	2.00	2.00	1.12	2.38	2.75	.....	187	13.19	11.08	10.07	8.53
15F1129	APF310L	3	1.75	1.25	1.12	2.12	2.50	.....	187	8.48	7.12	6.47	5.48
15F1131	APF310W	3	1.75	1.25	1.12	2.12	2.50	.....	187	10.02	8.42	7.65	6.48
15F1132	APF320L	3	1.75	1.25	1.12	2.12	2.50	.....	187	9.90	8.32	7.56	6.40
15F1135	APF330L	3	2.00	2.00	1.12	2.38	2.75	.....	187	11.57	9.72	8.84	7.48
15F1139	APF340LW	3	2.00	2.00	1.12	2.38	2.75	.....	187	12.83	10.78	9.86	8.30
15F1140	APF340W	3	2.00	2.00	1.12	2.38	2.75	.....	187	13.10	11.00	10.00	8.46
15F1141	APF350L*	3	2.00	2.00	1.50	2.38	2.75	.....	187	12.05	10.12	9.20	7.79
15F1144	APF510L	5	1.75	1.25	1.12	2.12	2.50	.....	187	8.48	7.12	6.47	5.48
15F1147	APF520L	5	1.75	1.25	1.12	2.12	2.50	.....	187	9.90	8.32	7.56	6.40
15F1150	APF530L	5	2.00	2.00	1.12	2.38	2.75	.....	187	11.57	9.72	8.84	7.48
15F1152	APF530W	5	2.00	2.00	1.12	2.38	2.75	.....	187	12.21	10.26	9.33	7.90
15F1154	APF540LW	5	2.00	2.00	1.12	2.38	2.75	.....	187	12.83	10.78	9.86	8.30
15F1155	APF540W	5	2.00	2.00	1.12	2.38	2.75	.....	187	13.10	11.00	10.00	8.46
15F1157	APF550LW*	5	2.00	2.00	1.50	2.38	2.75	.....	187	11.71	9.84	8.94	7.57
15F1158	APF550W*	5	2.00	2.00	1.50	2.38	2.75	.....	187	12.60	10.58	9.62	8.14
15F1159	APF1010L	10	1.75	1.25	1.12	2.12	2.50	.....	187	9.33	7.84	7.13	6.03
15F1160	APF1010LW	10	1.75	1.25	1.12	2.12	2.50	.....	187	9.12	7.66	6.96	5.89
15F1161	APF1010W	10	1.75	1.25	1.12	2.12	2.50	.....	187	10.45	8.78	7.98	6.76
15F1162	APF1020L	10	1.75	1.25	1.12	2.12	2.50	.....	187	10.50	8.82	8.02	6.79
15F1163	APF1020LW	10	1.75	1.25	1.12	2.12	2.50	.....	187	9.83	8.26	7.51	6.36
15F1164	APF1020W	10	1.75	1.25	1.12	2.12	2.50	.....	187	10.95	9.20	8.36	7.08
15F1165	APF1030L	10	2.00	2.00	1.50	2.38	2.78	.....	187	13.98	11.74	10.67	9.03
15F1168	APF1040L	10	2.00	2.00	1.50	2.38	2.78	.....	187	16.00	13.44	12.22	10.34
15F1170	APF1040W	10	2.00	2.00	1.50	2.38	2.78	.....	187	16.41	13.78	12.53	10.60
15F1175	APF2020S	20	2.50	2.00	1.75	2.94	3.31	.....	178	19.93	16.74	15.22	12.88
15F1176	APF2030S	20	2.88	2.25	2.00	3.38	3.88	1.75	203	25.10	21.08	19.16	16.22
15F1177	APF2040S	20	2.88	2.25	2.00	3.38	3.88	1.75	203	29.41	24.70	22.45	19.01
15F1178	APF2050S*	20	2.88	2.25	2.00	3.38	3.88	1.75	203	20.55	17.26	15.69	13.28
15F1181	APF3030S	30	2.88	2.25	2.00	3.38	3.88	1.75	203	28.81	24.20	22.00	18.62
15F1182	APF3040S	30	2.88	2.25	2.00	3.38	3.88	1.75	203	31.19	26.20	23.82	20.16

*For low-frequency applications.



Arco Disc Ceramic Monolithic Capacitors

LOW VOLTAGE MINIATURE DISC CERAMIC CAPACITORS



Type TCD designed for low voltage transistor circuitry. All units coated with "Durez" coating. Tinned #22 annealed wire. .156" thick unless otherwise indicated.

SIZE CHART

Code	Dim. A	Dim. B	Code	Dim. A	Dim. B	Code	Dim. A	Dim. B
A	.290"	.250"	G	.276"	.250"	P	.395"	.250"
B	.385"	.250"	H	.315"	.250"	Q	.475"	.250"
C	.590"	.375"	J	.355"	.375"	R	.530"	.250"
D	.690"	.375"	K	.473"	.375"	S	.590"	.375"
E	.394"	.250"	L*	.721"	.375"	T	.750"	.375"
F	.474"	.250"	M	.315"	.250"	(*) .171" Thickness		

25 VDCW +80%, −20% TOL. Z5V

Stk. No.	Type	Mfd.	Size	1-99	100-999	1000-9999
67F800	TCA-223Z	.022	E	.18	.05	.04
67F801	TCA-333Z	.033	E	.23	.06	.05
67F802	TCA-503Z	.05	.....	.25	.06	.05
67F803	TCA-683Z	.068	.....	.32	.10	.08
67F804	TCA-104Z	.1	.....	.35	.11	.09

50 VDCW ±20% TOL. Z5U

67F300	TCD-103M	.010	E	.21	.06	.05
67F301	TCD-153M	.015	F	.21	.06	.05
67F302	TCD-223M	.022	F	.21	.06	.05
67F303	TCD-333M	.033	F	.23	.07	.05
67F304	TCD-473M	.047	C	.32	.10	.08
67F305	TCD-503M	.050	C	.32	.10	.08

50 VDCW +80% −20% TOL. Z5V

67F306	TCD-502Z	.005	G	.14	.04	.03
67F307	TCD-103Z	.010	H	.14	.04	.04
67F308	TCD-203Z	.020	J	.14	.05	.04
67F311	TCD-503Z	.050	K	.23	.06	.05
67F313	TCD-104Z	.100	L	.48	.15	.12

100 VDCW ±20% TOL. Z5U

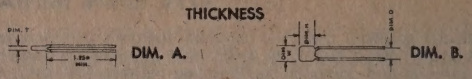
67F314	TCP-R005	.005	M	.14	.05	.04
67F315	TCP-R01	.01	P	.18	.06	.05
67F319	TCP-R05	.05	T	.49	.16	.13

GENERAL PURPOSE DISC CAPACITORS

Ceramic disc capacitors with phenolic coating and high temperature wax impregnation. Tol: (*), ±.5pf; (†), GMV, (‡), ±20%. All others ±10%. 1000 VDCW.

Stk. No.	Type	Pf	Size	1-9	10-99	100-999
67F320	CCD-3R3	3.3*	A	.15	.08	.05
67F321	CCD-050	5*	A	.15	.08	.05
67F322	CCD-6R8	6.8*	A	.15	.08	.05
67F323	CCD-080	8*	A	.15	.08	.05
67F324	CCD-100	10	A	.15	.08	.05
67F325	CCD-180	18	A	.15	.08	.05
67F327	CCD-220	22	A	.15	.08	.05
67F328	CCD-270	27	A	.15	.08	.05
67F329	CCD-300	30	A	.15	.08	.05
67F330	CCD-330	33	A	.15	.08	.05
67F332	CCD-390	39	A	.15	.08	.05
67F333	CCD-470	47	A	.15	.08	.05
67F334	CCD-500	50	A	.15	.08	.05
67F335	CCD-510	51	A	.15	.08	.05
67F336	CCD-560	56	A	.15	.08	.05
67F338	CCD-680	68	A	.15	.08	.05
67F339	CCD-750	75	A	.15	.08	.05
67F340	CCD-820	82	A	.15	.08	.05
67F341	CCD-101	100	A	.15	.08	.05
67F343	CCD-121	120	A	.15	.08	.05
67F344	CCD-151	150*	A	.15	.08	.05
67F346	CCD-201	200	A	.15	.08	.05
67F347	CCD-221	220	A	.15	.08	.05
67F350	CCD-271	270	A	.15	.08	.05
67F351	CCD-301	300	A	.15	.08	.05
67F352	CCD-331	330	A	.15	.08	.05
67F355	CCD-391	390	A	.15	.08	.05
67F356	CCD-401	400	A	.15	.08	.05
67F357	CCD-471	470	A	.15	.08	.05
67F360	CCD-561	560	A	.15	.08	.05
67F361	CCD-681	680	A	.15	.08	.05
67F363	CCD-751	750	A	.15	.08	.05
67F365	CCD-821	820‡	A	.15	.08	.05
67F367	CCD-102	1000	B	.15	.08	.06
67F368	CCD-102G	1000‡	A	.15	.08	.05
67F370	CCD-152	1500‡	B	.15	.08	.06
67F373	CCD-202G	2000†	B	.15	.08	.05
67F377	CCD-302G	3000†	B	.15	.08	.06
67F378	CCD-332G	3300†	C	.16	.09	.07
67F380	CCD-472	4700‡	C	.16	.09	.07
67F381	CCD-502	5000	C	.16	.09	.07
67F383	CCD-682G	6800†	C	.16	.09	.07
67F385	CCD-103	10000‡	D	.18	.11	.09

GENERAL PURPOSE CAPACITORS



Type Z5U. Extremely high volumetric efficiency. Suited for numerous commercial applications that require units of high quality, miniature size and high stability.
Type NPO. High quality NPO dielectric material radial lead miniature units for applications such as timing or coupling circuits.
Type X7R. 15% stable TC monolithic capacitors. Offer high stability and miniature size for a wide variety of commercial applications.

SIZE CHART

Code	Dim. A	Dim. B	Thk.
A	.100	.100	.100
B	.150	.100	.100
C	.200	.100	.125
D	.300	.200	.150
E	.500	.400	.200

50 VDCW ±20% TOL. TYPE MCG

Stk. No.	Type	Mfd.	Size	1-99	100-499	500-2499
67F805	200-050-Z5U-103	.010	C	.27	.24	.16
67F806	200-050-Z5U-153	.015	C	.33	.29	.19
67F807	200-050-Z5U-223	.022	C	.33	.29	.19
67F808	200-050-Z5U-273	.027	C	.33	.29	.19
67F809	200-050-Z5U-333	.033	C	.33	.29	.19
67F810	200-050-Z5U-473	.047	C	.33	.29	.19
67F811	200-050-Z5U-683	.068	C	.37	.32	.21
67F812	200-050-Z5U-104	.10	C	.37	.32	.21
67F813	200-050-Z5U-154	.15	D	.45	.39	.26
67F814	200-050-Z5U-224	.22	D	.57	.50	.33
67F815	300-050-Z5U-274	.27	D	.66	.57	.38
67F816	300-050-Z5U-334	.33	D	.75	.65	.44
67F817	300-050-Z5U-474	.47	D	.84	.73	.49
67F818	300-050-Z5U-684	.68	D	1.10	.95	.64
67F819	300-050-Z5U-105	1.0	D	1.33	1.16	.77
67F820	400-050-Z5U-155	1.5	E	1.91	1.66	1.11
67F821	400-050-Z5U-225	2.2	E	3.12	2.71	1.81
67F822	400-050-Z5U-335	3.3	E	4.77	4.15	2.77
67F823	400-050-Z5U-475	4.7	E	6.42	5.59	3.72

100 VDCW ±20% TYPE MCG

Stk. No.	Type	Mfd.	Size	1-99	100-499	500-2499
67F824	200-100-Z5U-103	.010	C	.33	.29	.19
67F825	200-100-Z5U-153	.015	C	.40	.35	.23
67F826	200-100-Z5U-223	.022	C	.40	.35	.23
67F827	200-100-Z5U-273	.027	C	.40	.35	.23
67F828	200-100-Z5U-333	.033	C	.40	.35	.23
67F829	200-100-Z5U-473	.047	C	.40	.35	.23
67F830	200-100-Z5U-683	.068	C	.44	.38	.26
67F831	200-100-Z5U-104	.10	C	.44	.38	.26
67F832	200-100-Z5U-154	.15	D	.55	.48	.32
67F833	200-100-Z5U-224	.22	D	.70	.61	.40
67F834	300-100-Z5U-274	.27	D	.81	.70	.47
67F835	300-100-Z5U-334	.33	D	.92	.80	.53
67F836	300-100-Z5U-474	.47	D	1.03	.89	.60

100 VDCW ±10% TYPE MCA

Stk. No.	Type	Cap.	Size	1-99	100-499	500-2499
67F837	100-100-NPO-4R7	4.7 pf	A	.26	.22	.15
67F838	100-100-NPO-6R8	6.8 pf	A	.26	.22	.15
67F839	100-100-NPO-100	10 pf	A	.26	.22	.15
67F840	150-100-NPO-220	22 pf	B	.26	.22	.15
67F841	200-100-NPO-101	100 pf	C	.37	.32	.21
67F842	200-100-NPO-221	220 pf	C	.48	.41	.28
67F843	200-100-NPO-471	470 pf*	C	.51	.45	.30
67F844	200-100-NPO-102	1000 pf	C	.55	.48	.32
67F845	300-100-NPO-332	3300 pf	D	1.25	1.09	.72
67F846	400-100-NPO-472	4700 pf	D	1.62	1.40	.94
67F847	400-100-NPO-103	.010 mfd	D	2.57	2.23	1.49
67F848	500-100-NPO-333	.033 mfd	E	5.32	4.63	3.09
67F849	500-100-NPO-473	.047 mfd	E	6.61	5.74	3.83

100 VDCW (*) 50 WVDC ±10% TYPE MCY

Stk. No.	Type	Cap.	Size	1-99	100-499	500-2499
67F850	150-100-X7R-471	470 pf	B	.26	.23	.15
67F851	150-100-X7R-102	1000 pf	B	.26	.23	.15
67F852	200-100-X7R-152	1500 pf	C	.35	.30	.20
67F853	200-100-X7R-332	3300 pf	C	.35	.30	.20
67F854	200-100-X7R-472	4700 pf	C	.40	.35	.23
67F855	200-100-X7R-103	.010 mfd	C	.46	.40	.27
67F856	300-100-X7R-223	.022 mfd	D	.71	.61	.40
67F857	300-100-X7R-333	.033 mfd	D	.71	.61	.40
67F858	300-100-X7R-104	.10 mfd	D	1.33	1.14	.77
67F859	300-050-X7R-154*	.15 mfd	D	1.33	1.14	.77
67F860	300-050-X7R-224*	.22 mfd	D	1.33	1.14	.77
67F861	400-050-X7R-334*	.33 mfd	D	2.22	1.59	.96
67F862	400-050-X7R-474*	.47 mfd	D	2.47	1.76	1.37

7

Capacitors

DIPPED-MICA CAPACITORS

Arco

Silvered mica with plastic coating. Combines stability, dielectric strength, "Q", dielectric constant, chemical inertness, moisture and puncture resistance. Oper. Temp. −55 to 150°C. Tolerance: ±5% except (*) ±0.5 pF. DMS series is stamped with cap. values in pF followed by a letter indicating tol: (J) ±5%; (A) ±1 pF; (D) ±0.5 pF. All meet or exceed MIL-C-S specifications. 500 volts except (†) 100 V and (**) 300 V.

SIZE CHART (Marked with MIL and Commercial Type Nos.)

DM5 . . . . . .270x.190x.110 to .270x.250x.190
DM10/CM04 . . . . . .360x.330x.190 to .400x.390x.230
DM15/CM05 . . . . . .450x.360x.170 to .530x.430x.250
DM19/CM06 . . . . . .640x.500x.190 to .700x.570x.340

Stk. No.	Type	pF	1-499	500-999	1000-Up
14F1262	DMSCC010D	1*	.23	.21	.17
14F1263	DMSCC020D	2*	.23	.21	.17
14F1264	DMSCC030D	3*	.23	.21	.17
14F1265	DMSCC040D	4*	.23	.21	.17
14F1266	DMSCC050D	5*	.23	.21	.17
14F1267	DMSCC060D	6	.24	.22	.17
14F1268	DMSCC070D	7	.24	.22	.17
14F1269	DMSCC080D	8	.24	.22	.17
14F1270	DMSCC100J	10**	.28	.25	.21
14F1271	DMSCC120J	12**	.25	.23	.19
14F1272	DMSCC150J	15**	.25	.23	.19
14F1273	DMSCC180J	18**	.25	.23	.19
14F1274	DMSCC200J	20**	.17	.15	.12
14F1275	DMSCC220J	22**	.19	.17	.13
14F1276	DMSCC240J	24**	.19	.17	.13
14F1277	DM5EC270J	27**	.19	.17	.13
14F1278	DM5EC300J	30**	.19	.17	.13
14F1279	DM5EC330J	33**	.20	.17	.13
14F1280	DM5EC360J	36**	.21	.19	.14
14F1281	DM5EC390J	39**	.21	.19	.14
14F1282	DM5EC430J	43**	.21	.19	.14
14F1283	DM5EC470J	47**	.21	.19	.15
14F1284	DM5EC500J	50**	.21	.19	.15
14F1285	DM5EC510J	51**	.22	.20	.15
14F1286	DM5EC560J	56**	.23	.21	.17
14F1287	DM5EC620J	62**	.24	.22	.17
14F1288	DM5EC680J	68**	.25	.23	.19
14F1289	DM5EC750J	75**	.25	.23	.19
14F1291	DM5FC910J	91**	.31	.28	.22
14F1292	DM5FC101J	100**	.32	.29	.23
14F1294	DM5FC121J	120**	.36	.33	.26
14F1295	DM5FA131J	130**	.31	.28	.22
14F1296	DM5FA151J	150**	.34	.31	.24
14F1297	DM5FA161J	160**	.35	.32	.25
14F1298	DM5FA181J	180**	.39	.35	.28

Stk. No.	Type	pF	10-90	100-490	500-990	1000-Up
14F1151	DM10-020D	2*	.21	.17	.14	.12
14F1152	DM10-030D	3*	.21	.17	.14	.12
14F1153	DM10-050D	5*	.21	.17	.14	.12
14F1154	DM10-100J	10	.21	.17	.14	.12
14F1155	DM10-120J	12	.21	.17	.14	.12
14F1156	DM10-150J	15	.21	.17	.14	.12
14F1157	DM10-180J	18	.21	.17	.14	.12
14F1158	DM10-200J	20	.16	.14	.11	.10
14F1159	DM10-220J	22	.16	.14	.11	.10
14F1160	DM10-240J	24	.16	.14	.11	.10
14F1161	DM10-270J	27	.16	.14	.11	.10
14F1162	DM10-300J	30	.16	.14	.11	.10
14F1163	DM10-330J	33	.16	.14	.11	.10
14F1164	DM10-360J	36	.18	.16	.13	.11
14F1166	DM10-430J	43	.18	.16	.13	.11
14F1167	DM10-470J	47	.18	.16	.13	.11
14F1168	DM10-500J	50	.18	.16	.13	.11
14F1169	DM10-510J	51	.18	.16	.13	.11
14F1170	DM10-560J	56	.18	.16	.13	.11
14F1171	DM10-620J	62	.18	.16	.13	.11
14F1172	DM10-680J	68	.19	.16	.13	.11
14F1173	DM10-750J	75	.19	.16	.13	.11
14F1174	DM10-820J	82	.19	.16	.13	.11
14F1176	DM10-101J	100	.20	.16	.14	.12
14F1177	DM10-111J	110	.20	.16	.14	.12
14F1178	DM10-121J	120	.20	.16	.14	.12
14F1179	DM10-131J	130	.20	.16	.14	.12
14F1180	DM10-151J	150	.20	.17	.14	.12
14F1182	DM10-181J	180	.22	.18	.15	.13
14F1183	DM10-201J	200	.26	.22	.18	.15
14F1184	DM10-221J	220	.26	.22	.18	.16
14F1185	DM10-241J	240	.29	.24	.20	.17
14F1186	DM10-251J	250	.30	.25	.21	.17
14F1187	DM10-271J	270**	.28	.23	.19	.16
14F1188	DM10-301J	300**	.31	.26	.21	.18
14F1189	DM10-331J	330†	.29	.24	.20	.17
14F1190	DM10-361J	360†	.31	.26	.21	.18
14F1200	DM10-391J	390†	.33	.27	.23	.19

Stk. No.	Type	pF	10-90	100-490	500-990	1000-Up
14F549	DM15-010D	1*	.14	.13	.12	.11
14F550	DM15-020D	2*	.14	.13	.12	.11
14F551	DM15-030D	3*	.14	.13	.12	.11
14F552	DM15-050D	5*	.14	.13	.12	.11
14F553	DM15-100J	10	.14	.13	.12	.11
14F554	DM15-120J	12	.13	.12	.11	.10
14F555	DM15-150J	15	.13	.12	.11	.10
14F556	DM15-180J	18	.13	.12	.11	.10
14F557	DM15-200J	20	.12	.11	.10	.09
14F558	DM15-220J	22	.12	.11	.10	.09
14F559	DM15-240J	24	.12	.11	.10	.09
14F560	DM15-270J	27	.12	.11	.10	.09
14F561	DM15-300J	30	.12	.11	.10	.09
14F562	DM15-330J	33	.12	.11	.10	.09
14F563	DM15-360J	36	.12	.11	.10	.09
14F564	DM15-390J	39	.12	.11	.10	.09
14F565	DM15-430J	43	.12	.11	.10	.09
14F566	DM15-470J	47	.12	.11	.10	.09
14F567	DM15-500J	50	.12	.11	.10	.09
14F568	DM15-510J	51	.12	.11	.10	.09
14F569	DM15-560J	56	.12	.11	.10	.09
14F570	DM15-620J	62	.12	.11	.10	.09
14F571	DM15-680J	68	.12	.11	.10	.09
14F572	DM15-750J	75	.12	.11	.10	.09
14F573	DM15-820J	82	.12	.11	.10	.09
14F574	DM15-910J	91	.12	.11	.10	.09
14F575	DM15-101J	100	.12	.11	.10	.09
14F576	DM15-111J	110	.12	.11	.10	.09
14F577	DM15-121J	120	.12	.11	.10	.09
14F578	DM15-131J	130	.13	.12	.11	.10
14F579	DM15-151J	150	.13	.12	.11	.10
14F580	DM15-161J	160	.13	.12	.11	.10
14F581	DM15-181J	180	.13	.12	.11	.11
14F582	DM15-201J	200	.13	.12	.11	.11
14F583	DM15-221J	220	.14	.13	.12	.12
14F584	DM15-241J	240	.15	.14	.13	.12
14F585	DM15-251J	250	.15	.14	.13	.13
14F586	DM15-271J	270	.15	.14	.13	.13
14F587	DM15-301J	300	.16	.15	.14	.14
14F588	DM15-331J	330	.18	.16	.15	.15
14F589	DM15-361J	360	.18	.17	.16	.16
14F590	DM15-391J	390	.19	.17	.16	.16
14F591	DM15-431J	430	.20	.18	.17	.17
14F592	DM15-471J	470	.21	.19	.18	.17
14F593	DM15-501J	500	.21	.19	.18	.18
14F594	DM15-511J	510	.22	.20	.19	.19
14F595	DM15-561J**	560	.22	.20	.19	.19
14F596	DM15-621J**	620	.24	.21	.20	.20
14F597	DM15-681J**	680	.26	.23	.22	.22
14F598	DM15-751J**	750	.28	.25	.23	.23
14F599	DM15-821J**	820	.30	.27	.26	.25
14F1116	DM15-911J†	910	.26	.23	.22	.22
14F1117	DM15-102J†	1000	.28	.25	.24	.24

Stk. No.	Type	pF	1-490	500-900	1000-Up
14F458	DM19-221J	220	.16	.15	.13
14F460	DM19-251J	250	.16	.15	.13
14F461	DM19-271J	270	.16	.15	.13
14F463	DM19-331J	330	.16	.15	.13
14F464	DM19-361J	360	.16	.15	.13
14F465	DM19-391J	390	.16	.15	.13
14F467	DM19-471J	470	.18	.16	.14
14F468	DM19-501J	500	.18	.16	.14
14F470	DM19-561J	560	.18	.16	.14
14F472	DM19-681J	680	.18	.16	.14
14F474	DM19-821J	820	.23	.22	.18
14F477	DM19-112J	1100	.27	.25	.21
14F478	DM19-122J	1200	.27	.26	.21
14F479	DM19-132J	1300	.29	.27	.23
14F480	DM19-152J	1500	.31	.29	.24
14F481	DM19-162J	1600	.31	.29	.24
14F482	DM19-182J	1800	.36	.35	.28
14F483	DM19-202J	2000	.37	.35	.29
14F484	DM19-222J	2200	.43	.40	.33
14F1201	DM19-242J	2400	.45	.42	.35
14F1202	DM19-252J	2500	.46	.43	.36
14F1203	DM19-272J	2700	.48	.45	.38
14F1204	DM19-302J	3000	.49	.46	.38
14F1205	DM19-332J	3300	.53	.49	.41
14F1206	DM19-362J	3600	.56	.53	.44
14F1207	DM19-392J	3900	.60	.57	.47
14F1208	DM19-432J	4300	.67	.63	.52
14F1209	DM19-472J	4700	.68	.64	.53
14F1210	DM19-502J	5000	.74	.72	.59
14F1211	DM19-516J	5100	.78	.73	.61

7

CENTRALAB
Electronics Division
GLOBE-UNION INC

Centralab Capacitors

LOW VOLTAGE DISC CERAMICS CAPACITORS

SEMICONDUCTOR TYPE ULTRA-KAP®

- HIGH CAPACITANCE/MINIATURE SIZE
- —55° to 85°C Operating Temp Range
- Tinned Wire Leads

These reduced titanite devices provide from 50 to 100 times greater capacitance than standard ceramic discs. Excellent choice for bypass and coupling applications with operating frequencies up to 1 kHz. Dielectric strength same as working voltage. Durez coated, wax impregnated. Cap., Tol., Voltage, temp., marked as space permits. Thickness, .156"

3VDCW (Tol. GMV) Y5T

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000-Up
19F395	UK-104	.1	.220"	.33	.19	.11	.08
67F5000	UK-154	.15	.290"	.37	.20	.12	.09
19F396	UK-224	.22	.405"	.45	.25	.15	.11
19F397	UK-474	.47	.405"	.45	.25	.15	.11
19F398	UK-105	1.0	.590"	.57	.31	.19	.14
19F399	UK-225	2.2	.820"	.99	.55	.32	.23

10 VDCW (Tol. +80 —20%) Y5P

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000-Up
19F276	UK10-503	.05	.290"	.30	.17	.10	.07
19F277	UK10-104	.1	.405"	.35	.19	.12	.08
19F278	UK10-204	.2	.590"	.43	.23	.14	.10
19F279	UK10-474	.47	.820"	.75	.42	.24	.18

12 VDCW (Tol. ±20%) Y5P

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000 Up
67F5001	UK12-503	.05	.290"	.32	.17	.11	.08
67F5002	UK12-104	.1	.405"	.37	.20	.12	.09
67F5003	UK12-204	.2	.590"	.52	.28	.17	.12
67F5004	UK12-474	.47	.820"	.93	.52	.31	.22

16 VDCW (±20%) Y5P

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000-Up
19F1267	UK16-103	.01	.290"	.30	.17	.10	.07
19F1268	UK16-223	.022	.290"	.30	.17	.10	.07
19F1269	UK16-503	.05	.390"	.33	.18	.11	.08
19F1270	UK16-104	.1	.485"	.40	.23	.14	.10

20 VDCW (Tol. +80 —20%) Y5P

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000-Up
19F1278	UK20-503	.05	.405"	.35	.19	.12	.08
19F1279	UK20-104	.1	.590"	.43	.23	.14	.10
19F1280	UK20-204	.2	.820"	.74	.40	.24	.17

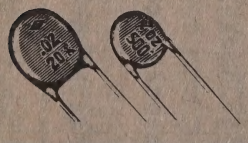
25 VDCW (Tol. ±20%) Y5P

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000-Up
19F1271	UK25-103	.01	.290"	.30	.17	.10	.08
19F1272	UK25-223	.022	.290"	.30	.17	.10	.08
19F1273	UK25-503	.05	.405"	.35	.20	.12	.09
19F1274	UK25-104	.1	.590"	.48	.26	.16	.12

50 VDCW (Tol. ±20%) Y5P

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000-Up
19F400	UK50-103	.01	.290"	.32	.17	.11	.08
19F401	UK50-153	.015	.390"	.33	.19	.11	.08
19F402	UK50-223	.022	.485"	.42	.23	.14	.10
19F403	UK50-503	.05	.590"	.48	.28	.16	.12
19F404	UK50-104	.1	.820"	.92	.51	.30	.22

GENERAL PURPOSE —50VDCW—Z5V



Designed for high capacity low voltage demands of transistor circuitry. Leads: #22 tinned copper, 1.5" minimum length. Max. thickness .171". Power factor: 3% max. at 1 KC. Insulation: Phenolic vacuum wax impregnated. Tolerance: +80 —20%. Operating range: —55 to +85°C.

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000-Up
19F1223	CK-502	.005	.390"	.20	.11	.07	.05
19F1224	CK-103	.01	.390"	.22	.12	.07	.05
19F1225	CK-203	.02	.590"	.30	.17	.10	.07
19F1226	CK-253	.025	.590"	.32	.17	.11	.08
19F1228	CK-503	.05	.690"	.43	.25	.15	.11
19F1229	CK-104	.1	.718"	.99	.55	.32	.23

GENERAL PURPOSE LOW VOLTAGE

Designed to fulfill most solid-state circuitry demands including non-critical bypass and coupling —55° to +85°C Operating Temperature Range Durez coated, wax impregnated. Tinned wire leads. Dielectric Strength: 250% of rated working voltage. Marked as space permits.

75 VDCW (Tol. +80, —30%) Z5V

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000-Up
19F1103	DDA-503	.05	.690"	.45	.25	.15	.11
19F1104	DDA-104	.1	.718"	1.04	.57	.34	.24

100 VDCW (Tol. ±20%) Z4V

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000-Up
67F5005	DC-502	.005	.390"	.20	.11	.07	.05
67F5006	DC-103	.01	.390"	.23	.12	.08	.06
67F5007	DC-203	.02	.590"	.33	.18	.11	.08
67F5008	DC-253	.025	.590"	.37	.20	.12	.09
67F5009	DC-303	.03	.590"	.38	.22	.13	.09
67F5010	DC-503	.05	.690"	.47	.26	.15	.11
67F5011	DC-104	.1	.718"	1.14	.63	.37	.27

600 VDCW (Tol. +80, —20% *GMV) Z5U, †Z5V

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000-Up
67F5012	DD6-103*	.01	.590"	.30	.17	.10	.07
67F5013	DD -153	.015	.690"	.43	.25	.15	.11
19F340	DD -203	.02	.690"	.45	.25	.15	.11
19F537	DD -303	.03	.718"	1.09	.60	.36	.26
19F538	DD -403	.04	.718"	1.14	.63	.37	.27
19F539	DD -503	.05	.875"	1.20	.66	.39	.28
67F5018	DD -104†	.1	.975"	1.62	.89	.53	.38

TEMPERATURE STABLE CAPACITORS

Excellent capacitance stability over wide temperature range. Economical substitute for foil and mica CE Series. X5F, used where extended temp. stability is required for RC networks and conventional applications CF Series, Z5P used where general purpose would not meet circuitry demands —55° to +85°C Operating Temp. Tange Dielectric Strength: 250% of rated working voltage Durez coated, wax impregnated. Tinned wire leads. Marked as space permits. .156" thick.

600 VDCW (Tol. ±10%) X5F

Stock No.	Type	Mfd. PF.*	Dia.	1-99	100-900	1000-9000	10,000-Up
19F1235	CE-151	150*	.290"				
19F1236	CE-221	220*	.290"				
19F1237	CE-331	330*	.290"	.18	.11	.07	.05
19F1238	CE-471	470*	.290"				
19F1239	CE-501	500*	.290"				
19F1241	CE-681	680*	.290"	.18	.11	.07	.05
19F1242	CE-751	.750	.290"	.18	.11	.07	.05
19F1244	CE-102	.001	.290"	.18	.11	.07	.05
67F5019	CE-122	.0012	.390"	.23	.12	.08	.06
67F5020	CE-152	.0015	.390"	.23	.13	.08	.06
67F5021	CE-182	.0018	.485"	.25	.14	.09	.06
67F5022	CE-202	.002	.485"	.25	.14	.09	.06
67F5023	CE-222	.0022	.485"	.25	.14	.09	.06
67F5024	CE-332	.0033	.590"	.33	.19	.11	.08
67F5025	CE-392	.0039	.590"	.33	.19	.11	.08
67F5026	CE-472	.0047	.690"	.43	.25	.15	.11
67F5027	CE-502	.005	.690"	.43	.25	.15	.11
67F5028	CE-622	.0062	.820"	.53	.29	.18	.13
67F5029	CE-822	.0082	.820"	.53	.29	.18	.13
67F5030	CE-103	.01	.920"	.75	.42	.24	.18

600 VDCW (Tol. ±10%) Z5P

Stock No.	Type	Mfd.	Dia.	1-99	100-900	1000-9000	10,000-Up
19F1246	CF-152	.0015	.390"	.20	.11	.07	.05
19F1247	CF-182	.0018	.390"	.20	.11	.07	.05
19F1249	CF-222	.0022	.390"	.20	.11	.07	.05
19F1250	CF-332	.0033	.485"	.25	.14	.08	.06
19F1251	CF-392	.0039	.590"	.30	.17	.10	.07
19F1252	CF-472	.0047	.590"	.30	.17	.10	.07
19F1253	CF-502	.005	.590"	.30	.17	.10	.07
19F1256	CF-103	.01	.820"	.50	.28	.16	.12

7

Centralab Capacitors

CENTRALAB
Electronics Division
GLOBE-UNION INC.

TYPE DD DISC CERAMIC CAPACITORS
Intended for by-pass, coupling, or filter service. Disc ceramic capacitors have a higher dielectric constant, greater voltages, and higher capacities in less space than paper or mica types. Tol. ±10% except (*) ± 20%, (†) ± .5pF, (#) **GMV**; +80 −20%.

SIZE CHART
(A) .290x.156″; (B) .305x.156″; (C) .405x.156″; (D) .500x.156″; (E) .605x.156″; (F) .705x.156″; (G) .718x .250″; (H) .875x.250″.

1000 VDCW

Stk. No.	Type	pF	Size	1-99	100-999	1000-9999	10,000-Up
19F300	DD-3R3	3.3†	A				
19F301	DD-050	5	A				
19F341	DD-060	6	A				
19F302	DD-6R8	6.8	A				
19F342	DD-7R5	7.5	A				
19F343	DD-080	8	A				
19F303	DD-100	10	A				
19F344	DD-120	12	A				
19F304	DD-150	15	A				
19F345	DD-180	18	A				
19F305	DD-200	20	A				
19F346	DD-220	22	A				
19F347	DD-240	24	A				
19F306	DD-250	25	A				
19F348	DD-270	27	A				
19F349	DD-300	30	A				
19F307	DD-330	33	A	**.17**	**.09**	**.06**	**.04**
19F308	DD-390	39	A				
19F309	DD-470	47	A				
19F310	DD-500	50	A				
19F516	DD-510	51	A				
19F311	DD-560	56	B				
19F312	DD-680	68	B				
19F313	DD-750	75	B				
19F358	DD-820	82	B				
19F359	DD-910	91	B				
19F314	DD-101	100	B				
19F315	DD-121	120	B				
19F365	DD-131	130	B				
19F316	DD-151	150	B				
19F317	DD-181	180	B				
19F318	DD-201	200	B				
19F319	DD-221	220	B				
19F366	DD-241	240	B				
19F320	DD-251	250	B				
19F321	DD-271	270	B				
19F322	DD-301	300	B				
19F323	DD-331	330	B				
19F368	DD-351	350	B				
19F369	DD-361	360	B				
19F324	DD-391	390	B				
19F379	DD-401	400	B	**.18**	**.09**	**.06**	**.05**
19F325	DD-471	470	B				
19F326	DD-501	500	B				
19F518	DD-511	510	B				
19F327	DD-561	560	B				
19F519	DD-601	600	B				
19F328	DD-681	680	B				
19F329	DD-751	750	B				
19F380	DD-821	820	B				
19F531	DD-911	910	B				
19F331	DD-102	1000	C	.20	.11	.07	.05
19F532	DD-102G	1000#	B	.18	.09	.06	.05
19F381	DD-122	1200	C	.20	.11	.07	.05
19F382	DD-132	1300	C	.20	.11	.07	.05
19F332	DD-152	1500	C	.20	.11	.07	.05
19F534	DD-152G	1509#	B	.18	.09	.06	.05
19F383	DD-162	1600	C	.20	.11	.07	.05
19F384	DD-182	1800	C	.20	.11	.07	.05
19F333	DD-202	2000*	C	.20	.11	.07	.05
19F385	DD-222	2200*	C	.20	.11	.07	.05
19F386	DD-252	2500*	C	.20	.11	.07	.05
19F387	DD-272	2700*	C	.20	.11	.07	.05
19F334	DD-302	3000*	C	.20	.11	.07	.05
19F388	DD-332	3300*	C	.20	.11	.07	.05
19F389	DD-392	3900*	D	.25	.14	.08	.06
19F390	DD-402	4000*	D	.25	.14	.08	.06
19F391	DD-432	4300*	D	.25	.14	.08	.06
19F335	DD-472	4700*	D	.25	.14	.08	.06
19F336	DD-5022	5000*	D	.25	.14	.08	.06
19F337	DD-502	5000#	E	.30	.17	.10	.07
19F392	DD-562	5600*	D	.25	.14	.08	.06
19F393	DD-682	6800*	E	.30	.17	.10	.07
19F394	DD-752	7500*	E	.30	.17	.10	.07
19F536	DD-822	8200*	E	.30	.17	.10	.07
19F339	DD-103	10000#	F	.43	.23	.14	.10
19F338	DD-1032	10000*	F	.45	.25	.15	.11

HI-VOLTAGE DISC CAPACITORS 3000-6000 VOLTS

Highly efficient for by-pass-coupling in high voltage circuits under conditions of extreme humidity or temperature. Maintain performance at temperatures up to 85°C. Leads #22 tinned copper wire 1½″ min. length. Insul.: Double coating and high temp. vacuum wax impregnation. Tol. ± 20% Volt. DD30 series, 3000 VDCW, DD60 series, 6000 VDCW. Sizes: (A) .330″ dia.; (B) .430″ dia.; (C) .630″ dia.; (F) .800″ dia.; (G) .760″ dia.; (H) .660″ dia.; (K) .320″ dia.; (L) .650″ dia.

TYPE DD30—3000 VDCW

Stk. No.	Type	pF	Size	1-99	100-999	1000-9999	10,000-Up
19F203	100	10	K				
19F217	101	100	A	**.48**	**.26**	**.16**	**.12**
19F219	151	150	A				
19F222	221	220	A				
19F230	501	500	A				
19F234	102	1,000	B	.52	.29	.17	.13
19F236	152	1,500	C	.67	.37	.22	.16
19F237	202	2,000	C	.67	.37	.22	.16
19F238	222	2,200	C	.67	.37	.22	.16
19F241	302	3,000	C	.67	.37	.22	.16
19F242	501	5,000	F	.84	.46	.28	.20

TYPE DD60—6000 VDCW

Stk. No.	Type	pF	Size	1-99	100-999	1000-9999	10,000-Up
19F473	500	50	L				
19F481	181	180	H				
19F482	201	200	H	**.84**	**.46**	**.28**	**.20**
19F485	271	270	H				
19F490	471	470	H				
19F493	681	680	H				
19F495	102	1,000	H	.84	.46	.28	.20
19F498	202	2,000	G	1.17	.65	.38	.28

CENTRALAB CAPACITOR KIT

- **Wide Assortment**
- **Popular Sizes**
- **Ready To Use**

KIT-60D contains an assortment of the most widely used general purpose ceramic disc capacitors. 600 and 1000 VDCW ratings in 40 different values from 5pf to .05mf. Housed in rugged steel frame cabinet with 15 high impact plastic drawers. Capacitors functionally arranged in clearly labeled drawers by voltage and value. Shipped set up and ready to use.

KIT-60D CONTENTS

Cap.	Qty.	Type	Cap.	Qty.	Type
5pf	5	DD-050	390pf	5	DD-391
10	5	DD-100	470	5	DD-471
15	5	DD-150	500	5	DD-501
20	5	DD-200	680	5	DD-681
22	5	DD-220	820	5	DD-821
25	5	DD-250	.001mf	15	DD-102
33	5	DD-330	.001	10	DD-102G
47	5	DD-470	.0015	5	DD-152
50	5	DD-500	.002	10	DD-202
68	5	DD-680	.0022	5	DD-222
100	10	DD-101	.003	5	DD-302
120	5	DD-121	.0047	5	DD-472
150	5	DD-151	.005	5	DD-502
180	5	DD-181	.005	10	DD-5022
200	10	DD-201	.0068	5	DD-682
220	5	DD-221	.01	5	DD-103
250	5	DD-251	.01	15	DD-1032
270	5	DD-271	.01	5	DD6-103
300	5	DD-301	.02	5	DD-203
330	5	DD-331	.05	5	DD-503

67F5031 NET 59.95

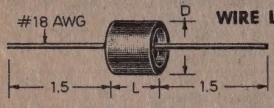
Centralab Capacitors

CENTRALAB
Electronics Division
GLOBE-UNION INC.

PRICING

Key	1-99	100-Up	Key	1-99	100-Up
A	.64	.35	F	20.05	15.45
B	4.96	3.79	G	17.55	13.48
C	.33	.19	H	5.25	4.06
D	4.62	3.57	K	5.34	4.09
E	6.04	4.62	M	5.77	4.43

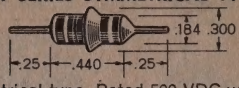
TRANSMITTING CAPACITORS



5000 VDCW. Tol. 10%. NPO temperature coefficients except (*) which are N750.
Type 853—.500" dia. x .437" Lt.
Type 854—.375" dia. x .375" Lt.
Type 855—.250" dia. x .343" Lt.

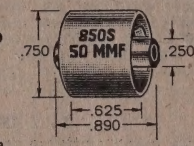
Stk. No.	Type	pF	Tol.	Key
19F268	855-3Z	3	±10%	D
19F270	854-10Z	10	±10%	B
19F271	855-10N*	10	±10%	D
19F272	853-20Z	20	±10%	H
19F274	853-40N*	40	±10%	H

SFT SERIES SYMMETRICAL TYPE



Symmetrical type. Rated 500 VDC working. Tinned wire leads. Mounts in .200" dia. hole. Overall length .940". Ship. Wt. 1½ oz.

Stk. No.	Type	pF	Key
20F1406	SFT-501	500 ± 20%	C
20F1407	SFT-102	1000 GMV	C



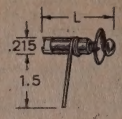
TRANSMITTING CAPACITOR

Threaded Terminals

Type 850. 7500 VDCW except (*) 5000 T.C. N = N750, Z = NPO, (†) X5T, (‡) X5U. Body Size: .625" Lt. x .750" dia.

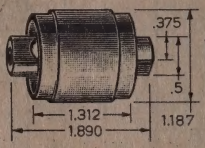
Stk. No.	Type	pF	Tol.	Key
19F248	850S-25Z	25	±10%	E
19F254	850S-50Z	50	±10%	E
19F250	850S-50N	50	±10%	K
19F251	850S-75N	75	±10%	K
19F252	850S-100N*	100	±10%	K
19F253	858S-500†*	500	±20%	M
19F249	858S-1000‡*	1000	±20%	M

TYPE 829 TUBULAR TRIMMER



Tiny tubular and industrial trimmers for TV and FM applications. Ceramic bodies, .215" in diameter. Length as shown. Mount by means of locknut. Rated 500 VDC working.

Stk. No.	Type	Length	pF	Key
19F173	829-7	.625	1-7.5	A
19F174	829-10	.625	1.5-10	A



TRANSMITTING CAPACITOR

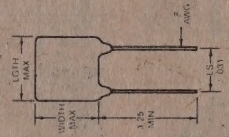
Threaded Terminals

15,000 VDC except (*) which work at 7,500 VDC. Negative 750 temperature coefficients, except (†), which are NPO zero. Tol. 10%. Body size: 1.312" Lt. x 1.187" dia.

Stk. No.	Type	pF	Tol.	Key
19F454	857-25Z	25	±10%	F
19F455	857-50Z	50	±10%	F
19F456	857-100N†	100	±10%	G
19F457	857-200N*	200	±10%	G

CW SERIES MONOLITHIC CAPACITORS

Rugged epoxy coating. Radial leads. Operating Temperature Range: −55°C to +125°C. Dielectric Strength: 250% of rated working voltage. Dissipation factor: 2.5% maximum. 100,000 megohms insulation resistance.



Size Code	Max. Lgth.	Max. Width	Max. Thick.	Lead Spacing	Lead #AWG
15	.150"	.150"	.100"	.100"	26
20	.200"	.200"	.125"	.100"	24
30	.300"	.300"	.150"	.200"	24
40	.400"	.400"	.150"	.200"	24
50	.500"	.500"	.200"	.400"	22

SEMI-STABLE CW SERIES 50 VDC X7R

Stock No.	Cap.	Type	Tol.	Size Code	1-99	100-999	1000-Up
31F1206	150 pf	CW15C151K	±10%	15			
31F1213	180	CW15C181K	±10%	15			
31F1236	220	CW15C221K	±10%	15			
31F1261	270	CW15C271K	±10%	15			
31F1277	330	CW15C331K	±10%	15	.43	.22	.16
31F1255	390	CW15C391K	±10%	15			
31F1275	470	CW15C471K	±10%	15			
31F1264	560	CW15C561K	±10%	15			
31F1278	680	CW15C681K	±10%	15			
31F1227	820	CW15C821K	±10%	15			
31F1272	.001 mf	CW15C102K	±10%	15	.43	.22	.16
31F1258	.001	CW15C102M	±20%	15	.37	.19	.14
31F1234	.0012	CW15C122K	±10%	15	.43	.22	.16
31F1274	.0015	CW15C152K	±10%	15	.43	.22	.16
31F1267	.0018	CW15C182K	±10%	15	.43	.22	.16
31F1270	.0022	CW15C222K	±10%	15	.43	.22	.16
31F1240	.0027	CW15C272K	±10%	15	.43	.22	.16
31F1220	.0033	CW15C332K	±10%	15	.43	.22	.16
31F1245	.0039	CW15C392K	±10%	15	.45	.23	.16
31F1257	.0047	CW15C472K	±10%	15	.45	.23	.16
31F1271	.0068	CW15C682K	±10%	15	.45	.23	.17
31F1260	.0082	CW15C822K	±10%	15	.47	.23	.17
31F1251	.01	CW15C103K	±10%	15	.47	.23	.17
31F1269	.01	CW15C103M	±20%	15	.38	.20	.14
31F1263	.012	CW15C123K	±10%	15	.53	.28	.20
31F1254	.015	CW15C153K	±10%	15	.53	.28	.20
31F1204	.018	CW20C183K	±10%	20	.92	.48	.33
31F1212	.022	CW20C223K	±10%	20	.97	.49	.35
31F1226	.027	CW20C273K	±10%	20	1.02	.52	.37
31F1248	.033	CW20C333K	±10%	20	1.02	.52	.37
31F1266	.039	CW20C393K	±10%	20	1.07	.55	.39
31F1233	.047	CW20C473K	±10%	20	1.12	.57	.41
31F1273	.056	CW20C563K	±10%	20	1.22	.63	.44
31F1239	.068	CW20C683K	±10%	20	1.39	.71	.50
31F1219	.082	CW20C823K	±10%	20	1.57	.80	.56
31F1205	.1	CW30C104K	±10%	30	2.10	1.08	.75
31F1276	.1	CW30C104M	±20%	30	1.77	.91	.64
31F1224	.15	CW30C154K	±10%	30	2.41	1.23	.86
31F1217	.22	CW30C224K	±10%	30	3.02	1.54	1.08

SEMI-STABLE CW SERIES 100 VDC X7R

Stock No.	Cap.	Type	Tol.	Size Code	1-99	100-999	1000-Up
31F1203	150 pf	CW15A151K	±10%	15			
31F1211	180	CW15A181K	±10%	15			
31F1238	220	CW15A221K	±10%	15			
31F1253	270	CW15A271K	±10%	15			
31F1247	330	CW15A331K	±10%	15			
31F1259	390	CW15A391K	±10%	15			
31F1232	470	CW15A471K	±10%	15			
31F1243	560	CW15A561K	±10%	15	.43	.22	.16
31F1268	680	CW15A681K	±10%	15			
31F1262	820	CW15A821K	±10%	15			
31F1256	.001 mf	CW15A102K	±10%	15			
31F1265	.0012	CW15A122K	±10%	15			
31F1249	.0015	CW15A152K	±10%	15			
31F1225	.0018	CW15A182K	±10%	15			
31F1218	.0022	CW15A222K	±10%	15			
31F1200	.0027	CW15A272K	±10%	15	.43	.23	.16
31F1208	.0033	CW15A332K	±10%	15	.45	.23	.16
31F1222	.0039	CW15A392K	±10%	15	.45	.23	.17
31F1229	.0047	CW15A472K	±10%	15	.47	.23	.17
31F1215	.0056	CW15A562K	±10%	15	.48	.25	.18
31F1201	.0068	CW20A682K	±10%	20	.82	.42	.30
31F1209	.0082	CW20A822K	±10%	20	.82	.42	.30
31F1223	.01	CW20A103K	±10%	20	.82	.42	.30
31F1237	.012	CW20A123K	±10%	20	.94	.48	.34
31F1246	.015	CW20A153K	±10%	20	.99	.51	.35
31F1250	.018	CW20A183K	±10%	20	1.09	.55	.39
31F1242	.022	CW20A223K	±10%	20	1.17	.60	.42
31F1230	.027	CW20A273K	±10%	20	1.22	.62	.44
31F1216	.033	CW20A333K	±10%	20	1.22	.63	.44
31F1202	.039	CW30A393K	±10%	30	1.77	.91	.64
31F1210	.047	CW30A473K	±10%	30	1.90	.97	.68
31F1231	.056	CW30A563K	±10%	30	2.02	1.03	.73
31F1252	.068	CW30A683K	±10%	30	2.15	1.09	.77
31F1207	.082	CW30A823K	±10%	30	2.32	1.19	.83
31F1235	.1	CW30A104K	±10%	30	2.59	1.32	.93
31F1244	.15	CW40A154K	±10%	40	4.99	2.56	1.79
31F1228	.22	CW40A224K	±10%	40	5.70	2.91	2.04
31F1241	.33	CW50A334K	±10%	50	8.12	4.16	2.90
31F1221	.47	CW50A474K	±10%	50	9.82	5.02	3.51
31F1214	.56	CW50A564K	±10%	50	10.30	5.28	3.68

Centralab Monolithic Capacitors

CENTRALAB
Electronics Division
GLOBE-UNION INC.

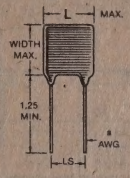
MONO-KAP® RADIAL LEAD EPOXY COATED

CN Series. Maximum stability over wide range of voltages, frequencies, and environmental conditions. Tolerance: ±10%, except (*) ±0.5 pf. Epoxy coated.

CY Series. High capacitance for general purpose applications. Tolerance: ±20%, except (†) GMV. Epoxy coated. Useful for bypass, coupling, and filtering applications.

SIZE CHART

Size Code	Max. L	Max. Width	Max. Thick	Lead Spacing	Lead #AWG
10	.100"	.100"	.100"	.100"	26
15	.150"	.150"	.100"	.100"	26
20	.200"	.200"	.125"	.100"	24
30	.300"	.300"	.150"	.200"	24
40	.400"	.400"	.150"	.200"	24



ULTRA-STABLE
CN SERIES 100 VDCW COG (NPO)

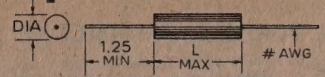
Stk. No.	Type	Cap.	Size Code	1-99	100-900	1000-up
20F1408	CN10A4R7D	4.7pF*	10	1.29	.66	.46
20F1409	CN10A6R8D	6.8pF*	10	1.29	.66	.46
20F1410	CN15A100K	10pF	15	.43	.22	.16
20F1411	CN15A150K	15pF	15	.43	.22	.16
20F1412	CN15A220K	22pF	15	.43	.22	.16
20F1413	CN15A330K	33pF	15	.43	.22	.16
20F1414	CN15A470K	47pF	15	.43	.22	.16
20F1415	CN15A680K	68pF	15	.43	.22	.16
20F1416	CN15A101K	100pF	15	.43	.22	.16
20F1417	CN15A151K	150pF	15	.47	.23	.12
20F1418	CN15A221K	220pF	15	.50	.25	.18
20F1419	CN20A331K	330pF	20	.99	.51	.36
20F1420	CN20A471K	470pF	20	1.04	.52	.37
20F1421	CN20A681K	680pF	20	1.07	.55	.39
20F1422	CN20A102K	.001μF	20	1.14	.59	.41
20F1423	CN20A152K	.0015μF	20	1.24	.63	.44
20F1424	CN30A222K	.0022μF	30	1.92	.99	.69
20F1425	CN30A332K	.0033μF	30	2.02	1.03	.73
20F1426	CN30A472K	.0047μF	30	2.46	1.25	.88
20F1427	CN30A682K	.0068μF	30	3.16	1.62	1.13
20F1428	CN40A103K	.01μF	40	5.53	2.83	1.97

GENERAL PURPOSE
CY SERIES 50 VOLT DCW Y5V

20F1429	CY15C471M	470pF	15			
20F1430	CY15C681M	680pF	15			
20F1431	CY15C102M	.001μF	15			
20F1432	CY15C152M	.0015μF	15			
20F1433	CY15C222M	.0022μF	15	.43	.23	.16
20F1434	CY15C332M	.0033μF	15			
20F1435	CY15C472M	.0047μF	15			
20F1436	CY15C682M	.0068μF	15			
20F1437	CY15C103M	.01μF	15			
20F1438	CY15C103P	.01μF†	15	.35	.19	.13
20F1439	CY15C153M	.015μF	15	.47	.25	.17
20F1440	CY15C223M	.022μF	15	.50	.25	.18
20F1441	CY15C333M	.033μF	15	.50	.25	.18
20F1442	CY15C473M	.047μF	15	.53	.28	.20
20F1443	CY15C683M	.068μF	15	.59	.29	.21
20F1444	CY20C104M	.1μF	20	.80	.40	.31
20F1445	CY20C104P	.1μF†	20	.64	.32	.23
20F1446	CY20C154M	.15μF	20	.97	.49	.36
20F1447	CY20C224M	.22μF	20	1.07	.55	.39
20F1448	CY20C334M	.33μF	20	1.22	.63	.44
20F1449	CY20C474M	.47μF	20	1.34	.68	.48
20F1450	CY30C684M	.68μF	30	2.71	1.39	.97
20F1451	CY30C105M	1.0μF	30	3.32	1.71	1.19
20F1452	CY30C105P	1.0μF†	30	2.66	1.36	.95
20F1453	CY30C155M	1.5μF	30	4.39	2.25	1.57
20F1454	CY30C225M	2.2μF	30	5.16	2.65	1.85
20F1455	CY40C335M	3.3μF	40	6.60	3.37	2.36
20F1456	CY40C475M	4.7μF	40	10.34	5.30	3.69

CY SERIES 100 VOLT DCW Y5V

20F1457	CY15A682M	.0068μF	15	.47	.25	.17
20F1458	CY15A103M	.01μF	15	.47	.25	.17
20F1459	CY15A103P	.01μF†	15	.38	.20	.14
20F1460	CY15A153M	.015μF	15	.50	.26	.18
20F1461	CY15A223M	.022μF	15	.55	.28	.20
20F1462	CY15A333M	.033μF	15	.55	.28	.20
20F1463	CY20A473M	.047μF	20	.95	.48	.34
20F1464	CY20A683M	.068μF	20	.95	.48	.34
20F1465	CY20A104M	.1μF	20	.95	.48	.34
20F1466	CY20A104P	.1μF†	20	.75	.39	.27
20F1467	CY20A154M	.15μF	20	1.10	.57	.40
20F1468	CY20A224M	.22μF	20	1.32	.68	.47
20F1469	CY30A334M	.33μF	30	2.79	1.43	1.00
20F1470	CY30A474M	.47μF	30	2.97	1.53	1.06
20F1471	CY30A684M	.68μF	30	3.06	1.57	1.09
20F1472	CY30A105M	1.0μF	30	3.81	1.94	1.36
20F1473	CY40A155M	1.5μF	40	5.56	2.85	1.99
20F1474	CY40A225M	2.2μF	40	6.40	3.28	2.29



TUBULAR CASE AXIAL LEAD CERAMIC CAPACITORS

C22 Series. Useful for bypass coupling, blocking applications. Transfer molded. Epoxy case. Tolerance: ±10%. Sizes: A—.170"L x .100" Dia., 26 AWG. B—.260"L x .110" Dia., 22AWG. C—.410"L x .150" Dia., 22AWG.

C33 Series. Minimum change over wide range of conditions. Transfer molded. Epoxy case. Tolerance: ±10% except (*) ±0.5 pf. Sizes: D—.250"L x .100" Dia., 22AWG. E—.400"L x .140" Dia., 22AWG.

C22 SERIES 100 VOLT DCW X7R

Stk. No.	Type	Cap.	Size Code	1-99	100-999	1000-up
20F1475	C22A100K	10pF	A			
20F1476	C22A120K	12pF	A			
20F1477	C22A150K	15pF	A	1.50	.77	.54
20F1478	C22A180K	18pF	A			
20F1479	C22A220K	22pF	A			
20F1480	C22A270K	27pF	A			
20F1481	C22A330K	33pF	A			
20F1482	C22A390K	39pF	A	1.50	.77	.54
20F1483	C22A470K	47pF	A			
20F1484	C22A560K	56pF	A			
20F1485	C22A680K	68pF	A			
20F1486	C22A820K	82pF	A			
20F1487	C22A101K	100pF	A	1.50	.77	.54
20F1488	C22A121K	120pF	A			
20F1489	C22A151K	150pF	A			
20F1490	C22A181K	180pF	A			
20F1491	C22A221K	220pF	A			
20F1492	C22A271K	270pF	A	1.50	.77	.54
20F1493	C22A331K	330pF	A			
20F1494	C22A391K	390pF	A			
20F1495	C22A471K	470pF	A			
20F1496	C22A561K	560pF	A			
20F1497	C22A681K	680pF	A	1.50	.77	.54
20F1498	C22A821K	820pF	A			
20F1499	C22A102K	.001μF	A			
20F1500	C22A152K	.0015μF	A			
20F1501	C22A222K	.0022μF	A			
20F1502	C22A272K	.0027μF	A	1.50	.77	.54
20F1503	C22A332K	.0033μF	A			
20F1504	C22A392K	.0039μF	A			
20F1505	C22A472K	.0047μF	A			
20F1506	C22A682K	.0068μF	B			
20F1507	C22A822K	.0082μF	B	1.50	.77	.54
20F1508	C22A103K	.01μF	B			
20F1509	C22A153K	.015μF	B	2.17	1.11	.78
20F1510	C22A223K	.022μF	B			
20F1511	C22A333K	.033μF	C			
20F1512	C22A473K	.047μF	C	2.82	1.45	1.01
20F1513	C22A563K	.056μF	C			
20F1514	C22A683K	.068μF	C			
20F1515	C22A823K	.082μF	C	3.07	1.57	1.09
20F1516	C22A104K	.1μF	C			

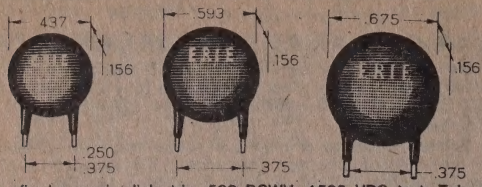
C33 SERIES 100 VOLT DCW COG (NPO)

20F1517	C33A1R0D	1.0pF*	D			
20F1518	C33A1R8D	1.8pF*	D	3.61	1.85	1.29
20F1519	C33A2R2D	2.2pF*	D			
20F1520	C33A3R3D	3.3pF*	D			
20F1521	C33A4R7D	4.7pF*	D			
20F1522	C33A5R6D	5.6pF*	D	3.61	1.85	1.29
20F1523	C33A6R8D	6.8pF*	D			
20F1524	C33A8R2D	8.2pF*	D			
20F1525	C33A100K	10pF	D			
20F1526	C33A120K	12pF	D			
20F1527	C33A150K	15pF	D	3.07	1.57	1.09
20F1528	C33A180K	18pF	D			
20F1529	C33A220K	22pF	D			
20F1530	C33A270K	27pF	D			
20F1531	C33A330K	33pF	D			
20F1532	C33A390K	39pF	D	3.07	1.57	1.09
20F1533	C33A470K	47pF	D			
20F1534	C33A560K	56pF	D			
20F1535	C33A680K	68pF	D			
20F1536	C33A820K	82pF	D			
20F1537	C33A101K	100pF	D	3.07	1.57	1.09
20F1538	C33A121K	120pF	D			
20F1539	C33A151K	150pF	D			
20F1540	C33A181K	180pF	D			
20F1541	C33A221K	220pF	D			
20F1542	C33A271K	270pF	D	3.07	1.57	1.09
20F1543	C33A331K	330pF	D			
20F1544	C33A391K	390pF	D			
20F1545	C33A471K	470pF	D			
20F1546	C33A561K	560pF	E			
20F1547	C33A681K	680pF	E	3.31	1.69	1.18
20F1548	C33A821K	820pF	E			
20F1549	C33A102K	.001μF	E			

7

Capacitors

GENERAL PURPOSE CERAMICONS



Silver fired ceramic dielectric. 500 DCWV, 1500 VDC test: Tolerance: 10% except (* ± .25%), (** ± .5%), († ± 5%), (†† ± 20%). Shpg. wt. 1 oz.

SIZE CHART

Type	Diameter	Lead Spacing	Thickness
831	.290	.250	.156
801	.360	.250	.156
811	.593	.375	.156
841	.675	.375	.156
851	.437	.250	.156

Stk. No.	Type	Cap. pF	1-49	50-99	100-249	250-499
19F2683	831-000-COGO-509C	5.0*				
19F2685	831-000-COGO-100D	10.0**				
19F2686	831-000-COGO-120J	12.0†				
19F2687	801-000-COGO-150J	15.0†				
19F2689	801-000-COGO-200J	20.0†				
19F2690	801-000-COGO-220J	22.0†	.40	.30	.25	.20
19F2691	851-000-COGO-270J	27.0†				
19F2692	851-000-COGO-330J	33.0†				
19F2693	851-000-COGO-470J	47.0†				
19F2713	841-000-COGO-101J	100.0†	.48	.36	.30	.24
19F2694	831-000-U2JO-100D	10.0**				
19F2695	831-000-U2JO-120J	12.0†				
19F2696	831-000-U2JO-150J	15.0†				
19F2697	831-000-U2JO-180J	18.0†				
19F2698	831-000-U2JO-200J	20.0†				
19F2699	831-000-U2JO-220J	22.0†				
19F2700	831-000-U2JO-270J	27.0†				
19F2701	831-000-U2JO-330J	33.0†	.40	.30	.25	.20
19F2703	801-000-U2JO-470J	47.0†				
19F2704	801-000-U2JO-500J	50.0†				
19F2705	801-000-U2JO-560J	56.0†				
19F2706	851-000-U2JO-680J	68.0†				
19F2709	851-000-U2JO-101J	100.0†				
19F2718	831-000-X5FO-470K	47.0				
19F2719	831-000-X5FO-560K	56.0				
19F2720	831-000-X5FO-680K	68.0				
19F2721	831-000-X5FO-101K	100.0				
19F2722	831-000-X5FO-151K	150.0				
19F2723	831-000-X5FO-201K	200.0				
19F2724	831-000-X5FO-221K	220.0	.40	.30	.25	.20
19F2725	831-000-X5FO-271K	270.0				
19F2726	831-000-X5FO-331K	330.0				
19F2727	831-000-X5FO-391K	390.0				
19F2728	831-000-X5FO-471K	470.0				
19F2729	831-000-X5FO-501K	500.0				
19F2730	801-000-X5FO-681K	680.0				
19F2731	801-000-X5FO-102K	1,000.0				
19F2732	851-000-X5FO-152K	1,500.0				
19F2733	871-000-X5FO-202K	2,000.0				
19F2734	811-000-X5FO-222K	2,200.0				
19F2735	811-000-X5FO-332K	3,300.0				
19F2736	811-000-X5RO-472K	4,700.0	.40	.30	.25	.20
19F2737	811-000-X5RO-502K	5,000.0				
19F2738	811-000-Z5UO-103M	10,000.0††				
19F2739	841-000-Z5UO-153M	15,000.0††				
19F2740	841-000-Z5UO-203M	20,000.0††				

TRANSCAPS

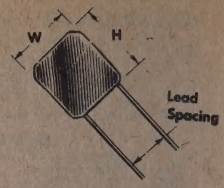
Use in transistorized, filtering and by-pass applications. .156" thick. All char. Y5F. PF max is 8%. IR (min) ohms, is 1,000,000 for 5655 and 5615. Life, at 85°C. and rated voltage, is 500 hours. All are rated at ± 20% tol. Shpg. wt. 1 oz.
Lead spacing .250 except type 5615, 5645 and 5685 which are .325.

12 VOLT

Stk. No.	Type	Dia.	Mfd.	1-49	50-99	100-249	250-499
19F2802	5635-000-Y5F-503M	.275	.05	.40	.30	.25	.20
19F2803	5655-000-Y5F-104M	.420	.10	.42	.32	.26	.21
19F2804	5615-000-Y5F-224M	.550	.22	.52	.39	.33	.26
19F2805	5645-000-Y5F-334M	.660	.33	.60	.45	.38	.30
19F2806	5685-000-Y5F-474M	.800	.47	.80	.60	.50	.40
	25 VOLT						
19F2805	5835-000-Y5U-103Z	.01	.290	.40	.30	.25	.20
19F2806	5835-000-Y5U-203Z	.02	.290	.40	.30	.25	.20
19F2087	5855-000-Y5U-503Z	.05	.437	.40	.30	.25	.20
19F2088	5815-000-Y5U-104Z	.10	.593	.44	.35	.29	.23
19F2089	5815-200-Y5U-204Z	.20	.593	.70	.53	.44	.35
19F1707	5865-000-Y5U-224Z	.22	.895	.76	.57	.48	.38
19F1708	5865-200-Y5U-474Z	.47	.895	1.24	.93	.78	.62

RED CAPS

Encapsulated with JET-SEAL, a hard, bright polymeric coating, formulated to provide mechanical and electrical protection under the most severe environmental conditions. Meet requirements of MIL-C-20 and MIL-C-11015. Tolerance: M ± 20%, D ± 15%, K ± 10%.



MAX DIM'S

Type	W&H	T	Lead Spacing	Type	W&H	T	Lead Spacing
8101	.100	.100	.100	8131	.300	.150	.200
8111	.150	.100	.100	8141	.400	.150	.200
8121	.200	.125	.100	8151	.500	.200	.400

50 VOLT GENERAL PURPOSE CAPACITORS

Stk. No.	Type	Mfd.	1-49	50-99	100-249	250-499
17F110	8121-050-651-103M	.01	.76	.57	.48	.38
17F111	8121-050-651-153M	.015	.76	.57	.48	.38
17F112	8121-050-651-223M	.022	.76	.57	.48	.38
17F113	8121-050-651-273M	.027	.76	.57	.48	.38
17F114	8121-050-651-333M	.033	.76	.57	.48	.38
15F115	8121-050-651-473M	.047	.80	.60	.50	.40
17F116	8121-050-651-683M	.068	.80	.60	.50	.40
17F117	8121-050-651-104M	.100	.84	.63	.53	.42
17F118	8121-050-651-154M	.15	.92	.69	.58	.46
17F119	8131-050-651-224M	.22	1.08	.81	.68	.54
17F120	8131-050-651-334M	.33	1.20	.90	.75	.60
17F121	8131-050-651-474M	.47	1.32	.99	.83	.66
17F122	8131-050-651-684M	.68	1.60	1.20	1.00	.80
17F123	8131-050-651-105M	1.00	1.96	1.47	1.23	.98
17F124	8141-050-651-155M	1.50	2.92	2.19	1.83	1.46
17F125	8141-050-651-225M	2.2	3.28	2.46	2.05	1.64
17F126	8151-050-651-335M	3.3	4.68	3.51	2.93	2.34
17F127	8151-050-651-475M	4.7	5.64	4.23	3.53	2.82

100 VOLT

Stk. No.	Type	Mfd.	1-49	50-99	100-249	250-499
19F3544	8121-100-651-103M	.01	.80	.60	.50	.40
19F3546	8121-100-651-223M	.022	.80	.60	.50	.40
19F3549	8121-100-651-473M	.047	.84	.63	.53	.42
19F3551	8131-100-651-104M	.1	1.00	.75	.63	.50
19F3552	8131-100-651-154M	.15	1.08	.81	.68	.54
19F3553	8131-100-651-224M	.22	1.12	.84	.70	.56
19F3555	8131-100-651-334M	.33	1.32	.99	.83	.66
19F3556	8131-100-651-474M	.47	1.68	1.26	1.05	.84
19F3558	8141-100-651-105M	1.0	2.28	1.71	1.43	1.14
19F3560	8151-100-651-225M	2.2	5.24	3.93	3.28	2.62

100 VOLT ULTRA STABLE CAPACITORS

Stk. No.	Type	pF	1-49	50-99	100-249	250-499
19F3500	8101-100-COHO-479D	4.7	.44	.33	.28	.22
19F3504	8111-100-COGO-220K	22	.44	.33	.28	.22
19F3505	8121-100-COGO-330K	33	.50	.38	.31	.25
19F3506	8121-100-COGO-470K	47	.50	.38	.31	.25
19F3508	8121-100-COGO-101K	100	.50	.38	.31	.25
19F3510	8121-100-COGO-221K	220	.88	.66	.55	.44
19F3511	8121-100-COGO-331K	330	.92	.69	.58	.46
10F3512	8121-100-COGO-471K	470	.92	.69	.58	.46
19F3513	8121-100-COGO-681K	680	1.00	.75	.63	.50
19F3514	8121-100-COGO-102K	1000	1.08	.81	.68	.54
19F3516	8131-100-COGO-222K	2200	1.52	1.14	.95	.76
19F3517	8131-100-COGO-332K	3300	1.72	1.29	1.08	.86
19F3518	8141-100-COGO-472K	4700	2.72	2.04	1.70	1.36
19F3519	8141-100-COGO-682K	6800	3.08	2.31	1.93	1.54
19F3520	8141-100-COGO-103K	10000	3.76	2.82	2.35	1.88

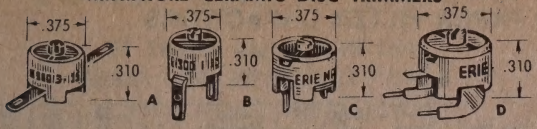
100 VOLT STABLE

Stk. No.	Type	pF	1-49	50-99	100-249	250-499
19F3522	8101-100-X7RO-221K	220	.44	.33	.28	.22
19F3524	8111-100-X7RO-471K	470	.48	.36	.30	.24
19F3526	8121-100-X7RO-102K	1000	.48	.36	.30	.24
19F3527	8121-100-X7RO-152K	1500	.48	.36	.30	.24
19F3528	8121-100-X7RO-222K	2200	.48	.36	.30	.24
19F3530	8121-100-X7RO-472K	4700	.84	.63	.53	.42
19F3531	8121-100-X7RO-682K	6800	.84	.63	.53	.42
19F3532	8121-100-X7RO-103K	10K	.88	.66	.55	.44
19F3533	8131-100-X7RO-153K	15K	1.12	.84	.70	.56
19F3534	8131-100-X7RO-223K	22K	1.20	.90	.75	.60
19F3535	8131-100-X7RO-333K	33K	1.36	1.02	.85	.68
19F3538	8131-100-X7RO-104K	100K	2.12	1.59	1.33	1.06

Filters and Trimmers

ERIE

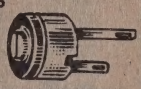
MINIATURE CERAMIC DISC TRIMMERS



Stk. No.	Type	Fig.	Mmf. Range	1-49	50-99	100-249	250-499
19F2090	538-000A-2-8	A	2-8				
19F2091	538-000A-5.5-18	A	5.5-18				
19F2092	538-000B-2.5-11	A	2.5-11	**1.88**	**1.41**	**1.18**	**.94**
19F2093	538-000B-7-25	A	7-25				
19F2095	538-000C-8-25	A	8-25				
19F2097	538-000D-9-35	A	9-35				
19F2893	538-000F-15-60	A	15-60	2.24	1.68	1.40	1.12
19F2098	538-002A-2-8	B	2-8				
19F2099	538-002A-5.5-18	B	5.5-18				
19F2100	538-002B-2.5-11	B	2.5-11				
19F2101	538-002B-7-25	B	7-25	**1.88**	**1.41**	**1.18**	**.94**
19F2102	538-002C-3-10	B	3-10				
19F2103	538-002C-8-25	B	8-25				
19F2104	538-002D-3-15	B	3-15				
19F2105	538-002D-9-35	B	9-35				
19F2894	538-002F-15-60	B	15-60	2.24	1.68	1.40	1.12
19F1738	538-011A-2-8	C	2-8				
19F1739	538-011A-5.5-18	C	5.5-18				
19F1740	538-011B-2.5-11	C	2.5-11	**2.24**	**1.68**	**1.40**	**1.12**
19F1741	538-011B-7-25	C	7-25				
19F1744	538-011D-3-15	C	3-15				
19F1745	538-011D-9-35	C	9-35				
19F2895	538-011F-15-60	C	15-60	2.60	1.95	1.63	1.30
19F2219	538-006A-2-8	D	2-8	**2.08**	**1.56**	**1.30**	**1.04**
19F2220	538-006A-5.5-18	D	5.5-18				

SUBMINIATURE CERAMIC TRIMMERS

Occupies less than .007 cu. inches. Design permits mounting in both printed circuit and point to point wiring applications. Oper. Temp. —55°C to 125°C. WVDC, 100 Torque, .5-3 oz. in.



Stk. No.	Type	1-49	50-99	100-249	250-499
19F3446	518-000A-2.5-9				
19F3447	518-000A-3.5-20	**4.95**	**4.25**	**3.75**	**3.50**
19F3440	518-000A-5-25				
17F130	518-000G-7-40				

PHENOLIC BASE—TYPE 557

Features .531" dia. ceramic rotor, lapped and silvered on the underside, and a silvered ceramic dielectric stator disc with lapped bearing surface.

Type 557

Type 3192

Stk. No.	Type	Cap. (pF)	Temp. Coef.	1-49	50-99	100-249	250-499
19F2971	557-000A-1.5-7	1.5-7	NPO				
19F2972	557-000A-3-12	3-12	NPO	**1.48**	**1.11**	**.93**	**.74**
19F2973	557-000A-5-25	5-25	NPO				
19F2977	557-000E-8-50	8-50	N750	1.48	1.11	.93	.74
19F2980	557-006A-5-25	5-25	NPO	1.56	1.17	.98	.78
19F2984	557-006E-8-50	8-50	N750	1.56	1.17	.98	.78
19F2986	557-013A-3-12	3-12	NPO	1.36	1.02	.85	.68
19F2987	557-013A-5-25	5-25	NPO	1.36	1.02	.85	.68
19F2990	557-013E-5-30	5-30	N750	1.36	1.02	.85	.68
19F3002	557-091F-10-75	10-75	N1500	1.92	1.44	1.20	.96
19F3008	3192-000A-6-25	6-25	NPO	1.37	1.14	.91	.53

CERAMIC TRIMMER TYPE 503

Provides maximum stability. Capacity change constant per degree of rotation. 500 WVDC. Size. 503-000: .843" x .656".

Stk. No.	Type	Mmf. Range	1-49	50-99	100-249	250-499
19F520	503-000A-1.5-7	1.5-7				
19F1746	503-000A-3-12	3-12				
19F523	503-000C-7-45	7-45	**2.16**	**1.62**	**1.35**	**1.08**
19F2899	503-000D-4-30	4-30				
19F2900	503-000D-7-45	7-45				
19F1748	503-000D-9-50	5-50				
19F2901	503-000F-11-110	11-10	2.52	1.89	1.58	1.26

SUBMINIATURE EMI FILTER

Min. Attenuation per Mil.-Std. 220A; 50 db from 200 MC to 2000 MC over range from —55°C to 125°C. Working Voltage: 100 VDC.

Stock No.	Type	1-49	50-99	100-249	250-499
19F3061	1250-003	3.68	3.12	2.57	2.39

EMI SUPPRESSION FILTERS

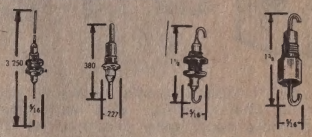
Temp. range: —55°C to 125°C. Miniaturized line of filters rated at 100 WVDC to cover the freq. range from 10khz to 10ghz. Filters hermetically sealed.

LOW PASS—80 VOLT L TYPE

Stk. No.	Type	Rdc Ohms	Idc A	1-19	20-49	50-99	100-249
17F222	9051-100-0000	.008	10	9.02	7.31	6.50	6.41

FEED-THRU CERAMICONS

Types 362 and 327 have tie-point terminals; provide point to point wiring. 20% Tol. 500 WVDC. Lock washers available on request. Shipping weight 1 oz.



Stk. No.	Type	Fig.	Mmf.	1-49	50-99	100-249	250-499
19E1780	327-005-X5U0-102M	D	1000	1.80	1.35	1.13	.90
19F1781	327-005-X5U0-152M	D	1500	1.80	1.35	1.13	.90
19F1783	357-000-X5U0-102M	C	1000	1.40	1.05	.88	.70
19F1784	357-000-X5U0-152M	C	1500	1.40	1.05	.88	.70
19F1785	362-000-X5U0-102M	A	1000	1.13	.85	.71	.51
19F1786	362-000-X5U0-152M	A	1500	1.13	.85	.71	.51
19F1787	2404-000-U2M0-500M	..	50	.48	.36	.30	.24
19F1788	2404-000-X5U0-101M	..	100	.48	.36	.30	.24
19F1789	2404-000-X5U0-102P	..	1000	.48	.36	.30	.24
19F1790	2404-014-X5U0-501M	B	500	.36	.27	.23	.18
19F1791	2404-014-X5U0-102P	B	1000	.36	.27	.23	.18
19F2857	2443-000-X5S0-102M	..	1000	1.64	1.23	1.03	.82
19F2861	2499-003-X5S0-102M	..	1000	1.76	1.32	1.10	.88
19F2862	2499-003-X5S0-152M	..	1500	1.76	1.32	1.10	.88

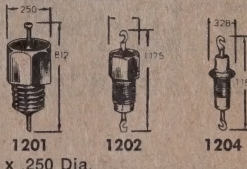
Type 1270. Minimum attenuation 45dB from 200 MHZ to 10 GHZ over temp. range +55°C to +125°C. Capacitance: 1270-009, 1500 pf. 1270-016 and -025 5000, pf. *Denotes nut supplied.

LOW PASS, HIGH FREQUENCY FILTERS

Stock No.	Type	Atten.	1-49	50-99	100-249	250-499
19F2455	1270-009*	40 db.	**2.42**	**2.05**	**1.69**	**1.57**
19F2456	1270-016*	40 db.				

EMI SUPPRESSION FILTERS

CAP: 100 mmf. at 1 KC, .5 to 5 VRMS, 25°C. Working voltage, 200 VDC. Operating temp. range: —55°C to 125°C. Resistance: 0.1 ohms max. DC and low frequency current 5 amps. max.



1201 1202 1204

Type 1201. Bushing type. .812L x .250 Dia.

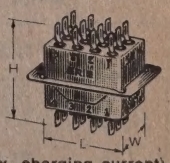
Type 1202. Same as 1201 but size is 1.175 x .375 Dia.

Stk. No.	Type	1-49	50-99	100-249	250-499
19F2110	1201-052	2.64	2.24	1.84	1.71
19F2112	1202-052	2.70	2.29	1.89	1.75

Type 1204. Minimum attenuation 50 db from 100 MC to 2000MC over a temp. range of —55 to 125°C. Cap.: 2000 mmf. min. at 1 KC, .5 to 5 VRMS, 25°C. Working voltage: 500 VDC. DC resistant: 0.10 ohms max. DC and low frequency current: 5 amps. max. RF current: 0.25 amps max. 1.187L x .328 Dia.

Stk. No.	Type	1-49	50-99	100-249	250-499
19F2113	1204-050	1.40	1.19	.98	.91

MINIATURE 6 & 12 CHANNEL R.F.I. FILTERS



Minimum attenuation: 45 db from 100-200 Mc, 50 db from 200 Mc to 2000 Mc, over the temp. range of —55°C to +125°C measured in accordance with Mil-Std.-220A. Capacitance: 2500 pf min. at 1Kc, 0.5 to 5 VRMS, 25°C. Working voltage: 350 VDC. Insulation resistance: 20K megohms min. at 100 VDC 25°C (50 ma max. charging current). D.C. resistance: .01 ohms per section. D.C. and low frequency current: 5 amps max. per section.

Type 1212 is 12 channel—**Type 1206** is 6 channel. **Size:** 502—1.125 x .594" .552 and 554—.75 x .437".

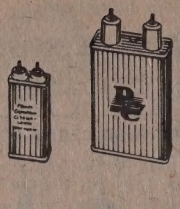
Stk. No.	Type	1-49	50-99	100-249	250-499
19F3067	1212-502	21.45	19.80	18.15	17.32
19F3065	1206-502	19.50	18.00	16.50	15.75

7

Plastic Capacitors High Voltage Capacitors

TYPE LK MYLAR PAPER FILTER CAPACITORS

T.M.®
U.S. Pat. off.



Type LK capacitors offer unusually good electrical characteristics with very small size. They are specifically designed for filter, bypass, and coupling applications in the low audio frequency range.

Stk. No.	Type	Cap. mfd.	DC Volts	Size (AxBxC)	1-9	10-24	25-49	50-99
18F2985	LK 20-105	1.0	2000	1¾x1x3¼	12.91	11.01	8.88	7.86
18F2986	LK 20-205	2.0	2000	2½x1 3/16x3½	16.02	13.77	11.05	9.80
18F2987	LK 20-405Y	4.0	2000	3¾x1¼x3¾	22.74	19.58	15.68	13.88
18F2988	LK 20-106Y	10.0	2000	3¾x2¼x4½	41.04	35.58	28.49	25.22
18F2989	LK 20-126Z	12.0	2000	3¾x3 3/16x4	52.49	45.01	36.23	32.05
18F2990	LK 50-104	0.1	5000	1¾x1x2⅛	16.15	13.40	11.03	9.97
18F2991	LK 50-254	0.25	5000	1¾x1x3	17.85	14.88	12.27	11.17
18F2992	LK 50-504	0.5	5000	1¾x1x4¾	20.82	17.30	14.25	12.93
18F2993	LK 50-105	1.0	5000	2½x1 3/16x5	27.62	23.19	19.03	17.29
18F2994	LK 50-405	4.0	5000	3¾x2¼x6¼	66.05	55.31	44.18	40.10
18F2995	LK100-104	0.1	10KV	3¾x1¾x3¼	36.55	32.30	24.25	22.79
18F2996	LK100-254	0.25	10KV	3¾x1¾x3¾	42.62	37.86	28.34	26.15
18F2997	LK100-504	0.5	10KV	3¾x1¾x5⅜	53.32	47.26	35.56	32.61
18F2998	LK100-105	1.0	10KV	3¾x2¼x7¼	75.49	67.18	50.31	46.16
18F2999	LK100-205	2.0	10KV	4 9/16x3¾x6¾	135.65	121.19	90.80	83.21

TYPE "OF" HIGH VOLTAGE GLASS CAPACITORS

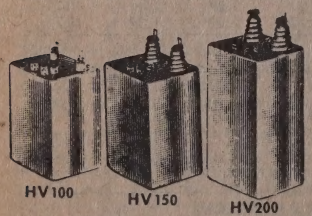
Plastic film dielectric. Used for high voltage power filter. Mount in any position. Temperature range—55°C to +85°C. Tolerance ±10%. ⅜x8-32 screw terminals except * marked have tinned copper pigtails. Heavy wall, hard glass case.

Stk. No.	Type OF	Cap. mfd.	DC Volts	Size "L" & "D"	1-9	10-24	25-49	50-99
19F700	20-103*	.01	2000	1 3/16x1 19/32"	6.84	6.56	6.23	5.81
19F701	20-503	.05	2000	1¾x¾"	7.14	6.86	6.51	6.08
19F702	20-104	.10	2000	2¼x¾"	7.25	6.94	6.61	6.17
19F703	20-254	.25	2000	2¾x 29/32"	8.46	8.10	7.73	7.20
19F704	30-103*	.01	3000	1 9/16x1 19/32"	6.90	6.62	6.31	5.89
19F705	30-203	.02	3000	1¾x¾"	7.14	6.86	6.51	6.08
19F706	30-503	.05	3000	2¼x¾"	7.25	6.94	6.61	6.17
19F707	30-104	.10	3000	1¾x1⅛"	9.13	8.75	8.33	7.77
19F1290	30-254	.25	3000	2x1⅜"	10.43	10.00	9.51	8.88
19F1291	30-504	.50	3000	2¾x1⅝"	11.62	11.13	10.61	9.89
19F708	50-103	.01	5000	1¾x¾"	8.15	8.00	7.05	6.69
19F709	50-203	.02	5000	2¼x¾"	8.28	8.28	7.31	6.89
19F710	50-503	.05	5000	2¼x 29/32"	9.00	9.00	7.87	7.44
19F711	50-104	.10	5000	2¼x1⅛"	12.09	12.09	10.66	10.02
19F1292	50-102*	.001	5000	1 3/16x1 19/32"	7.81	7.67	6.78	6.43

Stk. No.	Type OF	Cap. mfd.	DC Volts	Size "L" & "D"	1-9	10-24	25-49	50-99
19F1293	50-502*	.005	5000	1⅛x 19/32"	7.87	7.73	6.83	6.47
19F1294	50-254	.25	5000	3x1⅝"	15.18	15.18	13.42	12.64
19F1295	50-504	.50	5000	6x1⅝"	17.50	17.50	15.42	14.60
19F1296	80-502	.005	8000	1⅜x¾"	7.86	7.86	6.89	6.49
19F1297	80-103	.01	8000	2¼x¾"	8.70	8.40	7.44	7.02
19F1298	80-104	.10	8000	3⅝x1⅝"	16.01	13.76	12.84	11.75
19F712	100-102*	.001	10KV	1⅝x 19/32"	7.81	7.81	6.81	6.57
19F713	100-502	.005	10KV	1¾x 13/16"	9.50	8.69	7.86	7.15
19F714	100-103	.01	10KV	2¼x 29/32"	10.47	9.59	8.69	8.15
19F715	100-203	.02	10KV	2¾x1½"	13.82	12.61	11.39	10.71
19F1299	150-103	.01	15KV	3¾x1½"	16.79	15.34	13.93	13.00
19F716	200-102	.001	20KV	3½x¾"	16.06	14.62	13.19	12.05
19F717	200-202	.002	20KV	3½x 13/16"	16.64	15.13	13.69	12.45
19F718	200-502	.005	20KV	3½x1½"	17.86	16.25	14.70	13.38
19F719	200-103	.01	20KV	4½x1½"	21.25	19.31	17.37	15.96
19F720	300-501*	.0005	30KV	4 9/16x 19/32"	16.19	14.69	13.31	12.24
19F722	300-202	.002	30KV	5x 29/32"	25.81	23.63	21.24	19.38
19F723	300-502	.005	30KV	5x1⅜"	31.75	28.79	25.41	23.85
19F724	600-501	.0005	60KV	10x¾"	28.66	26.29	23.88	22.12
19F725	600-102	.001	60KV	10x 29/32"	34.71	31.75	28.27	26.73
19F726	600-202	.002	60KV	10x1⅜"	37.28	34.14	31.08	28.74

HIGH VOLTAGE D.C. POWER PACKS

- **Long-life Silicon Rectifiers Provide Instant Operation**
- **Output from Zero to Rated Voltage by Adjusting Input**
- **Mount in Any Position**



Hermetically sealed, oil filled hot-tinned or lead coated plate steel container with MIL-L-7178-lacquer coating. 118 volt 50-500 Hz input. Output operation from zero to rated voltage by adjusting input. Max. ambient 85°C. Supplied with footed brackets. Positive or negative out. except items marked *; pos. only.

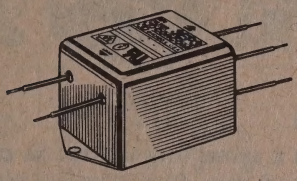
Stk. No.	Type	DC KV	MA	Size	Wt. Lbs.	NET
19F3673	HV10-103M	0-1	10	3¾x2¼x3⅜	2	107.03
19F3675	HV20-152M	0-2	1.5	3¾x1¾x3⅜	1	103.45
19F1285	HV20-502M	0-2	5	3¾x2¼x3⅜	2½	129.33
19F3677	HV25-103M	0-2.5	10	3¾x2¼x3¾	3	132.00
19F3676	HV50-152M	0-5	1.5	3¾x2¼x3⅜	2	107.92
19F1286	HV50-502M	0-5	5	3¾x2¼x3¾	3¼	131.65
19F3678	HV50-103M	0-5	10	3¾x4 9/16x5⅜	11	169.45
19F3679	HV100-152M	0-10	1.5	3¾x3 3/16x4½	4	142.69
19F1287	HV100-502M	0-10	5	3¾x4 9/16x5⅜	8⅛	181.06
19F3680	HV100-103M	0-10	10	3¾x4 9/16x8	12	231.88
19F3681	HV150-152M	0-15	1.5	3¾x3 3/16x5½	5	189.98
19F3682	HV150-502M	0-15	5	3¾x4 9/16x6⅛	11	204.24
19F3684	HV300-502M	0-30	5	4 11/16x6x8½	22	347.84
19F3685	HV500-502M	0-50	5	5⅝x7⅜x12⅛	40	435.23
19F3687	HV750-152M*	0-75	1.5	5⅝x7⅜x12⅛	45	763.46
19F1288	HV200-152M	0-20	1.5	3¾x4 9/16x5⅞	9	193.10
19F1289	HV200-502M	0-20	5	3¾x4 9/16x8	12	242.61

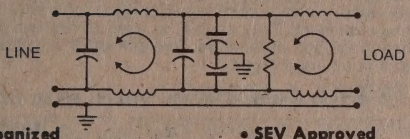
MAKE NEWARK ELECTRONICS YOUR ONE STOP SOURCE FOR INDUSTRIAL ELECTRONICS EQUIPMENT

CONTACT YOUR NEAREST NEWARK BRANCH FOR FAST, DEPENDABLE SERVICE

Power Line Filters and Connectors

EP SERIES RFI POWER LINE FILTER FOR SWITCHING POWER SUPPLY NOISE SUPPRESSION



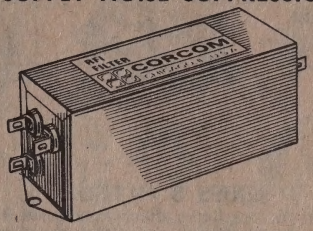


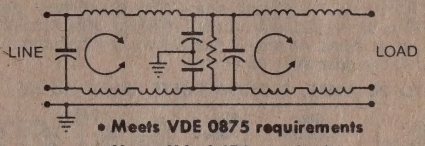
- **U.L. Recognized**
- **SEV Approved**
- **VDE Approved**
- **Complies with IEC 161**

EP series RFI filters developed to reduce conducted noise to acceptable limits for equipment that must comply with requirements of VDE 0875, in West Germany, and proposed FCC specifications in USA. Filters provide high insertion losses for both line-to-ground and line-to-line emissions throughout frequency ranges. Filters are U.L. recognized, VDE and SEV approved and comply with requirements of IEC 161. Size: 2.50"L x 2.00"W x 1.75"H.

Stock No.	Type	Max. Line Current	1-24	25-49	50-99	100-499
20F637	3EP3	3A @ 115V 1.5A @ 250V	**18.50**	**16.74**	**14.88**	**13.02**

SP SERIES RFI POWER LINE FILTERS FOR SWITCHING POWER SUPPLY NOISE SUPPRESSION





- **Meets VDE 0875 requirements**
- **Meets U.L. & IEC standards**

SP series filters designed to reduce RFI noise generated by switching type power supplies to acceptable limits. Filters provide high insertion losses for line-to-ground and line-to-line emissions throughout frequency range. Filters comply with U.L. and IEC standards and VDC 0875 requirements, in West Germany.

Stock No.	Type	Size	Max. Line Current	1-24	25-49	50-99	100-499
20F638	3SP1	6.37"L x 2.00"W x 1.75"H	3 Amp	**21.60**	**19.44**	**17.28**	**15.12**
20F639	6SP1	6.37"L x 2.00"W x 2.25"H	6 Amp	**28.80**	**25.92**	**23.04**	**20.16**
20F640	10SP1	6.37"L x 2.00"W x 2.75"H	10 Amp	**36.00**	**32.40**	**28.80**	**25.20**

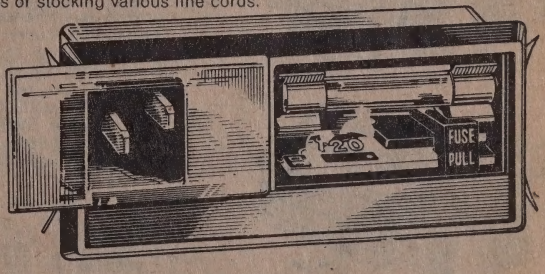
SPECIFICATIONS	EP SERIES	SP SERIES
Rated Voltage:	115-250 VAC	155-250 VAC
Max. leakage current line to ground; 250 VAC 50Hz:	40 mA	3.0 mA
Operating Frequency:	50-60 Hz.	50-60 Hz.
High Pot Test:	2250 VDC	2250 VDC

MINIMUM INSERTION LOSS VALUES

Frequency, MHz:	.15	.20	.50	10	20
EP Series	60db	60db	60db	60db	60db
SP Series	60db	65db	65db	65db	50db

VOLTAGE SELECTING & FUSED CONNECTORS

Developed for the manufacturer who markets his products worldwide. Eliminates internal wiring changes, special power supplies or stocking various line cords.



VS & F, in less than 3½ square inches of panel space, provides an internationally approved connector, fuse holder and a means to change transformer primary connections with a unique voltage selector card. Can be operated anyplace in the world without modification at time of installation. Available with a built-in filter for RFI protection of the equipment. U.L. recognized.

SPECIFICATIONS

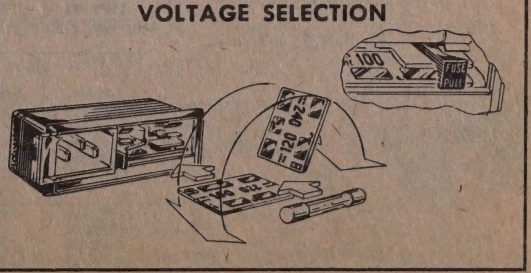
Current: 6A AC max. Operating voltages: 100, 120, 220, and 240 VAC. Operating frequency: 50-400 Hz. Fuse: integral fuse holder, line side, accepts .25" x 1.25" fuse. Power connector: meets U.L./IEC requirements. Specs per CEE Publication 22 Type VI. Terminals: connector back terminals suitable for soldering, wire wrapping or crimp-on lugs. 2250 VDC test voltage. Construction meets IEC 161, category 10/70/21. Max. leakage current line-to-ground @ 250 VAC 50 HZ, 5 μA (6J1); 500 μA (6J4).

Stk. No.	Type	Description	Each
15F2482	6J1	unfiltered	**6.13**
15F2483	6J4	filtered	**11.28**

REPLACEMENT CIRCUIT CARDS

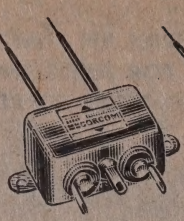
Stk. No.	Type	For Voltages	Each
15F2485	70-1470	100, 120, 220, 240	**1.00**
15F2484	70-1495	115 & 230	**1.00**

VOLTAGE SELECTION

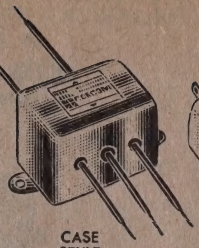


RFI Powerline Filters

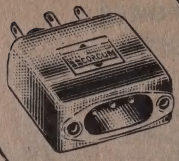
CASE STYLE B1 & K1



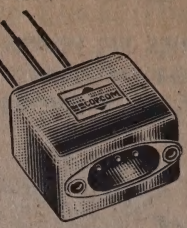
CASE STYLE B2 & K2



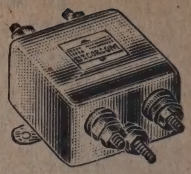
CASE STYLE B3 & K3



CASE STYLE B4 & K4



CASE STYLE B5 & K5



CASE STYLE B6 & K6

SERIES B FILTERS

Series B general purpose filters effectively provide RFI control of line to ground noise in a small size at low cost. These general purpose filters are available in a broad selection of current ratings and termination styles. All are UL recognized. Last two numbers of type are also the case style numbers.

1 TO 30 AMPS; 115/250 VOLTS, 50-60 HZ AC

Stock No.	Type	Size LxWxH Inches	Max. Line Amps	EACH 1-24	25-49	50-99	100-499
15F2400	1B1	2.50 x 2.25 x .65	1	7.60	6.51	5.79	5.07
15F2402	1B3	2.50 x .94 x .65	1	8.06	6.91	6.14	5.37
15F2403	1B4	2.00 x 2.60 x .75	1	8.75	7.50	6.67	5.84
15F2404	1B5	2.00 x 1.85 x .75	1	8.94	7.66	6.81	5.96
15F2405	2B1	2.50 x 2.25 x .65	2	6.86	5.88	5.23	4.57
15F2407	2B3	2.50 x .94 x .65	2	7.32	6.28	5.58	4.88
15F2408	2B4	2.00 x 2.50 x .75	2	8.02	6.87	6.11	5.34
15F2409	2B5	2.00 x 1.85 x .75	2	8.20	7.03	6.25	5.47
15F2410	3B1	2.50 x 2.60 x .75	3	7.88	6.75	6.00	5.25
15F2412	3B3	2.50 x 1.31 x .75	3	8.34	7.15	6.35	5.56
15F2413	3B4	2.00 x 2.75 x .75	3	9.03	7.74	6.88	6.02
15F2414	3B5	2.00 x 2.06 x .75	3	9.22	7.90	7.02	6.14
15F2415	5B1	2.50 x 2.50 x .75	5	7.02	6.02	5.35	4.68
15F2417	5B3	2.50 x 1.31 x .75	5	7.48	6.42	5.70	4.99
15F2418	5B4	2.00 x 2.75 x .75	5	8.18	7.01	6.23	5.45
15F2419	5B5	2.00 x 2.06 x .75	5	8.36	7.17	6.37	5.57
15F2420	10B1	2.50 x 2.60 x 1.13	10	7.72	6.61	5.88	5.14
15F2422	10B3	2.50 x 1.31 x 1.13	10	8.18	7.01	6.23	5.45
15F2423	10B4	2.00 x 2.75 x 1.13	10	8.87	7.60	6.76	5.91
15F2424	10B5	2.00 x 2.16 x 1.13	10	9.06	7.76	6.90	6.04
15F2425	10B6	2.50 x 2.57 x 1.13	10	9.45	8.10	7.20	6.30
15F2426	20B1	2.78 x 3.35 x 1.13	20	12.75	10.93	9.72	8.50
15F2427	20B6	2.78 x 3.38 x 1.13	20	14.48	12.41	11.04	9.66
15F2428	30B6	4.12 x 5.13 x 1.50	30	24.21	20.75	18.44	16.14

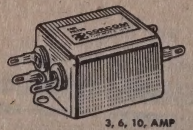
SERIES K FILTERS WITH LINE-TO-LINE CAPACITORS

Similar to the B series. The K series EMI filters are particularly suited where pulsed, continuous and/ or intermittent RFI interference is present. They should be used where line to line interference protection is required. Recognized by UL. Case style no. is last 2 numbers of Type.

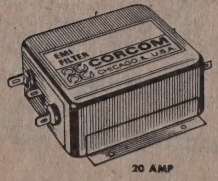
1 TO 30 AMPS; 115/250 VOLTS, 50-60 HZ AC

Stock No.	Type	Size LxWxH Inches	Max Line Amps	EACH 1-24	25-49	50-99	100-499
15F2429	1K1	2.78 x 3.13 x .875	1	8.96	7.23	6.53	5.88
15F2431	1K3	2.78 x 1.81 x .875	1	9.40	7.59	6.85	6.16
15F2432	1K4	2.00 x 2.75 x .875	1	10.05	8.11	7.33	6.59
15F2433	1K5	2.00 x 2.06 x .875	1	10.22	8.25	7.46	6.71
15F2434	2K1	2.78 x 3.13 x .875	2	8.26	6.67	6.03	5.42
15F2436	2K3	2.78 x 1.81 x .875	2	8.70	7.02	6.34	5.71
15F2437	2K4	2.00 x 2.75 x .875	2	9.35	7.55	6.82	6.13
15F2438	2K5	2.00 x 2.05 x .875	2	9.53	7.69	6.95	6.25
15F2439	3K1	2.78 x 3.13 x 1.13	3	9.18	7.41	6.69	6.02
15F2441	3K3	2.78 x 1.81 x 1.13	3	9.61	7.76	7.01	6.31
15F2442	3K4	2.00 x 2.75 x 1.13	3	10.27	8.29	7.49	6.74
15F2443	3K5	2.00 x 2.06 x 1.13	3	10.44	8.43	7.62	6.85
15F2444	5K1	2.78 x 3.13 x 1.13	5	8.37	6.76	6.11	5.49
15F2446	5K3	2.78 x 1.81 x 1.13	5	8.92	7.20	6.50	5.85
15F2447	5K4	2.00 x 2.75 x 1.13	5	9.57	7.73	6.98	6.28
15F2448	5K5	2.00 x 2.06 x 1.13	5	9.74	7.87	7.11	6.39
15F2449	10K1	2.78 x 3.38 x 1.13	10	9.03	7.29	6.58	5.92
15F2451	10K3	2.78 x 2.06 x 1.13	10	9.46	7.64	6.90	6.21
15F2452	10K6	2.78 x 3.25 x 1.13	10	10.66	8.61	7.78	6.99
15F2453	20K1	3.32 x 3.38 x 1.50	20	13.10	10.58	9.56	8.59
15F2454	20K6	3.32 x 3.38 x 1.50	20	15.28	12.34	11.15	10.02
15F2455	30K6	4.12 x 5.13 x 1.50	30	26.31	22.55	20.23	17.86

THESE FILTERS ARE RECOGNIZED UNDER THE COMPONENTS PROGRAM OF UNDERWRITERS LABORATORIES, INC.



3, 6, 10, AMP



20 AMP

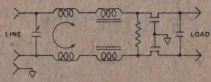
SERIES S, V and W FILTERS

The S, V and W series combine line-to-ground interference rejection filters with additional circuitry designed to reduce low freq. line-to-line noise and add a balanced N=3 ("PI") line-to-line filter with high rejection at low freq. to the N=2 ("L") and N=3 ("T") sections to eliminate line-to-ground noise. Particularly effective when applied in equipment using switching type power supplies, SCR and TTL circuits.

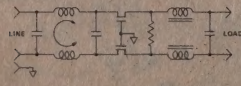
APPLICATION DATA

Corcom Filter Series	Line-to-Ground Z	Line-to-Line Z	For use when equip. impedance @ high freq. is:
S	N=2	N=3	High
V	N=3	N=3	Low
W	N=4	N=3	High

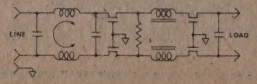
S SERIES



V SERIES



W SERIES



SERIES S

Stk. No.	Type	Max. Line Amps	Size LxWxH	1-24	25-49	50-99	100-499
15F2388	3S1	3	3.13 x 1.74 x 1.13	13.21	9.82	8.74	7.66
15F2389	6S1	6	3.13 x 1.75 x 1.13	12.32	9.16	8.15	7.14
15F2390	10S1	10	3.13 x 1.75 x 1.13	13.07	9.72	8.65	7.58
15F2391	20S1	20	5.01 x 3.31 x 1.50	29.54	21.96	19.54	17.13

SERIES V

Stk. No.	Type	Max. Line Amps	Size LxWxH	1-24	25-49	50-99	100-499
15F2392	3V1	3	3.13 x 1.75 x 1.13	14.47	10.76	9.57	8.39
15F2393	6V1	6	3.13 x 1.75 x 1.13	13.58	10.10	8.98	7.87
15F2394	10V1	10	3.13 x 1.75 x 1.13	14.33	10.66	9.48	8.31
15F2395	20V1	20	5.01 x 3.31 x 1.50	30.77	22.88	20.36	17.84

SERIES W

Stk. No.	Type	Max. Line Amps	Size LxWxH	1-24	25-49	50-99	100-499
15F2396	3W1	3	3.13 x 1.75 x 1.13	15.70	11.68	10.39	9.11
15F2397	6W1	6	3.13 x 1.75 x 1.13	14.82	11.02	9.80	8.59
15F2398	10W1	10	3.13 x 1.75 x 1.13	15.35	11.42	10.16	8.90
15F2399	20W1	20	5.01 x 1.75 x 1.50	32.03	23.82	21.19	18.57

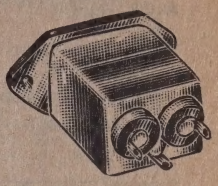
RFI Power Line Filters

SERIES EF INTERNATIONAL FILTERS

The EF International series of RFI power line filters incorporates the special IEC (International Electrotechnical Commission) power line connector. This connector has 4mm minimum pin spacing and complies with all current and proposed requirements for industrial and test equipment in the European market where a detachable power cord is part of the equipment design. The EF series features extremely low leakage current; meets IEC, BSI, VDE, CSA and ASA requirements for data processing. These international series filters are recognized by Underwriters Laboratories, Inc.

1 TO 6 AMPS; 115-250 VOLTS, 50-60 HZ AC

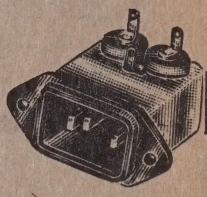
Stock No.	Type	Case Style	Size LxWxH Inches	Max. Line Current	EACH 1-24	25-49	50-99	100-499
15F2456	1EF1	E1	1.97 x 1.97 x .80	1 amp	9.79	7.92	6.99	6.05
15F2457	3EF1	E1	1.97 x 1.97 x .80	3 amp	9.24	7.48	6.59	5.71
15F2458	6EF1	E1	1.97 x 1.97 x .80	6 amp	8.69	7.03	6.20	5.37
15F2459	1EF2	E2	1.97 x 1.55 x 1.31	1 amp	9.79	7.92	6.99	6.05
15F2460	3EF2	E2	1.97 x 1.55 x 1.31	3 amp	9.24	7.48	6.59	5.71
15F2461	6EF2	E2	1.97 x 1.55 x 1.31	6 amp	8.69	7.03	6.20	5.37



CASE STYLE E1

SERIES R FILTERS

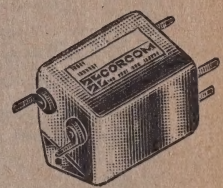
The R series dual T section RFI power line filters provide premium performance at moderate cost. They are well suited for low impedance loads where noisy RFI environments are present. At frequencies as low as 150 KHz the R series has an insertion loss as high as 45 DB. They control pulsed, continuous and/or intermittent interference insuring protection of your equipment from power line noise in addition to protecting the line from equipment noise. The R series is an ideal replacement for Pi type filters while incorporating the "value added" concept. Pi filters have used large capacitors to eliminate low frequency RFI, resulting in high line to ground leakage current. The R series dual T type provides extremely low leakage current without deterioration of insertion loss characteristics.



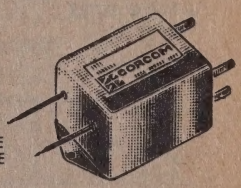
CASE STYLE E2

TWO "T" SECTIONS—1 TO 20 AMPS; 115/250 VOLTS, 50-60 HZ AC

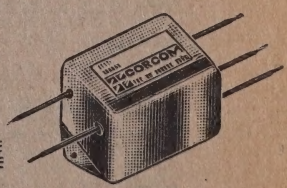
Stock No.	Type	Case Style	Size LxWxH Inches	Max. Line Current	EACH 1-24	25-49	50-99	100-499
15F2462	1R1	R1	3.38 x 1.75 x 1.13	1 amp	14.12	12.07	10.72	9.38
15F2464	1R3	R3	2.75 x 1.75 x 1.13	1 amp	14.60	12.48	11.09	9.70
15F2465	2R1	R1	3.38 x 1.75 x 1.13	2 amp	13.35	11.41	10.14	8.86
15F2467	2R3	R3	2.75 x 1.75 x 1.13	2 amp	14.15	12.09	10.74	9.39
15F2468	3R1	R1	3.88 x 2.00 x 1.13	3 amp	14.36	12.27	10.90	9.53
15F2470	3R3	R3	3.32 x 2.00 x 1.13	3 amp	14.85	12.69	11.27	9.86
15F2471	5R1	R1	3.88 x 2.00 x 1.13	5 amp	13.47	11.51	10.22	8.94
15F2473	5R3	R3	3.32 x 2.00 x 1.13	5 amp	13.95	11.92	10.59	9.26
15F2474	10R1	R1	3.88 x 2.00 x 1.50	10 amp	14.19	12.13	10.77	9.42
15F2476	10R3	R3	3.32 x 2.00 x 1.50	10 amp	14.67	12.54	11.14	9.74
15F2477	10R6	R6	3.80 x 2.00 x 1.50	10 amp	16.00	13.67	12.15	10.62
15F2478	20R1	R1	3.88 x 2.00 x 1.50	20 amp	28.19	24.10	21.41	18.72
15F2479	20R6	R6	5.13 x 4.12 x 1.50	20 amp	30.20	25.89	22.97	20.21



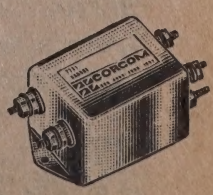
CASE STYLE R1



CASE STYLE R2

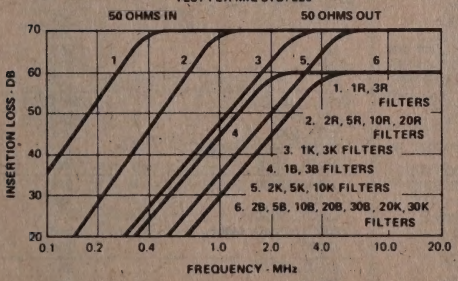


CASE STYLE R3

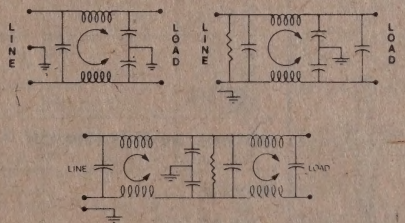


CASE STYLE R6

TYPICAL INSERTION LOSS VS FREQUENCY
TEST PER MIL STD. 220



FILTER ELECTRICAL SCHEMATICS



3-CONDUCTOR LINE CORDS

Type 80-1255. Mates with "B" and "K" filters.

15F2480. 1-49 ..... Each **3.15**

50-Up ..... Each **2.51**

Type 80-1245. Mates with EF International filters.

15F2481. 1-49 ..... Each **3.79**

50-Up ..... Each **3.01**

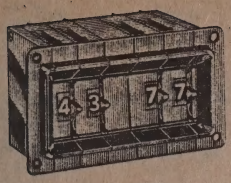
Specifications	B, K, & R Series	EF Series
Rated Voltage	115/250 VAC	115/250 VAC
Maximum leakage current, each line to ground @ 115/250 VAC 60 Hz	0.5 MA	0.25 MA
Capacitance line to ground	10,000 pF	5,000 pF
Operating Frequency	50-400 Hz	50-400 Hz
High Pot Test	2,100 VDC	2,100 VDC

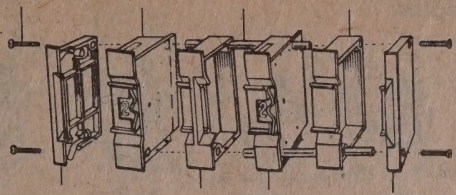
THESE FILTERS ARE RECOGNIZED UNDER THE COMPONENTS PROGRAM OF UNDERWRITERS LABORATORIES INC.

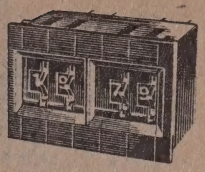
EASY INDEX TO SWITCHES

Manufacturer's Type	Page
APM	
S	281
UP	281
1030	281
1813	281
3030	281
4080-82	281
5030, 5040	281
9030, 9040, 9060	281
ALCO	
AM	251
B, BP	245
C	246
C-10, C-15, C-17	245
C-251	248
CGR	246
DBS, DLS, DSS, DYS	251
FR	249
G-12, G-13	246
KSS	249
MNL	247
MPA, MPC	246
MPE, MPG, MPN	246
MRB, MRC	247
MSP	246
MSS	249
MST, MSTG	244
MSTS, MT	245
MTA, MTB, MTE, MTF	244
MTG, MTL, MTM, MTMS	245
N-1, N-2	245
RS	246, 247
SK	247
SLS	249
SNF	247
SPA	245
SS	249
SW	248
SWK	247
308, 314, 316, 318	251
514, 516, 518	251
T2100, T2200, T2300, T2400	248
T2600	248
TP	252
TSD	250
TSS	250
TT	250
570, 580	248
Caps, BUTTON	242
ARROW HART	
PM	254
T	254
1500	254
3300	255
16000	255
20900	253, 254
21000	253
26000	255
80000	253, 255
81000	253, 254, 255
82000	254, 255
83000	253, 255
84000	253
CENTRALAB	
FFD	268
GGD	268
JV	269
P (shaft & index assembly, knobs)	268, 269
PA	269, 270
PISD	268
PS	269
PSA	268
RD, RRD	268
SSD	268
TD	268
UD	268
XD	268
YD	268
ZD	268
1400	268, 269
2500	268
CHERRY	
B65, B70, B80	241
E13, E18, E19, E21	239
E22, E23, E33, E34	238
E51	239
E61, E62	238
E63	239
CHERRY (Cont.)	
E69, E72, E79	238
L10, L11, L20	240
M41, M61, M62	241
T10, T11, T20, T50, T65, T71	240
CUTLER-HAMMER	
FH	226
JMT	226
LL	227
MP	228
MPC	226
MR	228
PB	229
PS	227
SA	227, 229, 235
SB	234
SC	228, 234
SE	229
SF	227, 229, 233
SW	227
TO, TO1, TO2, TO8	229
TO4	226
W	226, 227
1J, 2J	231
2H	231
4E	231
15	233
7200	235
7300, 7400	233
7500	230, 231, 232
7580	230
7590	230, 232
7600	231, 232
7900	230
8100	230
8200, 8300	230, 233
8400	235
8500	236
8600	233
8800 MIL-S-3950	236
8800 MIL-S-8834	237
DIALIGHT	
183, 184	272
187, 188	272
300, 301, 302	272
325, 326, 327, 328	273
506	273
513, 515	272
553	272
554	273
571, 572	274
573, 574, 577	275
908, 911, 913, 922	273
GRAYHILL	
2	261
7C	261
10, 10C	261
19	262
22, 23, 29	261
30, 35, 39	261
42, 44	262
46	261
50, 51	262
70	263
71	262
76	263
82	263
2201, 2202	261
4000	261
GORDOS/GRIGSBY-BARTON	
HG	336
HAMLIN	
DLC	279
DRR, DRT, DRVT	279
MARC	279
MDC	279
MINI	279
MLC	279
MMRR	279
MRG, MRH, MRR	279
MSRR	279
MTRR	279
SRR, SRT	279
3900	280
5700, 5800, 5900	280
IMLEC	
IF, IR	225
MF, MR	225
TR	225
LEECRAFT	
51	617
71	617
LICON	
01 -145, -365	256
01 -665, -669, -969	257
01 -745, -748, -768	256
01 -865, -921, -951	257
01 -911, -921	256
01 -931, -941	256
02, 04	258
05	257, 258
06	259
10, 11	260
14, 16, 18	260
22, 26	260
30, 43, 65	259
71, 72	259
76	258, 259, 260
78	259
80	256, 257, 258
86	257
Lens Caps 01	256
LINEMASTER	
L-2-S	271
T-51, T-52	271
72	271
121	271
476, 491	271
632	271
OAK	
A, F, H	277
JC	277
K, L	277
LP	278
MF	277
5	278
200	278
399	277, 278
400, 415	278
524-543, 591-599	278
OHMITE	
111	276
212	276
312	276
711	276
RAYTHEON	
105, 205	271
305, 405	271
LE	271
MP	271
N	271
P	271
R	271
CAPS	271
SWITCHCRAFT	
BXR	265
CM	265
DA	265
LUS	265
PL	267
100, 200, 500	265, 266
900, 1000	265
3000, 6000	266
12000, 13000, 16000	266
27000, 29000	266
35000, 37000, 38000	264
41000	266
46000, 49000	267
50000, 51000, 56000	267
60000	266
65000, 67000	264
84000	267
T-BAR	
800, 900	276
UNIMAX	
A	243
DA	243
KS	242
TC	242
TM	243
2H, 2LM	242
5LM	242

Thumbwheel Switches







Switch finishes matte black, with white legend on black wheels. Contact rating: 2A @ 115 VAC or 28 VDC, non-switching; 50μA @ 28 VAC, or 28 VDC. Min. recommended switching current 1.0 μA.

INTERMEDIATE — REAR MOUNT

Face height 1.350″. Width is .500″ and extends 2.080″ from rear. Wt., 1 oz.

Stock No.	Type	Description	1-24	25-99
39F3268	IR-12	10 pos. decimal	4.95	4.71
28F1620	IR-13	10 pos. decimal double pole	10.35	9.84
39F3270	IR-21	10 pos. BCD	3.70	3.52
39F3271	IR-21A	10 pos. BCD extended board	4.50	4.28
39F3272	IR-22	10 pos. BCD plus complements	7.60	7.22
39F3273	IR-22A	10 pos. BCD plus complements & extended board	8.70	8.27
28F1621	IR-55	0/15, 16 pos. dec.	5.95	5.65
28F1622	IR-55	0/9, A/F 16 pos. decimal	5.95	5.65
28F1623	IR-57	0/15, 16 pos. dec. BCD & complement	7.15	6.79
28F1624	IR-57	0/9, A/F 16 pos. decimal BCD & complement	7.15	6.79
28F1625	IR-BB-H	Blank body with decimal point	1.80	1.71
39F3276	IR-EP	End plates (pair)	.80	.76
39F3275	IR-BB	Blank body	.80	.76
39F3323	IR-DP	Divider plate	.55	.53
39F3257	IR-HB	Half body	.55	.53

MINIATURE SWITCH — REAR MOUNT

Miniature switches used where panel space restrictions are a problem. Edge operated and have white characters on a black background. Miniature switch face is .960″ high; single switch occupies 0.500″ width and extends 1.52″ from rear of panel. Av. shpg. wt., ½ oz.

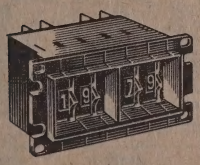
Stock No.	Type	Description	1-24	25-99
39F3295	MR-12	10 pos. decimal	3.40	3.23
28F1626	MR-13	10 pos. decimal double pole	9.00	8.55
39F3297	MR-21*	10 pos. BCD	3.10	2.95
39F3298	MR-21A	10 pos. BCD extended board	3.65	3.47
39F3299	MR-22	10 pos. BCD plus complements	5.20	4.94
39F3300	MR-22A	10 pos. BCD plus complements & extended board	6.25	5.94
28F1627	MR-BB-H	Blank body with decimal point	1.55	1.47
39F3303	MR-EP	End plates (pair)	.70	.67
39F3302	MR-BB	Blank body	.55	.53
39F3301	MR-DP	Divider plate	.55	.53

INTERMEDIATE — FRONT MOUNT

Face height is 2.125″, requires panel cut-out 1.925″ high. Switch is .500″ wide and extends 1.824″ from front of panel. Wt. 1 oz.

Stock No.	Type	Description	1-24	2-5 99
39F3259	IF-12	10 pos. decimal	4.95	4.70
28F1628	IF-13	10 pos. decimal double pole	10.35	9.83
39F3261	IF-21	10 pos. BCD	3.70	3.52
39F3262	IF-21A	10 pos. BCD extended board	4.50	4.28
39F3263	IF-22	10 pos. BCD plus complements	7.60	7.22
39F3264	IF-22A	10 pos. BCD plus complements & extended board	8.70	8.27
28F1629	IF-55	0/15, 16 pos. dec.	5.95	5.65
28F1630	IF-55	0/9, A/F 16 pos. decimal	5.95	5.65
28F1631	IF-57	0/15, 16 pos. dec. BCD & complements	7.15	6.79
28F1632	IF-57	0/9, A/F 16 pos. decimal BCD & complements	7.15	6.79
28F1633	IF-BB-H	Blank body with decimal point	1.80	1.71
39F3267	IF-EP	End plates (pair)	1.45	1.38
39F3313	IF-BB	Blank body	.80	.76
39F3312	IF-DP	Divider plate	.55	.53
39F3258	IF-HB	Half body	.55	.53

SUBMINIATURE SWITCH — REAR MOUNT



Rear mount version of MF type. White characters on black wheel, 1.25″ high x .312″ wide x 1.35″ deep, panel cut only .79″ high.

	10 Position Connectors
28F1644.	Type MCN-10. Net 2.95
28F1645.	Type ICN-10. Net 2.95

Stock No.	Type	Description	1-24	25-99
28F1634	TR-12	10 pos. decimal	3.15	2.99
28F1635	TR-13	10 pos. decimal double pole	4.55	4.22
28F1636	TR-21	10 pos. BCD	2.90	2.76
28F1637	TR-21A	10 pos. BCD, extended board	3.25	3.09
28F1638	TR-22	10 pos. BCD & complement	4.40	4.18
28F1639	TR-22A	10 pos. BCD 10 pos. BCD & complement, extended board	6.00	5.70
28F1640	TR-EP	End plates (pair)	.70	.66
28F1641	TR-BB	Blank body	.70	.66
28F1642	TR-DP	Divider plate	.70	.66
28F1643	TR-BB-H	Blank body with decimal point	1.70	1.62

SUBMINIATURE—FRONT MOUNT

1¼″ H. x .312″ W. x 1¾″ D.

Stock No.	Type	Description	1-24	25-99
39F3304	MF-12	10 pos. decimal	3.25	3.09
28F1646	MF-13	10 pos. decimal double pole	4.55	4.32
39F3305	MF-21	10 pos. BCD	2.90	2.76
39F3306	MF-21A	10 pos. BCD, extended board	3.25	3.09
39F3307	MF-22	10 pos. BCD plus complements	4.40	4.18
39F3308	MF-22A	10 pos. BCD plus complements, extended board	6.00	5.70
28F1647	MF-55	0/15, 16 pos. dec.	5.15	4.89
28F1648	MF-55	0/9, A/F 16 pos. decimal	5.15	4.89
28F1649	MF-57	0/15, 16 pos. dec. BCD & complements	7.00	6.65
28F1650	MF-57	0/9, A/F 16 pos. decimal BCD & complements	7.00	6.65
28F1651	MF-BB-H	Blank body with decimal point	1.45	1.38
39F3311	MF-EP	End plates (pair)	.60	.57
39F3310	MF-BB	Blank body	.45	.43
39F3309	MF-DP	Divider plate	1.45	1.38

OPTIONS AVAILABLE Upon request from Newark

- PC Board diode mounting
- PC Board solder or wire-wrap mounting
- Special legend wheels
- Limitation of wheel rotation
- Illumination (IR, IF, MR types only)
- Sealing (MR type only)
- Colored wheels
- Assembly of units into banks

ASSEMBLY HARDWARE FOR MF AND TR TYPES

Each package contains two threaded rods cut to correct length and two nuts for quick assembly. *Indicates number of switch modules that can be assembled.

Stock No.	Mfr's. Type	*	Stock No.	Mfr's. Type	*	Stock No.	Mfr's. Type	*
39F3314	MFH-1	1	39F3317	MFH-4	4	39F3320	MFH-7	7
39F3315	MFH-2	2	39F3318	MFH-5	5	39F3321	MFH-8	8
39F3316	MFH-3	3	39F3319	MFH-6	6	39F3322	MFH-9	9

1-24	25-49	100-249	250-499
2.00	1.90	1.80	1.72

ASSEMBLY HARDWARE FOR MR, IF AND IR TYPES

Package contains two hollow threaded rods cut to correct length and four screws. *In table indicates number of modules that can be assembled.

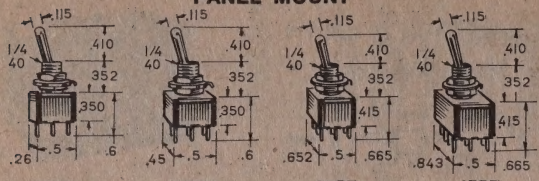
Stock No.	Mfr's. Type	*	Stock No.	Mfr's. Type	*	Stock No.	Mfr's. Type	*
39F3277	IH-1	1	39F3280	IH-4	4	39F3283	IH-7	7
39F3278	IH-2	2	39F3281	IH-5	5	39F3284	IH-8	8
39F3279	IH-3	3	39F3282	IH-6	6	39F3285	IH-9	9

1-24	25-99	100-249	250-499
.80	.76	.72	.69

Miniature Toggle Switches

SUB-MINIATURE TOGGLE SWITCHES

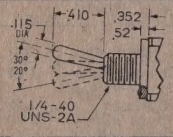
PANEL MOUNT



SPDT DPDT 3DPT 4PDT

JMT type: Contact Rating: 5 amp resistive load @ 125 VAC and 24 VDC. Switching contacts are Coin silver. Center contact is silver plated brass. All have solder terminals and are direct panel mount. ( ) Denote momentary action.

Stk. No.	Type	Switch Action Side Center Side	1-24	25-99	100-499	500-999
SPDT						
65F1650	JMT-121	ON-OFF-ON	2.05	1.40	1.23	1.08
65F1651	JMT-123	ON-NONE-ON	1.75	1.20	1.05	.93
65F1652	JMT-126	ON-NONE-(ON)	2.05	1.40	1.23	1.08
65F1653	JMT-127	(ON)-OFF-(ON)	2.05	1.40	1.23	1.08
65F1654	JMT-131	ON-OFF-(ON)	2.05	1.40	1.23	1.08
65F1655	JMT-134	NONE-ON-(ON)	2.05	1.40	1.23	1.08
DPDT						
65F1656	JMT-221	ON-OFF-ON	2.75	1.90	1.68	1.48
65F1657	JMT-223	ON-NONE-ON	2.35	1.63	1.44	1.28
65F1658	JMT-226	ON-NONE-(ON)	2.75	1.90	1.68	1.48
65F1659	JMT-227	(ON)-OFF-(ON)	2.75	1.90	1.68	1.48
65F1660	JMT-231	ON-OFF-(ON)	2.75	1.90	1.68	1.48
65F1661	JMT-232	ON-ON-ON	3.05	2.10	1.85	1.63
3PDT						
65F1662	JMT-321	ON-OFF-ON	4.35	3.02	2.64	2.33
65F1663	JMT-323	ON-NONE-ON	4.05	2.82	2.47	2.18
65F1664	JMT-327	(ON)-OFF-(ON)	4.35	3.02	2.64	2.33
65F1665	JMT-331	ON-OFF-(ON)	4.35	3.02	2.64	2.33
65F1666	JMT-334	NONE-ON-(ON)	4.35	3.02	2.64	2.33
4PDT						
65F1667	JMT-421	ON-OFF-ON	5.60	3.87	3.42	3.00
65F1668	JMT-423	ON-NONE-ON	5.20	3.60	3.18	2.80
65F1669	JMT-427	(ON)-OFF-(ON)	5.60	3.87	3.42	3.00
65F1670	JMT-431	ON-OFF-(ON)	5.60	3.87	3.42	3.80
65F1671	JMT-432	ON-ON-ON	6.35	4.37	3.85	3.60
65F1672	JMT-433	ON-ON-(ON)	6.35	4.37	3.85	3.60



SUB-MINIATURE WATERTIGHT

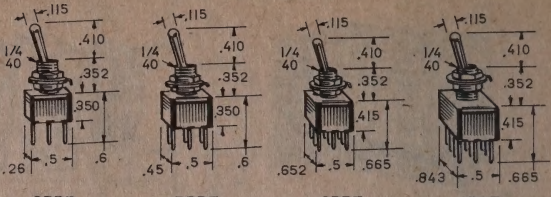
Stk. No.	Type	Switch Action Side-Center-Side		1-24	25-99	100-499	500-999
65F1673	TO4-121	ON-OFF-ON	SPDT	2.40	1.75	1.58	1.33
65F1674	TO4-123	ON-NONE-ON	SPDT	2.10	1.55	1.40	1.28
65F1675	TO4-221	ON-OFF-ON	DPDT	3.10	2.25	2.03	1.83
65F1676	TO4-223	ON-NONE-ON	DPDT	2.70	1.98	1.79	1.63
65F1677	TO4-321	ON-OFF-ON	3PDT	4.70	3.37	2.99	2.68
65F1678	TO4-323	ON-NONE-ON	3PDT	4.40	3.17	2.82	2.53
65F1679	TO4-421	ON-OFF-ON	4PDT	5.95	4.22	4.77	3.35
65F1680	TO4-423	ON-NONE-ON	4PDT	5.55	3.95	3.53	3.15

COLOR CAPS

Tight-grip insulator caps for color coding, flat or round. Can be installed before or after installation of switch. W types are round top, SW types are Flat top.

Stk. No.	Type	Color	Each
65F1712	W-CAP-10A	White	.02
65F1714	W-CAP-10C	Red	.02
65F1715	W-CAP-10D	Black	.02
65F1713	W-CAP-10B	Blue	.02
65F1718	W-CAP-10G	Yellow	.02
65F1719	W-CAP-10H	Green	.02
65F1716	W-CAP-10E	Brown	.02
65F1717	W-CAP-10F	Orange	.02
65F1720	W-CAP-10I	Violet	.02
65F1721	W-CAP-10J	Gray	.02
67F1661	SW49AA31	White	.06
67F1662	SW49AA32	Red	.06
67F1663	SW49AA33	Black	.06
67F1664	SW49AA34	Blue	.06

PC MOUNT



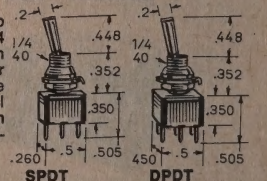
SPDT DPDT 3PDT 4PDT

MPC type: Contacts rated at 5 amp resistive load @ 125VAC and 28VDC. Switching Contacts and Rockers are coin silver. Terminals are flash gold plated for solderability. All are direct mount type for printed circuit boards. ( ) Denotes momentary action.

Stk. No.	Type	Switch Action Side-Center Side	1-24	25-99	100-499	500-999
SPDT						
65F1681	MPC-121	ON-OFF-ON	2.15	1.50	1.33	1.18
65F1682	MPC-123	ON-NONE-ON	1.85	1.30	1.15	1.03
65F1683	MPC-126	ON-NONE-(ON)	2.15	1.50	1.33	1.18
65F1684	MPC-127	(ON)-OFF-(ON)	2.15	1.50	1.33	1.18
65F1685	MPC-131	ON-OFF-(ON)	2.15	1.50	1.33	1.18
65F1686	MPC-134	NONE-ON-(ON)	2.15	1.50	1.33	1.18
DPDT						
65F1687	MPC-221	ON-OFF-ON	2.95	2.10	1.88	1.68
65F1688	MPC-223	ON-NONE-ON	2.55	1.83	1.64	1.48
65F1689	MPC-226	ON-NONE-(ON)	2.95	2.10	1.88	1.68
65F1690	MPC-227	(ON)-NONE-(ON)	2.95	2.10	1.88	1.68
65F1691	MPC-231	ON-OFF-(ON)	2.95	2.10	1.88	1.68
65F1692	MPC-232	ON-ON-ON	3.25	2.30	2.05	1.83
3PDT						
65F1693	MPC-321	ON-OFF-ON	4.65	3.32	2.94	2.63
65F1694	MPC-323	ON-NONE-ON	4.35	3.12	2.77	2.48
65F1695	MPC-327	(ON)-OFF-(ON)	4.65	3.32	2.94	2.63
65F1696	MPC-331	ON-OFF-(ON)	4.65	3.32	2.94	2.63
65F1697	MPC-334	NONE-ON-(ON)	4.65	3.32	2.94	2.63
4PDT						
65F1698	MPC-421	ON-OFF-ON	6.00	4.27	3.82	3.40
65F1699	MPC-423	ON-NONE-ON	5.60	4.00	3.58	3.20
65F1700	MPC-427	(ON)-OFF-(ON)	6.00	4.27	3.82	3.40
65F1701	MPC-431	ON-OFF-(ON)	6.00	4.27	3.82	3.40
65F1702	MPC-432	ON-ON-ON	6.75	4.77	4.25	4.00

SUB-MINIATURE FLAT HANDLE

FH Type: Contact Rating: 5 amp resistive load @ 125 VAC and 24 VDC. Switching contacts are coin silver. Center terminal is silver plated brass. All have solder type terminals and are direct panel mount. Lever is brass, satin chrome finish. ( ) Denotes momentary action.



SPDT DPDT

Stk. No.	Type	Switch Action Side-Center-Side	1-24	25-99	100-499	500-999
SPDT						
65F1703	FH-121	ON-OFF-ON	2.55	1.90	1.73	1.58
65F1704	FH-123	ON-NONE-ON	2.25	1.70	1.55	1.43
65F1705	FH-126	ON-NONE-(ON)	2.55	1.90	1.73	1.58
65F1706	FH-127	(ON)-OFF-(ON)	2.55	1.90	1.73	1.58
65F1707	FH-131	ON-OFF-(ON)	2.55	1.90	1.73	1.58
DPDT						
65F1708	FH-221	ON-OFF-ON	3.25	2.40	2.18	1.98
65F1709	FH-223	ON-NONE-ON	2.85	2.13	1.94	1.78
65F1710	FH-226	ON-NONE-(ON)	3.25	2.40	2.18	1.98
65F1711	FH-227	(ON)-OFF-(ON)	3.25	2.40	2.18	1.98

MOUNTING PARTS AND ACCESSORIES

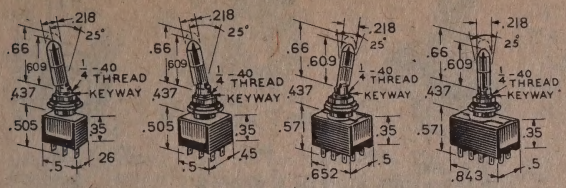
All parts for one hole mount switches, threaded for ¼-40 bushing. Circular shape unless noted otherwise. Locking rings have tab to fit into keyway. Comes in packages of 100 only.

Stk. No.	Type	Description	Per Pkg.
65F1722	W-NU-11	Stnd. Hex Nut, Bright Nickel	3.00
65F1723	W-NU-12	Knurled Nut, Bright Nickel	4.00
29F2553	SW15AA4	Knurled Facenut	20.00
65F1724	W-NU-14B	Brass Fixed Dress nut w/stops, Brt. Nickel	4.00
65F1725	W-NU-19B	Brass Fixed Dress nut w/flats, Brt. Nickel	4.00
65F1726	W-NU-18B	Brass Adj. Dress nut w/flats, Brt. Nickel	6.00
29F2557	SW16AA1	Internal Tooth Lockwasher	4.00
65F1727	W-RI-12	Standard Locking Ring	3.00
29F2559	SW32AA1	Water Seal "O" Ring	21.00
41F631	SW1LN5030	Waterproof Boot	111.00

Miniature Switches

CUTLER-HAMMER
J-B-T SWITCHES

SUB-MINIATURE LEVER-LOCK SWITCHES

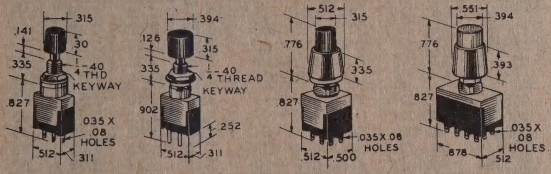


1 Pole 2 Pole 3 Pole 4 Pole

LL Type: Contacts Rated: 5 amp resistive load @ 125 VAC and 28 VDC. Lever lock type available in SP, DP, 3P, 4P. 1 and 2 pole types made of diallyl phthalate. 3 and 4 pole type made of high strength phenolic. Locking lever made of natural anodized aluminum. Switching contacts and rockers: coin silver. Center terminal: Silver plated brass.

Stk. No.	Type	Switch Action Side-Center-Side	No. Poles	1-24	25-99	100-499	500-999
65F1729	LL-121	ON-OFF-ON	1	2.75	2.10	1.93	1.78
65F1730	LL-123	ON-NONE-ON	1	2.45	1.90	1.75	1.63
65F1731	LL-221	ON-OFF-ON	2	3.45	2.63	2.38	2.18
65F1732	LL-223	ON-NONE-ON	2	3.05	2.33	2.14	1.98
65F1733	LL-321	ON-OFF-ON	3	5.05	3.72	3.34	3.03
65F1734	LL-323	ON-NONE-ON	3	4.75	3.52	3.17	2.88
65F1735	LL-421	ON-OFF-ON	4	6.30	4.57	4.12	3.70
65F1736	LL-423	ON-NONE-ON	4	5.90	4.30	3.88	3.50

SUB-MINIATURE PUSHBUTTON SWITCHES



Standard SPDT SPDT DPDT with Optional Bezel 4PDT with Optional Bezel

"Cricket" series sub-miniature pushbutton switches in three styles: standard and watertight solder lug, printed circuit mount. Silver contacts rated for 6 Amps at 125 VAC and 28 VDC. Pre-travel approx. .105", over-travel approx. .030". Hardware included. Caps for the switch must be ordered separately—listed separately on this page.

STANDARD SOLDER LUG

Stock No.	Type	No. Poles	Operation	1-24	25-49	50-99	100-249
57F3634	SA41SDW1	1	Momentary	2.55	1.89	1.71	1.59
57F3635	SA41SEW1	1	Push-Push	2.55	1.89	1.71	1.59
57F3636	SA42SDW1	2	Momentary	3.54	2.62	2.38	2.20
57F3637	SA42SEW1	2	Push-Push	3.54	2.62	2.38	2.20
57F3638	SA44SDW1	4	Momentary	5.89	4.36	3.95	3.66
57F3639	SA44SEW1	4	Push-Push	5.89	4.36	3.95	3.66

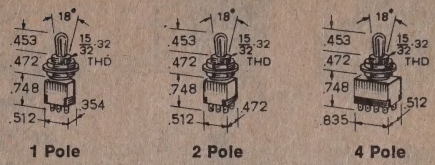
WATERTIGHT SOLDER LUG

Stock No.	Type	No. Poles	Operation	1-24	25-49	50-99	100-249
57F3644	SA41WDW1	1	Momentary	2.88	2.13	1.93	1.79
57F3645	SA41WEW1	1	Push-Push	2.88	2.13	1.93	1.79
57F3646	SA42WDW1	2	Momentary	3.85	2.85	2.58	2.39
57F3647	SA42WEW1	2	Push-Push	3.85	2.85	2.58	2.39
57F3648	SA44WDW1	4	Momentary	6.44	4.77	4.32	4.00
57F3649	SA44WEW1	4	Push-Push	6.44	4.77	4.32	4.00

PRINTED CIRCUIT TERMINALS

Stock No.	Type	No. of Poles	Operation	1-24	25-49	50-99	100-249
67F1783	SA41SDW6	1	Momentary	2.66	1.97	1.79	1.65
67F1784	SA41SEW6	1	Push-Push	2.66	1.97	1.79	1.65
67F1785	SA42SDW6	2	Momentary	3.76	2.79	2.52	2.34
67F1786	SA42SEW6	2	Push-Push	3.76	2.79	2.52	2.34
67F1787	SA44SDW6	4	Momentary	6.33	4.69	4.25	3.92
67F1788	SA44SEW6	4	Push-Push	6.33	4.69	4.25	3.92

MINIATURE LARGE LEVER SWITCHES



1 Pole 2 Pole 4 Pole

Behind-the-panel space saving feature of Standard Miniature Toggle with front-of-panel appearance of regular size switches. .453 inch high lever and 15/32 inch bushing diameter. Mounting hardware, consisting of hexagon locknut and hexagon facenut, furnished unassembled.

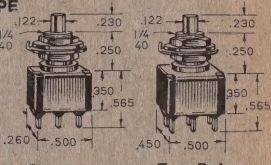
Stock No.	Type	No. of Poles	Circuit	1-24	25-49	50-99	100-249
29F2258	SF1GBX191	1	ON-OFF-ON	3.03	2.25	2.04	1.88
29F2259	SF1GCY191	1	ON-ON	2.37	1.76	1.58	1.47
29F2260	SF2GBX191	2	ON-OFF-ON	3.69	2.73	2.48	2.29
29F2261	SF2GCY191	2	ON-ON	3.03	2.25	2.03	1.88
29F2262	SF3GBX191	3	ON-OFF-ON	5.48	4.06	3.68	3.40
29F2263	SF3GCY191	3	ON-ON	4.90	3.63	3.29	3.04
29F2264	SF4GBX191	4	ON-OFF-ON	6.77	5.01	4.54	4.20
29F2265	SF4GCY191	4	ON-ON	6.11	4.53	4.10	3.79

DECORATIVE LEVER CAP

Stk. No.	Type	Color	1-24	25-99	100-499	500-999
57F1665	SW49AA11	White	.07	.06	.05	.05
67F1666	SW49AA12	Red				
67F1667	SW49AA13	Black				
67F1668	SW49AA14	Blue				
67F1669	SW49AA15	Yellow				
67F1670	SW49AA16	Green				

PS TYPE

Sensitive pushbutton switch. Requires feather touch to operate. SPDT or DPDT momentary action. Rated: 1.0 A @ 125 VAC. Life under load 60,000 make-and-break cycles. Center and end contact: Silver plated brass. Maximum force on plunger, 10 pounds. Case is made of DAP. Stainless steel housing.



One-Pole Two-Pole

Stock No.	Type	Description	1-24	25-99	100-499	500-Up
65F1737	PS1-100	One-Pole, Momen., Solder Lug	3.31	2.65	2.24	1.94
65F1738	PS2-100	One-Pole, Momen., P.C. term.	3.41	2.75	2.34	2.04
65F1739	PS1-200	Two-Pole Momen., Solder Lug	4.62	3.70	3.14	2.71
65F1740	PS2-200	Two-Pole, Momen., P.C. term.	4.82	3.90	3.34	2.91

CAPS FOR PS TYPE SWITCHES

Stk. No.	Type	Size Dia. x H	Color	Each
65F1741	W-KN-16	.200"	Black	.04
65F1742	W-KN-16A	X	White	.04
65F1743	W-KN-16B	.155"	Red	.04
65F1744	W-KN-17	.375"	Black	.05
65F1745	W-KN-17A	X	White	.05
65F1746	W-KN-17B	.250"	Red	.05

SLIP-ON BUTTONS

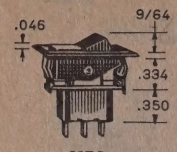
Large Small

Slip-on caps for use with "Cricket" series pushbutton switches. These caps must be ordered separately from the switch.

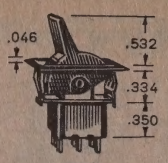
Stock No.	Type	Size D x H	Color	EACH 1-24	25-49	50-99	100-249
57F3650	SW53AA147		White	.11	.09	.08	.07
57F3651	SW53AA148	.300"	Red	.11	.09	.08	.07
57F3652	SW53AA149	X	Black	.11	.09	.08	.07
57F3653	SW53AA150	.315"	Blue	.11	.09	.08	.07
57F3654	SW53AA151		Yellow	.11	.09	.08	.07
57F3655	SW53AA152		Green	.11	.09	.08	.07
57F3656	SW53AA153		White	.11	.09	.08	.07
57F3657	SW53AA154	.315"	Red	.11	.09	.08	.07
57F3658	SW53AA155	X	Black	.11	.09	.08	.07
57F3659	SW53AA156	.394"	Blue	.11	.09	.08	.07
57F3660	SW53AA157		Yellow	.11	.09	.08	.07
57F3661	SW53AA158		Green	.11	.09	.08	.07

8

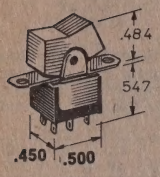
MINIATURE & SUBMINIATURE SWITCHES



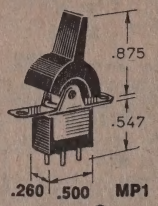
MR2



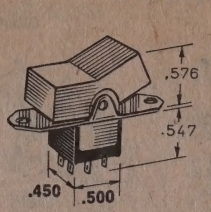
MP2



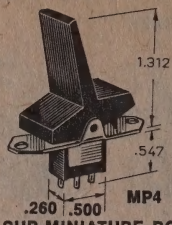
MR1



MP1



MR3



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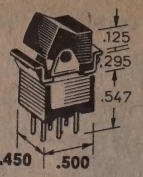
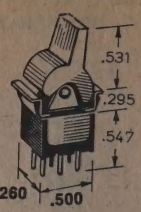


MR7



MP7

SUB-MINIATURE ROCKER & PADDLE

These compact sub-miniature rocker switches are offered with flat frames for sub panel mounting or as a snap-in mounting type. Both, the paddle and the low profile, rocker operated switches employ a slow make-slow break contact mechanism. Two sizes of low profile rockers, and two sizes of paddle rockers are available in the flat frame series. The snap-in series has a low profile and a paddle rocker. The rockers come in standard color black, other colors available on special order. All switches utilize solder lug terminals. The contacts are rated for 5 amps at 125 VAC and 28 VDC. ( ) Denotes Momentary Action.

SPDT

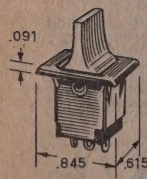
Stk. No.	Type	Switch Action Side Center Side	1-24	25-99	100-499	500-999
65F830	MR1-121	ON-OFF-ON	2.40	1.75	1.58	1.43
65F831	MR1-123	ON-NONE-ON	2.10	1.55	1.35	1.12
65F832	MR1-126	ON-NONE-(ON)	2.40	1.75	1.58	1.43
65F833	MR1-127	(ON)-OFF-(ON)	2.40	1.75	1.58	1.43
65F834	MP1-121	ON-OFF-ON	2.40	1.75	1.58	1.43
65F835	MP1-123	ON-NONE-ON	2.10	1.55	1.35	1.28
65F836	MP1-126	ON-NONE-(ON)	2.40	1.75	1.58	1.43
65F837	MP1-127	(ON)-OFF-(ON)	2.40	1.75	1.58	1.43
65F838	MR2-121	ON-OFF-ON	2.75	2.10	1.93	1.78
65F839	MR2-123	ON-NONE-ON	2.45	1.90	1.75	1.63
65F840	MR2-126	ON-NONE-(ON)	2.75	2.10	1.93	1.78
65F841	MR2-127	(ON)-OFF-(ON)	2.75	2.10	1.93	1.78
65F842	MP2-121	ON-OFF-ON	2.75	2.10	1.93	1.78
65F843	MP2-123	ON-NONE-ON	2.45	1.90	1.75	1.63
65F844	MP2-126	ON-NONE-(ON)	2.75	2.10	1.93	1.78
65F845	MP2-127	(ON)-OFF-(ON)	2.75	2.10	1.93	1.78
65F846	MR3-121	ON-OFF-ON	2.40	1.75	1.58	1.43
65F847	MR3-123	ON-NONE-ON	2.10	1.55	1.35	1.28
65F848	MR3-126	ON-NONE-(ON)	2.40	1.75	1.58	1.43
65F849	MR3-127	(ON)-OFF-(ON)	2.40	1.75	1.58	1.43
65F850	MP4-121	ON-OFF-ON	2.40	1.75	1.58	1.43
65F851	MP4-123	ON-NONE-ON	2.10	1.55	1.35	1.28
65F852	MP4-126	ON-NONE-(ON)	2.40	1.75	1.58	1.43
65F853	MP4-127	(ON)-OFF-(ON)	2.40	1.75	1.58	1.43
65F854	MR7-121	ON-OFF-ON	2.40	1.75	1.58	1.43
65F855	MR7-123	ON-NONE-ON	2.10	1.55	1.40	1.28
65F856	MR7-126	ON-NONE-(ON)	2.40	1.75	1.58	1.43
65F857	MR7-127	(ON)-OFF-(ON)	2.40	1.75	1.58	1.43
65F858	MP7-121	ON-OFF-ON	2.40	1.75	1.58	1.43
65F859	MP7-123	ON-NONE-ON	2.10	1.55	1.40	1.28
65F860	MP7-126	ON-NONE-(ON)	2.40	1.75	1.58	1.43
65F861	MP7-127	(ON)-OFF-(ON)	2.40	1.75	1.58	1.43

DPDT

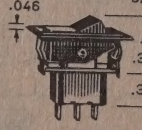
Stk. No.	Type	Switch Action Side Center Side	1-24	25-99	100-499	500-999
65F862	MR1-221	ON-OFF-ON	3.10	2.25	2.03	1.83
65F863	MR1-223	ON-NONE-ON	2.70	1.98	1.79	1.63
65F864	MR1-226	ON-NONE-(ON)	3.10	2.25	2.03	1.83
65F865	MR1-227	(ON)-OFF-(ON)	3.10	2.25	2.03	1.83
65F866	MP1-221	ON-OFF-ON	3.10	2.25	2.03	1.83
65F867	MP1-223	ON-NONE-ON	2.70	1.98	1.79	1.63
65F868	MP1-226	ON-NONE-(ON)	3.10	2.25	2.03	1.83
65F869	MP1-227	(ON)-OFF-(ON)	3.10	2.25	2.03	1.83
65F870	MR2-221	ON-OFF-ON	3.45	2.60	2.38	2.18
65F871	MR2-223	ON-NONE-ON	3.05	2.33	2.14	1.98
65F872	MR2-226	ON-NONE-(ON)	3.45	2.60	2.38	2.18
65F873	MR2-227	(ON)-OFF-(ON)	3.45	2.60	2.38	2.18
65F874	MP2-221	ON-OFF-ON	3.45	2.60	2.38	2.18
65F875	MP2-223	ON-NONE-ON	3.05	2.33	2.14	1.98
65F876	MP2-226	ON-NONE-(ON)	3.45	2.60	2.38	2.18
65F877	MP2-227	(ON)-OFF-(ON)	3.45	2.60	2.38	2.18
65F878	MR3-221	ON-OFF-ON	3.10	2.25	2.03	1.83
65F879	MR3-223	ON-NONE-ON	2.70	1.98	1.79	1.63
65F880	MR3-226	ON-NONE-(ON)	3.10	2.25	2.03	1.83
65F881	MR3-227	(ON)-OFF-(ON)	3.10	2.25	2.03	1.83
65F882	MP4-221	ON-OFF-ON	3.10	2.25	2.03	1.83
65F883	MP4-223	ON-NONE-ON	2.70	1.98	1.79	1.63
65F884	MP4-226	ON-NONE-(ON)	3.10	2.25	2.03	1.83
65F885	MP4-227	(ON)-OFF-(ON)	3.10	2.25	2.03	1.83
65F886	MR7-221	ON-OFF-ON	3.10	2.25	2.03	1.83
65F887	MR7-223	ON-NONE-ON	2.70	1.88	1.79	1.63
65F888	MR7-226	ON-NONE-(ON)	3.10	2.25	2.03	1.83
65F889	MR7-227	(ON)-OFF-(ON)	3.10	2.25	2.03	1.83
65F890	MP7-221	ON-OFF-ON	3.10	2.25	2.03	1.83
65F891	MP7-223	ON-NONE-ON	2.70	1.88	1.79	1.63
65F892	MP7-226	ON-NONE-(ON)	3.10	2.25	2.03	1.83
65F893	MP7-227	(ON)-OFF-(ON)	3.10	2.25	2.03	1.83

MINIATURE SNAP-IN ROCKETTE® PADDLE OR ROCKER SWITCHES

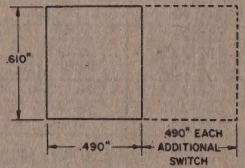
PANEL CUT-OUT DIMENSIONS



PADDLE



ROCKER



Recommended Panel Thickness .040-.120". Spacing Does Not Include Bezel.

Ultra compact snap-in mounted paddle operated switches employ slow-make, slow-break contact with substantial current carrying capability. Designed for AC and low voltage DC (up to 28V) circuits. Rated 5A at 125VAC or 28 VDC. 6 amps for "C" circuit. Mounts in .040-.120" thick panel with bezel. All switches have solder lug type terminals. Decorative nylon bezels snap over metal mounting ears of switch. Available in four colors. Factory assembled. Basic switch, paddle color, and bezel color may all be intermixed to satisfy your particular requirements. Price listed is for complete unit.

Combine Three Codes (Ten Alpha Numeric Digits) for Complete Stock Number

BASIC SWITCH		
Circuit	No. of Poles	Code
On-Off-On	1	SC3BX1
On-On	1	SC3CW1
On-Off-On*	1	SC3FX1
On-On*	1	SC3GX1
On-Off-On	1	SC3HX1
On-Off-On	2	SC4BX1
On-On	2	SC4CW1
On-Off-On*	2	SC4FX1
On-On*	2	SC4GX1
On-Off-On	2	SC4HX1

+

Color	Rocker Code	Paddle Code
White	71	81
Red	72	82
Black	76	86
Gray	75	85

+

Bezel	
Color	Code
White	—91
Red	—92
Black	—96
Gray	—95

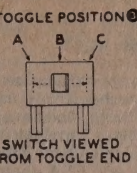
PRICING TABLE

Basic Switch	1-24	25-49	50-99	100-249
SC3BX1	2.53	1.88	1.70	1.57
SC3CW1	2.31	1.71	1.55	1.44
SC3FX1	2.53	1.88	1.70	1.57
SC3GX1	2.53	1.88	1.70	1.57
SC3HX1	2.53	1.88	1.70	1.57
SC4BX1	3.21	2.38	2.15	1.99
SC4CW1	2.75	2.04	1.85	1.71
SC4FX1	3.21	2.38	2.15	1.99
SC4GX1	3.21	2.38	2.15	1.99
SC4HX1	3.21	2.38	2.15	1.99

MINIATURE P.C. SWITCHES

CUTLER-HAMMER J-B-T SWITCHES

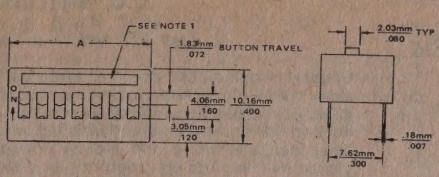
P.C. PADDLE SWITCH

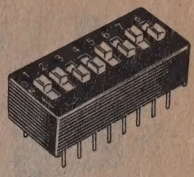


Unusually compact, ideal for sub-chassis/interlock circuits and front panel applications where space is a premium. Two circuits, single pole design, gold plated contacts are rated for 1 Amp at 12 VDC; .5 Amp at 28 VDC and 125 VAC. Contact resistance is .025 ohms max. Temp. range —20°C to +70°C. 1000V rms dielectric. Red paddles with black molded plastic switch bases. (*) Momentary contact.

Stock No.	Type	Circuit A-B-C	1-24	25-99	100-499	500-999
29F2500	SF6TBX392	ON-OFF-ON				
29F2501	SF6TCX392	ON-NONE-ON				
29F2502	SF6TFX392	ON-OFF-ON*				
29F2503	SF6TAX392	*ON-OFF-ON	1.14	1.03	.94	.85
29F2504	SF6THX392	*ON-OFF-ON*				
29F2505	SF6TGX392	ON-NONE-ON*				
29F2506	SF6TEX392	*ON-NONE-ON				

PC/DIP SWITCHES

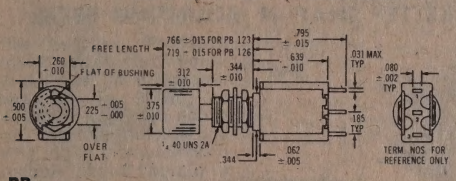




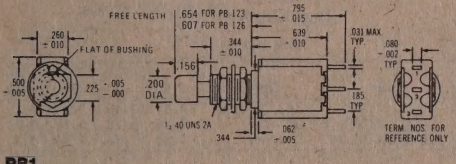
These are multi-station SPST slide switches in a low profile (.3" max) DIP package. Gold plated nickel contacts are rated for 100mA at 5 VDC and 25 mA at 25 VDC. Positive detent gives factile response. .10 ohm max. resistance and 10,000 operations from 0°C to 70°C. White nylon button in a med. green glass filled polyester base. 500 VAC dielectric. UL recognized.

Stock No.	Type	No. of Stations	Dim. A In.	Dim. A mm	1-9	10-24	25-49	50-99
29F2379	SE2AV591-2	2	.280	7.11	2.05	1.89	1.73	1.54
29F2380	SE2AV591-3	3	.380	9.65	2.20	2.03	1.85	1.65
29F2381	SE2AV591-4	4	.480	12.19	2.35	2.17	1.98	1.77
29F2382	SE2AV591-5	5	.580	14.73	2.50	2.30	2.10	1.88
29F2383	SE2AV591-6	6	.680	17.27	2.65	2.44	2.23	1.99
29F2384	SE2AV591-7	7	.780	19.81	2.75	2.53	2.31	2.07
29F2385	SE2AV591-8	8	.880	22.35	2.90	2.68	2.44	2.18
29F2386	SE2AV591-9	8	.980	24.89	3.05	2.81	2.57	2.29
29F2387	SE2AV591-10	10	1.080	27.43	3.15	2.90	2.65	2.37

PUSH BUTTON PANEL MOUNT



PB

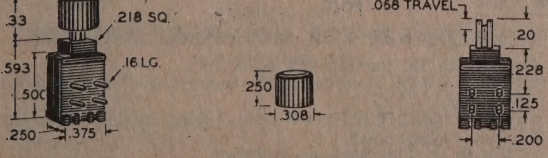


PB1

Types PB-123 & PB1-123. Maintained action switches. Push to make contact, and push again to reverse action. **Types PB-126 & PB1-126.** Momentary switch action. Normally open or normally closed. For N.C. circuit use term. 2&1; for N.O. circuits use terms. 2&3; for N.C. & N.O use term. 1,2,&3. **Contact Rated:** 5 amp resistive load @ 125 VAC and 28 VDC. Contacts and Rockers are coin silver. Center term. is nickel plated brass. Black push-on moulded knob is included.

Stk. No.	Type	Description	1-24	25-99	100-499	500-999
65F894	PB-123	Main. Act. .375" Knob	2.36	1.77	1.48	1.37
65F896	PB-126	Momen. Act. .200" Knob	2.36	1.77	1.48	1.37
65F895	PB1-123	Main. Act. .375" Knob	2.36	1.77	1.48	1.37
65F897	PB1-126	Momen. Act. .200" Knob	2.36	1.77	1.48	1.37

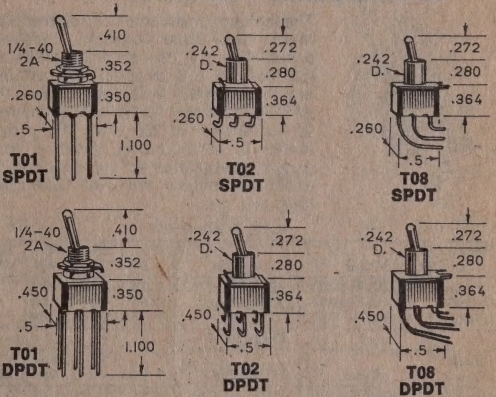
P.C. PUSHBUTTON SWITCH



These sub-miniature pushbutton switches mount to printed circuit boards without hardware. Same basic switch type as above, but a pushbutton instead of a rocker or paddle.

Stock No.	Type	Description	1-24	25-99	100-499	500-999
29F2507	SA27TDX39-2	Momentary-Red				
29F2508	SA27TDX39-3	Momentary-Black	1.67	1.51	1.37	1.24
29F2509	SA27TEX39-2	Push & Turn-Red				
29F2510	SA27TEX39-3	Push & Turn-Black				

SUB-MINIATURE TOGGLE SWITCHES



Contacts Rated: .5 VA Max. @ 28 V max for T01 types. 5 amp resistive @ 125 VAC and 28 VDC for T02 & T08 types. Toggle is chrome plated brass. Hardware included. **Type T01** are wire-wrap or direct PC mount. **Type T02** are Right Angle PC mount horizontal. **Type T08** are Right Angle PC mount vertical. Avail. in SPDT or DPDT. (*) Denotes momentary action.

SPDT

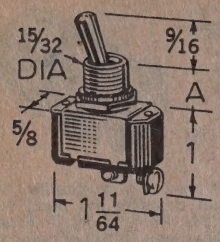
Stk. No.	Type	Switch Action Side Center Side	1-24	25-99	100-499	500-999
65F898	TO1-121	ON-OFF-ON	2.25	1.60	1.43	1.28
65F899	TO1-123	ON-NONE-ON	1.95	1.40	1.25	1.13
65F900	TO1-126	ON-NONE-(ON)	2.25	1.60	1.43	1.28
65F901	TO1-127	(ON)-OFF-(ON)	2.25	1.60	1.43	1.28
65F902	TO2-121	ON-OFF-ON	2.30	1.65	1.48	1.33
65F903	TO2-123	ON-NONE-ON	2.00	1.45	1.30	1.18
65F904	TO2-126	ON-NONE-(ON)	2.30	1.65	1.48	1.33
65F905	TO2-127	(ON)-OFF-(ON)	2.30	1.65	1.48	1.33
65F906	TO8-121	ON-OFF-ON	2.30	1.65	1.48	1.33
65F907	TO8-123	ON-NONE-ON	2.00	1.45	1.30	1.18
65F908	TO8-126	ON-NONE-(ON)	2.30	1.65	1.48	1.33
65F909	TO8-127	(ON)-OFF-(ON)	2.30	1.65	1.48	1.33

DPDT

65F910	TO1-221	ON-OFF-ON	3.15	2.30	2.08	1.88
65F911	TO1-223	ON-NONE-ON	2.75	2.03	1.84	1.68
65F912	TO1-226	ON-NONE-(ON)	3.15	2.30	2.08	1.88
65F913	TO1-227	(ON)-OFF-(ON)	3.15	2.30	2.08	1.88
65F914	TO2-221	ON-OFF-ON	3.25	2.40	2.18	1.98
65F915	TO2-223	ON-NONE-ON	2.85	2.13	1.94	1.78
65F916	TO2-226	ON-NONE-(ON)	3.25	2.40	2.18	1.98
65F917	TO2-227	(ON)-OFF-(ON)	3.25	2.40	2.18	1.98
65F918	TO8-221	ON-OFF-ON	3.25	2.40	2.18	1.98
65F919	TO8-223	ON-NONE-ON	2.85	2.13	1.94	1.78
65F920	TO8-226	ON-NONE-(ON)	3.25	2.40	2.18	1.98
65F921	TO8-227	(ON)-OFF-(ON)	3.25	2.40	2.18	1.98

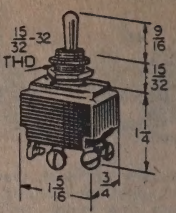
Cutler-Hammer AC Switches

A.C. SWITCHES



6 AMP 125 VOLT—3 AMP 250 VOLT

General purpose light duty AC switches for power appliances. Employ slow make—slow break rocker type contact mechanism. Combination phenolic-metallic housing. All are one hole mount type. One hexagon locknut and one knurled facenut furnished unassembled. Terminals in rear of base facilitate wiring and reduce possibility of electrical creepage. Visible metals parts are bright nickel plated. UL and CSA approved. ¼" spade terminals. Movable contact actuated by compression spring which provides positive contact pressure in closed position and firmly positions contactor in open position.



SINGLE POLE

SPST (ON-OFF)

Stock No.	Type	Bushing Length	Terminals	1-24	25-49	50-99	100-499
23F341	7580K4	15/32"	Screw	1.22	1.13	.94	.85
41F532	7580K7	1 1/32"	Solder	1.05	.97	.81	.73
23F342	7580K6	15/32"	Solder	1.05	.97	.81	.73

SPDT (ON-ON)

23F345	7582K4	15/32"	Screw	1.39	1.28	1.07	.96
23F346	7582K6	15/32"	Solder	1.14	1.05	.88	.79

SPDT (ON-OFF-ON)

23F343	7581K4	15/32"	Screw	1.39	1.28	1.07	.96
23F344	7581K6	15/32"	Solder	1.14	1.05	.88	.79

DOUBLE POLE

DPST (ON-OFF)

Stock No.	Type	Bushing Length	Terminals	1-24	25-49	50-99	100-499
23F347	7590K4	15/32"	Screw	1.89	1.75	1.46	1.31
23F348	7590K6	15/32"	Solder	1.54	1.42	1.19	1.07

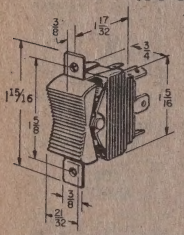
DPDT (ON-ON)

23F357	7592K4	15/32"	Screw	2.24	2.07	1.73	1.55
23F358	7592K6	15/32"	Solder	1.74	1.60	1.34	1.20

DPDT (ON-OFF-ON)

23F349	7591K4	15/32"	Screw	2.24	2.07	1.73	1.55
23F374	7591K7	1 1/32"	Solder	2.67	2.14	1.87	1.60
23F356	7591K6	15/32"	Solder	1.74	1.60	1.34	1.20

ROCKETTE® SWITCHES



The contact mechanism is of the Slow-Make Slow-Break design engineered specifically for use on AC circuits and low voltage DC circuits. The contacts are rated for 15 Amps at 125 VAC and 28 VDC; 10 Amps at 250 VAC; maximum ¾ horsepower at 250 VAC. White nylon rocker on a mounting frame of heavy gauge steel, plated for resistance to corrosion. Terminals are .250" wide spade lugs.

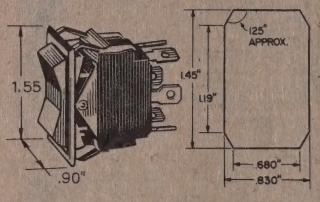
ONE POLE

Stock No.	Type	Circuit	1-24	25-49	50-99	100-499
23F434	8144K20A1M52	ON-OFF-ON	1.28	1.18	.99	.89
23F399	8144K21A1M52	ON-OFF	1.14	1.05	.88	.79
41F566	8144K22A1M52	ON-ON	1.28	1.18	.99	.89

TWO POLE

Stock No.	Type	Circuit	1-24	25-49	50-99	100-499
23F438	8142K20E6M52	ON-OFF-ON	2.35	2.17	1.81	1.62
23F436	8142K21E6M52	ON-OFF	2.06	1.90	1.59	1.43
41F568	8142K22E6M52	ON-ON	2.35	2.17	1.81	1.62

ROCKETTE® SNAP-IN MOUNTING BEZEL



Rockette® switches with snap-in metal bezels. Switch description at left. Bezels are made of hardened spring-steel for durability and structural strength. Corrosion-resistant bright nickel-plated finish. Recommended panel thickness: .040 to .140 inches.

ONE POLE

Stock No.	Type	Circuit	1-24	25-49	50-99	100-499
57F3662	8144K20X1M52	ON-OFF-ON	1.61	1.48	1.24	1.11
57F3663	8144K21X1M52	ON-OFF	1.46	1.35	1.13	1.01
57F3664	8144K22X1M52	ON-ON	1.61	1.48	1.24	1.11

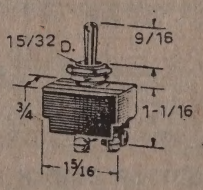
TWO POLE

57F3665	8142K20X6M52	ON-OFF-ON	2.67	2.47	2.06	1.85
57F3666	8142K21X6M52	ON-OFF	2.39	2.20	1.84	1.65
57F3667	8142K22X6M52	ON-ON	2.67	2.47	2.06	1.85

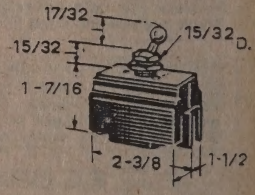
HIGH CAPACITY AC SWITCHES

These heavy duty AC rated switches feature a rocker type contact mechanism for a slow make—slow break operation. The terminals are firmly riveted to the rear of the base with adequate spacing provided to facilitate wiring and to reduce the possibility of electrical creepage. Spade terminals are .250" wide, screw terminals are provided with screws. Type 7576K2 has bright nickel plating on the exposed metal parts. Type 8320K1 is zinc with an aluminum ball. The 8320K1 is provided with two hexagon facenuts while the others are provided with a hexagon locknut and a knurled facenut.

Stock No.	Type	Circuit	250 VAC Amp	250 VAC HP	Bushing Length	Terminal	1-24	25-49	50-99	100-499
41F472	7576K2	SPST	25	....	1 1/32"	Screw	2.49	2.30	1.92	1.72
41F559	8320K1	3PST	20	2	15/32"	Screw	8.01	7.39	6.16	5.54

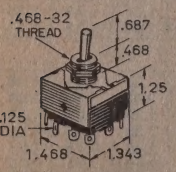


SINGLE POLE



TRIPLE POLE

HESITATION SWITCH



Three position center off, hesitation, positive stop, or positive off switches; restrict operation from one "on" position to the other "on" position without a stop in the center position. Use with reversing motors; prevent damage by high currents from reversing. A mechanical interlock in switch prohibits toggle action through center position until pressure is momentarily relieved from lever. Bushing Diameter: 15/32".

Stock No.	Type	Action	1-24	25-49	50-99	100-499
23F1152	7992K10	DPDT	7.66	7.07	5.89	5.30
23F1154	7991K10	3PDT	9.66	8.92	7.43	6.69
23F1156	7990K10	4PDT	13.01	12.01	10.01	9.01

HARDWARE FOR MOUNTING SWITCHES

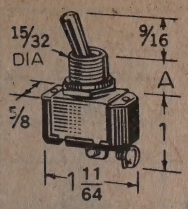
For use with 15/32" diameter bushings:
30-5632-4. ON-OFF vertical plate, keyway by OFF. Burnished nickel finish.
30-5632-13. ON-OFF horizontal plate, keyway by OFF (left side). Burnished nickel finish.
30-5632-16. HI-LOW. Same as 30-5632-4.
29-761. Locking ring.
16-886. Internal tooth lockwasher.

Stk. No.	Type	1-24	25-49	50-99	100-499
23F248	30-5632-4	.10	.09	.08	.07
23F516	30-5632-13	.10	.09	.08	.07
23F517	30-5632-16	.10	.09	.08	.07
23F518	29-761	.07	.06	.05	.05
23F519	16-886	.06	.05	.05	.04

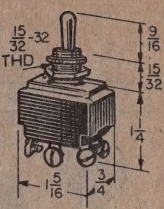
Cutler-Hammer Switches

CUTLER-HAMMER AC SWITCHES

15 AMP 125 VOLT—10 AMP 250 VOLT ¾ HP



General purpose AC switches for power appliances. Slow make—slow break rocker contact mechanism. Combination phenolic-metallic housing furnished with hexagon locknut and knurled facenut. Terminals in rear of base facilitate wiring and reduce possibility of electrical creepage. Visible metal parts have bright nickel plating. UL and CSA approved. ¼" spade terminals. (*) Momentary in one position, ½ HP. (**) Momentary in two positions, ½ HP.



SINGLE POLE

SPST (ON-OFF)

Stock No.	Type	Bushing Length	Terminals	1-24	25-49	50-99	100-499
23F247	7500K14	15/32"	Screw	1.39	1.28	1.07	.96
23F230	7501K13	15/32"	Solder	1.22	1.13	.94	.85
41F535	7501K15	15/32"	Spade	1.22	1.13	.94	.85

SPDT (ON-ON)

23F380	7504K4	15/32"	Screw	1.64	1.51	1.26	1.13
23F232	7505K4	15/32"	Solder	1.39	1.28	1.07	.96

SPDT (ON-OFF-ON)

23F265	7502K13	15/32"	Screw	1.64	1.51	1.26	1.13
23F231	7503K13	15/32"	Solder	1.39	1.28	1.07	.96
41F537	7509K5**	15/32"	Screw	2.13	1.97	1.64	1.48

DOUBLE POLE

DPST (ON-OFF)

Stock No.	Type	Bushing Length	Terminals	1-24	25-49	50-99	100-499
23F267	7560K5	15/32"	Screw	2.24	2.07	1.73	1.55
23F235	7561K4	15/32"	Solder	1.89	1.75	1.46	1.31
23F381	7561K6	15/32"	Spade	1.89	1.75	1.46	1.31

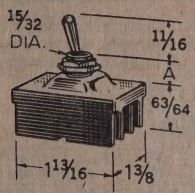
DPDT (ON-ON)

23F266	7564K6	15/32"	Screw	2.76	2.54	2.12	1.91
23F236	7565K5	15/32"	Solder	2.24	2.07	1.73	1.55
23F382	7565K7	15/32"	Spade	2.24	2.07	1.73	1.55

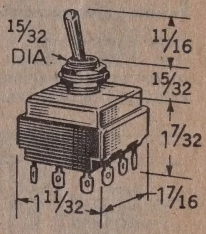
DPDT (ON-OFF-ON)

23F246	7562K4	15/32"	Screw	2.76	2.54	2.12	1.91
23F237	7563K4	15/32"	Solder	2.24	2.07	1.73	1.55
41F553	7563K6	15/32"	Spade	2.24	2.07	1.73	1.55

THREE AND FOUR POLE AC SWITCHES



These slow make—slow break AC rated switches feature a rocker type contact mechanism that is actuated by a compression spring to provide positive contact pressure. Exposed metal parts are plated with bright nickel. All switches are provided with a hexagon locknut; the 3 pole with a hexagon facenut, the 4 pole with a knurled facenut. The 3 pole switches are rated for 15 Amps at 125 VAC and 10 Amps at 250 VAC; 1 HP from 125 to 480 VAC. The 4 pole switches are rated for the same current, but ¾ HP at 250 VAC.



THREE POLE

3PST (ON-OFF)

Stock No.	Type	Bushing Length	Terminals	1-24	25-49	50-99	100-499
23F271	7610K2	15/32"	Screw	4.10	3.79	3.16	2.84
23F240	7611K2	15/32"	Solder	3.53	3.26	2.72	2.44

3PDT (ON-ON)

23F257	7614K2	15/32"	Screw	5.20	4.80	4.00	3.60
23F243	7615K2	15/32"	Solder	4.33	4.00	3.33	3.00

3PDT (ON-OFF-ON)

23F256	7612K2	15/32"	Screw	5.20	4.80	4.00	3.60
23F241	7613K2	15/32"	Solder	4.33	4.00	3.33	3.00

FOUR POLE

4PST (ON-OFF)

Stock No.	Type	Bushing Length	Terminals	1-24	25-49	50-99	100-499
41F562	7690K8	15/32"	Screw	5.89	5.44	4.53	4.08
23F242	7691K14	15/32"	Solder	5.31	4.90	4.09	3.68

4PDT (ON-ON)

41F564	7694K4	15/32"	Screw	7.34	6.77	5.65	5.08
41F565	7695K5	15/32"	Solder	6.47	5.97	4.98	4.48

4PDT (ON-OFF-ON)

41F563	7692K13	15/32"	Screw	7.34	6.77	5.65	5.08
41F494	7693K2	15/32"	Solder	6.47	5.97	4.98	4.48

SHALLCROSS ROTARY SWITCHES

SERIES 1-1 INCH WAFER

SHORTING TYPE

Stock No.	Type	No. of Positions	Total Poles	No. of Decks	1-9	10-24	25-49	50-99
23F1007	1J04A6-2	2-6	2	2	16.41	13.95	12.31	10.67

NON-SHORTING TYPE

23F1015	1J54A6-1	2-6	1	1	11.47	9.75	8.60	7.46
23F1016	1J54A6-2	2-6	2	2	16.41	13.95	12.31	10.67

SERIES 2-1¾ INCH DECK

SHORTING TYPE

23F1027	2E00A24-1	2-24	1	1	22.61	19.22	16.96	14.70

NON-SHORTING TYPE

23F1052	2J68A3-2	2-3	8	2	38.27	32.53	28.70	24.88
23F1048	2J56A6-1	2-6	2	1	23.09	19.63	17.32	15.01
23F1049	2J56A6-2	2-6	4	2	33.75	28.69	25.31	21.94
23F1050	2J56A6-3	2-6	6	3	44.56	37.88	33.42	28.96
23F1045	2J50A12-1	2-12	1	1	22.61	19.22	16.96	14.70
23F1046	2J50A12-2	2-12	2	2	32.39	27.53	24.29	21.05
23F1036	2H50A16-1	2-16	1	1	22.61	19.22	16.96	14.70
23F1037	2H50A16-2	2-16	2	2	32.39	27.53	24.29	21.05
23F1038	2H50A16-3	2-16	3	3	44.08	37.47	33.06	28.65

SERIES 4-2½ INCH DECK

NON-SHORTING TYPE

23F1063	4E50A24-1	2-24	1	1	34.73	29.52	26.05	22.57
23F1064	4E50A24-2	2-24	2	2	49.58	42.14	37.19	32.23
23F1065	4E50A24-3	2-24	3	3	64.26	54.62	48.20	41.77

Shallcross precision rotary switches have solid silver alloy contacts, built to MIL-S-3786 specs. All switches have 9/16" diameter bushing, 1" long shaft and fully adjustable stops. Indexing angle: 12 pos. 30°; 16 pos. 22.5°; 24 pos. 15°. Temp. range: −65 to +125°C. Minimum breakdown voltage is 800V-60 Hz, between contacts. Initial contact resistance is .0025 ohm.

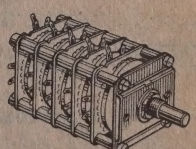
Electrical Ratings

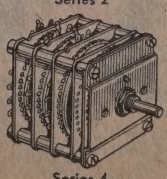
Series 1: Enclosed contacts 25°C, 25000 cycles. Resistive load: 115 VAC-350 mA; 28 VDC-1 A. Inductive load; 28 VDC-100 mA.

Series 2: 30 VDC-1 A, 50000 cycles; 30 VDC-4 A, 10000 cycles; 120 VAC-2 A, 250 10000 cycles; 250 VAC-100 mA, 50000 cycles.

Series 4: 30 VDC-1 A, 50000 cycles; 30 VDC-4 A, 5000 cycles; 120 VAC-250 mA, 50000 cycles; 120 VAC-2 A, 5000 cycles.

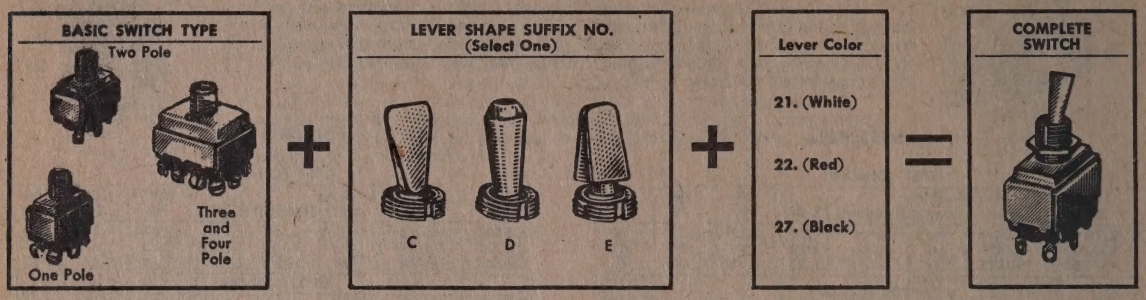
Series 1


Series 2


Series 4

AC "DESIGNER LINE"

SELECTION TABLE FOR COMPOSITE ORDERING NUMBER



EXAMPLE

7562K54 BASIC SWITCH TYPE	+	C LEVER STYLE	+	21 COLOR	=	7562K54C21 COMPLETE ORDERING NUMBER

8

Note: You must make the complete ordering number when placing your order. Switches employ standard slow-make, slow-break rocker type mechanism with nylon toggles epoxied on to the metal actuator. One hole mounting, one hexagon locknut and one knurled facenut furnished unassembled. **Caution:** These are assembled special order switches as per your requirements. Care is advised in choosing correct part numbers. (*) Indicates momentary operation in that position (spring return).

ONE POLE

SCREW TERMINALS

Type	125 VAC	250 VAC	1-24	25-49	50-99	100-499	Circuit
7590K73XXX	6A	3A	1.89	1.74	1.45	1.31	On-Off
7591K73XXX	6A	3A	2.30	2.12	1.77	1.59	On-Off-On
7592K73XXX	6A	3A	2.30	2.12	1.77	1.59	On-On
7597K73XXX	6A	3A	3.39	3.13	2.61	2.35	On*-Off-On*
7560K73XXX	15A	10A	2.17	2.00	1.67	1.50	On-Off
7562K73XXX	15A	10A	2.72	2.51	2.09	1.89	On-Off-On
7564K73XXX	15A	10A	2.72	2.51	2.09	1.89	On-On
7566K73XXX	15A	10A	3.04	2.81	2.35	2.11	Off-On*

SOLDER LUG TERMINALS

Type	125 VAC	250 VAC	1-24	25-49	50-99	100-499
7590K74XXX	6A	3A	1.49	1.38	1.15	1.04
7591K74XXX	6A	3A	1.70	1.57	1.31	1.18
7592K74XXX	6A	3A	1.70	1.57	1.31	1.18
7597K74XXX	6A	3A	3.24	2.99	2.49	2.25
7561K74XXX	15A	10A	1.79	1.65	1.37	1.24
7563K74XXX	15A	10A	2.17	2.00	1.67	1.50
7565K74XXX	15A	10A	2.17	2.00	1.67	1.50
7566K74XXX	15A	10A	2.65	2.45	2.04	1.84

TWO POLE

SCREW TERMINALS

7590K53XXX	6A	3A	2.22	2.05	1.71	1.54	On-Off
7591K53XXX	6A	3A	2.62	2.42	2.02	1.82	On-Off-On
7592K53XXX	6A	3A	2.62	2.42	2.02	1.82	On-On
7569K53XXX	15A	10A	4.20	3.87	2.10	1.89	*On-Off-On*
7560K53XXX	15A	10A	2.47	2.28	1.90	1.71	On-Off
7562K53XXX	15A	10A	3.03	2.79	2.33	2.10	On-Off-On
7564K53XXX	15A	10A	2.97	2.74	2.28	2.06	On-On
7566K53XXX	15A	10A	3.35	3.09	2.58	2.32	Off-On*

SOLDER LUG TERMINALS

7590K54XXX	6A	3A	1.82	1.68	1.40	1.26
7591K54XXX	6A	3A	2.04	1.88	1.57	1.41
7592K54XXX	6A	3A	2.04	1.88	1.57	1.41
7569K54XXX	15A	10A	3.72	3.44	2.86	2.58
7561K54XXX	15A	10A	2.09	1.93	1.61	1.45
7563K54XXX	15A	10A	2.47	2.28	1.90	1.71
7565K54XXX	15A	10A	2.47	2.28	1.90	1.71
7566K54XXX	15A	10A	2.97	2.74	2.28	2.06

THREE POLE

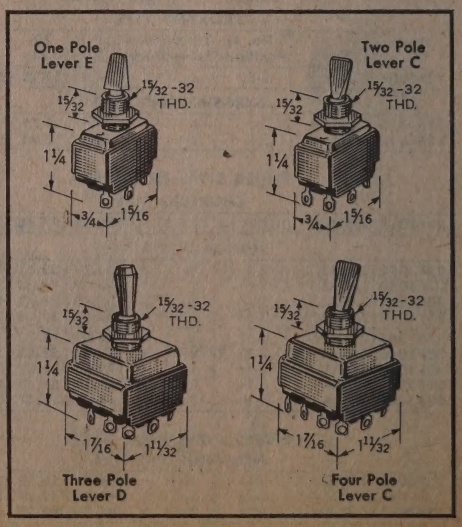
SCREW TERMINALS

7690K73XXX	15A	10A	6.37	5.88	4.90	4.41	On-Off
7692K73XXX	15A	10A	8.00	7.38	6.15	5.54	On-Off-On
7694K73XXX	15A	10A	7.86	7.26	6.05	5.44	On-On

FOUR POLE

SCREW TERMINALS

7692K53XXX	15A	10A	8.31	7.67	6.39	5.75	On-Off-On



OPTIONAL "DESIGNER LINE" FACE NUTS

Switch w/colored Cap Assembled

Knurled

Bevel

Stk. No.	Type	Color	Style	1-24	25-49	50-99	100-499
41F500	15-1048-3	Black	Knrl.	.20	.18	.15	.14
41F501	15-1048-7	Cl. Alum.	Knrl.				
41F504	15-1049-3	Black	Bev.				
41F505	15-1049-7	Cl. Alum.	Bev.				

Switches

CUTLER-HAMMER

WHEN ORDERING SPECIFY

- Catalog number of basic switch followed by suffix numbers and letter for lever color and shape. Example:

SF1SBX197	–1	C	SF1SBX197-1C
↓	↓	↓	↓
Base Switch	Lever Color	Lever Shape	Complete Number

LARGE BUSHING

	A	B	C	D	E
1			.354		
2	.748	.512	.472	.315	.468-32
3			.638		
4			.835		

DESCRIPTION

These are Miniature Toggle switches with "Designer" line levers. They combine the maximum performance charactersitics and small size of Miniature Toggle switches with custom styled operators, available in seven colors.

An assortment of optional knurled and beveled decorator facenuts in a variety of colors are available for the large bushing switches. Mounting hardware, consisting of a locking ring, two hexagon locknuts and an internal tooth lockwasher, are supplied unassembled.

SELECTION TABLE

Nominal Ratings Per Pole (Amperes) 125 V. A-C	28 V. D-C	Circuit Arrangement A B C Keyway on "C" Side of Switch			LARGE BUSHING 0.468 In. Diameter Type	Each
ONE POLE						
5	5	ON	OFF	ON	SF1GBX197	2.81
10	5	ON	NONE	ON	SF1GCY197	2.15
TWO POLE						
5	5	ON	OFF	ON	SF2GBX197	3.47
10	5	ON	NONE	ON	SF2GCY197	2.81
THREE POLE						
5	5	ON	OFF	ON	SF3GBX197	5.26
10	5	ON	NONE	ON	SF3GCY197	4.68
FOUR POLE						
5	5	ON	OFF	ON	SF4GBX197	6.55
10	5	ON	NONE	ON	SF4GCY197	5.89

Lever Color Suffix Number

1 (White) No Price Addition

2 (Red) No Price Addition

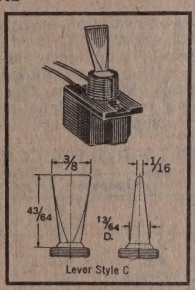
3 (Black) No Price Addition

Lever Shape Suffix Letter

8

AC-DC DESIGNER LINE

Designer line switches employ standard utility mechanism with addition of nylon toggles. Are available in eight styles, and in seven colors on special order. Standard levers C listed below. All are double insulated and feature quick-make, quick-break contact mechanism. Nylon bushing in 15/32"-32, 11/32" long. Furnished with all necessary mounting hardware. Designer line facenuts optional UL and other CSA approved. Note: switches with other than standard bushing length (11/32), for dry circuit applications, with other than listed ampere ratings, terminations, descriptions and colors-available on request.

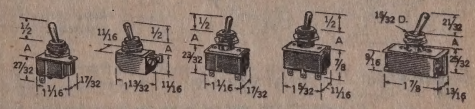


Lever Style C

ONE POLE (ON-OFF)

Stk. No.	Type	125VAC	250VAC	Color	1-24	25-49	50-99	100-499
41F460	8280K21C	.....	3A	White	1.27	1.17	.98	.88
41F461	8280K22C	.....	3A	Red	1.27	1.17	.98	.88
41F463	8280K27C	.....	3A	Black	1.27	1.17	.98	.88
23F450	8381K21C	6A	3A	White	1.25	1.16	.97	.87
23F451	8381K22C	6A	3A	Red	1.25	1.16	.97	.87
23F454	8381K27C	6A	3A	Black	1.25	1.16	.97	.87
ONE POLE (ON-ON)								
23F465	8282K21C	3A	1A	White	1.53	1.41	1.18	1.06
23F466	8282K22C	3A	1A	Red	1.53	1.41	1.18	1.06
23F469	8282K27C	3A	1A	Black	1.53	1.41	1.18	1.06
TWO POLE (ON-OFF)								
23F480	8370K21C	6A	3A	White	2.09	1.93	1.61	1.45
23F481	8370K22C	6A	3A	Red	2.09	1.93	1.61	1.45
23F484	8370K27C	6A	3A	Black	2.09	1.93	1.61	1.45
TWO POLE (ON-ON)								
23F501	8373K21C	6A	3A	White	2.37	2.18	1.82	1.64
23F502	8373K22C	6A	3A	Red	2.37	2.18	1.82	1.64
23F505	8373K27C	6A	3A	Black	2.37	2.18	1.82	1.64

AC-DC QUICK-MAKE, QUICK BREAK



8280 8396 8282 8373 7320

STANDARD DUTY, ONE POLE (ON-OFF)

Stock No.	Type	125V AC-DC	250V AC-DC	Bush Lt.	Term.	1-24	25-49	50-99	100-499
23F385	8280K15	3A	3A	11/32	Solder	1.22	1.13	.94	.85
23F220	8280K16	3A	3A	15/32	Solder	1.22	1.13	.94	.85
23F391	8290K15	3A	3A	11/32	Wire	1.48	1.37	1.14	1.03
23F335	8290K16	3A	3A	15/32	Wire	1.48	1.37	1.14	1.03
23F336	8295K7	3A	3A	11/32	Screw	1.48	1.37	1.14	1.03
23F337	8295K8	3A	3A	15/32	Screw	1.48	1.37	1.14	1.03
41F520	8381K7	6A	3A	11/32	Solder	1.27	1.17	.98	.88
23F221	8381K8	6A	3A	15/32	Solder	1.27	1.17	.98	.88
41F521	8391K7	6A	3A	11/32	Wire	1.50	1.39	1.16	1.04
23F338	8391K8	6A	3A	15/32	Wire	1.50	1.39	1.16	1.04
41F522	8396K7	6A	3A	11/32	Screw	1.50	1.39	1.16	1.04
23F228	8396K8	6A	3A	15/32	Screw	1.50	1.39	1.16	1.04
ONE POLE (ON-ON)									
23F395	8282K13	3A	1A	11/32	Solder	1.55	1.43	1.20	1.08
23F222	8282K14	3A	1A	15/32	Solder	1.55	1.43	1.20	1.08
TWO POLE (ON-OFF)									
23F225	8370K8	6A	3A	11/32	Solder	3.44	2.75	2.41	2.06
23F227	8370K7	6A	3A	15/32	Solder	2.24	2.06	1.72	1.55
23F339	8372K7	6A	3A	15/32	Screw	2.72	2.51	2.10	1.89
41F456	8371K7	6A	3A	15/32	Wire	2.88	2.66	2.22	1.99
TWO POLE (ON-ON)									
23F263	8373K8	6A	3A	11/32	Solder	3.95	3.16	2.77	2.37
23F226	8373K7	6A	3A	15/32	Solder	2.57	2.37	1.98	1.78
23F340	8375K7	6A	3A	15/32	Screw	3.31	3.05	2.55	2.29
41F458	8374K7	6A	3A	15/32	Wire	3.51	3.24	2.70	2.43

HEAVY DUTY

ONE POLE (ON-OFF)

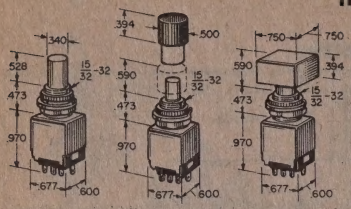
Stk. No.	Type	125	250	Bush Lt.	Term.	1-24	25-49	50-99	100-499
23F252	7321K3	16A	8A	.....	.....	2.27	2.09	1.75	1.57
41F524	7361K5	20A	10A	15/32	Screw	3.80	3.51	2.93	2.63
TWO POLE (ON-ON)									
23F229	8690K2	15A	10A	15/32	Screw	7.55	6.97	5.81	5.23

TWO POLE (ON-OFF)

Stock No.	Type	125V AC-DC	250V AC-DC	Bush Lt.	Term.	1-24	25-49	59-99	100-499
23F250	7320K2	16A	8A	11/32	Screw	2.09	1.93	1.61	1.45
23F251	7320K3	16A	8A	15/32	Screw	2.09	1.93	1.61	1.45
23F270	7360K7	20A	10A	11/32	Screw	3.60	3.32	2.77	2.49
23F253	7360K8	20A	10A	15/32	Screw	3.60	3.32	2.77	2.49
41F527	7402K3	20A	20A	11/32	Screw	4.85	4.48	3.73	3.36
23F255	7402K4	20A	20A	15/32	Screw	4.85	4.48	3.73	3.36

Illuminated Switches

ILLUMINATED PUSHBUTTON SWITCHES



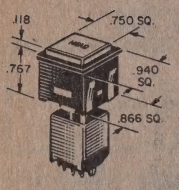
.340" Round | ½" Round | ¾" Square

Two Pole (ON-On) design. Rated 5 amps @ 125 VAC and 28 VDC. Positive detent. Solder lug terminals. Independent lamp circuit. Snap-in bulbs replaceable from front panel. Hardware furnished unassembled. Choice of operator styles and colors. Bushing 15/32"-32 dia. Price listed is for complete unit.

COMBINE FOUR CODES (TEN ALPHA NUMERIC DIGITS) FOR COMPLETE PART NUMBER

Basic Switch		Each		Bulb			Cap Style			Cap Color	
Operation	Code	1-24		Voltage	Code		Style	Code		Color	Code
Momentary	SBIDDX	6.11	+	6	1	+	¾" Square	91	+	White	—1
Push-Push	SBIDEX	6.11		14	2		½" Round	92		Red	—2
				28	4		.340" Round	93		Green	—3
										Amber	—4

ILLUMINATED SNAP-IN PUSHBUTTON SWITCHES



Snap-In Pushbutton Switch

TOP VIEW .750 SQ.

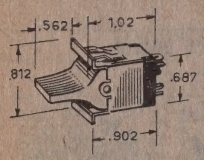
Two Pole, Double Throw design. Rated 5 amps @ 125 VAC and 28 VDC. Positive detent. Solder lug terminals. Incandescent bulbs replaceable from front panel. Hardware furnished unassembled. Choice of operator styles and colors. Independent lamp circuit. Superstructure mounts in .870" sq. panel opening. Bushing 15/32"-32 dia. Price listed is for complete unit.

COMBINE FOUR CODES (TWELVE ALPHA NUMERIC DIGITS) FOR COMPLETE PART NUMBER

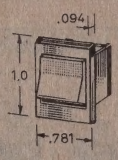
Basic Switch		Each		Bulb			Cap Color			Bezel Color	
Operation	Code	1-24		Voltage	Code		Color	Code		Color	Code
Momentary	SBIDDX	7.38	+	6	1	+	White	91-1	+	White	A1
Push-Push	SBIDEX	7.38		14	2		Red	91-2		Red	A2
				28	4		Green	91-3		Gray	A5
							Amber	91-4		Black	A6

8

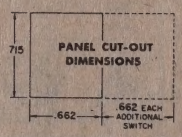
ILLUMINATED SNAP-IN ROCKER SWITCHES



Paddle Operator



Rocker Operator

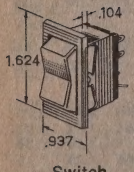


Slow-make, slow-break contact mechanism. Rated 5 amps @ 125 VAC and 28 VDC. Solder lug terminals. Independent lamp circuit. Snap-in bulbs replaceable from front panel. Smooth, polycarbonate resin translucent rocker or paddle operators and indicator light lenses. Mounts in .040-.120 with bezel. Nylon bezels snap over metal mounting flanges of switch or indicator light. Price listed is for complete unit. (*) Momentary.

COMBINE FOUR CODES (ELEVEN ALPHA NUMERIC DIGITS) FOR COMPLETE PART NUMBER

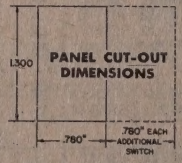
Basic Switch		Each		Bulb			Operators (select only one)					Bezel	
Circuit	Code	1-24		Voltage	Code		Color	Rocker Code		Paddle Code		Color	Code
On-Off-On	SC2BX	5.36		6	E1		White	91		81		White	—91
On.....On	SC2CX	5.36		12	M1		Red	92	OR	82		Red	—92
On*.....On	SC2GX	5.50	+	18	J1	+	Green	93		83	+	Green	—93
On*-Off-On	SC2FX	5.50		24	K1		Amber	94		84		Amber	—94
On*-Off-On*	SC2JX	5.50		28	L1		Black	96		86		Black	—96
							Blue	97		87		Blue	—97
							Yellow	98		88		Yellow	—98

DUAL-LIGHT, SNAP-IN ROCKER SWITCHES



Switch

Lamp with Bulb Color Filter Cap. Assembled.



Recommended Panel Thickness .040-.120 with Bezel.(See layout for placement.)

Two Pole Double Throw. Solder lug terminals. Bulbs electrically independent of switch circuit. Can also be wired in parallel with load to indicate operation. Removable rocker for front of panel bulb replacement. Color coded bulb filter caps provide even dispersion of color over entire rocker face when illuminated. Designed for installation in .040-.150" thick panels. Rated 10 Amps @ 125 VAC, 6 Amps @ 250 VAC, and 5 Amps @ 28 VDC. Price listed is for complete unit. (*) Momentary.

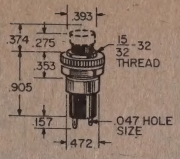
Basic Switch		Each		Two Bulbs			Bulb Caps			Bezel	
Circuit	Code	1-24		Voltage	Code		Color	Code		Color	Code
ON-Off-On	SC5DBP	8.78		6	19		None	1-9		White	A1
On.....On	SC5DCP	8.12		14	29		1 Red	1-2		Red	A2
On-Off-On*	SC5DFP	9.63		18	39		2 Red	1-12		Green	A3
On.....On*	SC5DGP	9.63	+	28	59	+	1 Green	1-3	+	Amber	A4
On*-Off-On*	SC5DHP	9.63					2 Green	1-13		Gray	A5
							1 Amber	1-4		Black	A6
							2 Amber	1-14			
							Green/Red	1-5			
							Red/Amber	1-6			
							Green/Amber	1-7			

Call your nearest Newark facility for quantity pricing

Cutler-Hammer Switches

ROUND BASE PUSHBUTTON SWITCHES

These miniature switches feature low operating force, less than 2 lbs. Contact rated for 3 Amps at 125 VAC and 28 VDC. 15/32" dia. bushing with .328" round black operating button, optional cap below. Mounting hardware includes hexagon facenut and knurled facenut. Solder lug terminals.



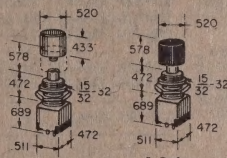
Stock No.	Type	Operation	1-24	25-49	50-99	100-249
67F1789	SA25SAT1	N.O. Momentary	1.49	1.11	1.00	.93
67F1790	SA25SBT1	N.C. Momentary	1.49	1.11	1.00	.93
67F1791	SA25SCT1	Push On-Push Off	1.82	1.35	1.22	1.13

ACCESSORY ROUND BASE CAPS

Stock No.	Type	Color	1-24	25-49	50-99	100-249
67F1792	SW53AA31	White	.09	.07	.06	.06
67F1793	SW53AA32	Red				
67F1794	SW53AA33	Black				
67F1795	SW53AA34	Blue				
67F1796	SW53AA35	Yellow				
67F1797	SW53AA36	Green				
67F1798	SW53AA37	Amber				
67F1799	SW53AA38	Gray				

MINIATURE LARGE BUSHING SWITCHES

Same as Standard line except 15/32" bushing diameter and .520" diameter plastic operator caps. Combine behind-the-panel space saving features of Standard line with front-of-panel appearance of regular full size switch. Mounting hardware furnished unassembled. **Screw on caps must be ordered below, .520" diameter.**



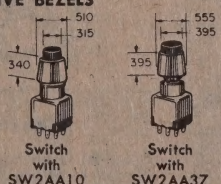
Stock No.	Type	No. of Poles	Circuit	1-24	25-49	50-99	100-249
67F1695	SA21GDX1	1	Momentary	2.86	2.12	1.92	1.78
67F1696	SA21GEX1	1	Push-Push	2.86	2.12	1.92	1.78
67F1697	SA22GDX1	2	Momentary	3.85	2.85	2.58	2.39
67F1698	SA22GEX1	2	Push-Push	3.85	2.85	2.58	2.39

SCREW-ON CAPS

Stock No.	Type	Color	1-24	25-49	50-99	100-249
67F1726	SW53AA81	White	.17	.13	.12	.11
67F1727	SW53AA82	Red				
67F1728	SW53AA83	Black				
67F1729	SW53AA84	Blue				
67F1730	SW53AA85	Yellow				
67F1731	SW53AA86	Green				
67F1732	SW53AA87	Amber				
67F1733	SW53AA88	Gray				

PUSHBUTTON DECORATIVE BEZELS

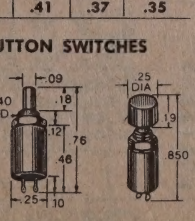
Decorative mounting bezel for 1/4 inch bushing switches. Bright nickel plated. Bezels slip over pushbuttons providing an attractive front-of-panel appearance. Also serve as button shroud. SW2AA10 .335" high, .512" outside diameter. SW2AA37. .393" high, .551" outside diameter.



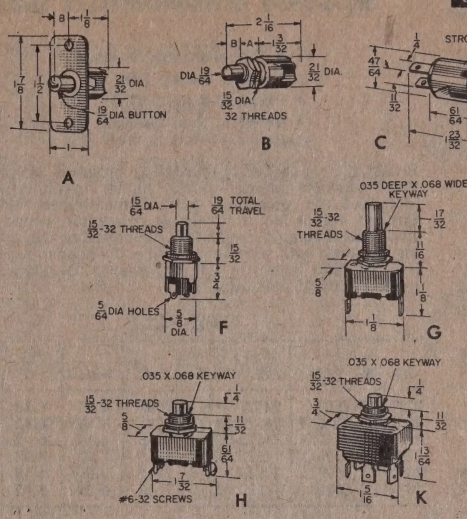
Stock No.	Type	Button Diameter	1-24	25-49	50-99	100-249
67F1699	SW2AA10	.315"	.39	.29	.27	.25
67F1700	SW2AA37	.394"	.55	.41	.37	.35

ULTRA-ULTRA-MINIATURE PUSHBUTTON SWITCHES

Round base. Rated .750 Amps, 125 VAC with normally open contacts; .50 Amps, 125 VAC with normally closed contacts. Gold plated contacts. Nickel plated brass case. Thermosetting plastic base. Molded nylon operator button and button cap. Terminal to terminal and terminal to case voltage breakdown rating of 1000 VAC.



Stock No.	Type	Button Color	Normal Circuit	1-24	25-49	50-99	100-249
41F574	SA1RV20	Red	NO	1.35	1.00	.91	.84
41F577	SA1BW20	Black	NC	1.35	1.00	.91	.84



Quick-made, Quick-break, "tease-proof" mechanism. Hexagon locknut, knurled facenut furnished unassembled. Visible metal parts bright nickel plated.

One Pole—Momentary—Normally Open

Stock No.	Type	Fig.	Rating 125V	Rating 250V	Button Color	Terms.	1-24	25-49	50-99	100-499
41F608	8410K3	A	3/4 A	1/4 A	Black	Screw	1.20	1.11	.92	.69
23F260	8411K11	B	3/4 A	1/4 A	Black	Spade	.84	.78	.65	.49
23F439	8411K12	B	3/4 A	1/4 A	Black	Screw	.99	.92	.76	.57
23F359	8411K13	B	3/4 A	1/4 A	Red	Spade	.84	.78	.65	.48
67F1618	8424K1	C	3/4 A	1/4 A	White	Spade	.85	.78	.65	.48

One Pole—Momentary—Normally Closed

67F1620	8410K1	A	3/4 A	1/4 A	Black	Screw	1.20	1.11	.92	.69
23F440	8411K7	B	3/4 A	1/4 A	Black	Screw	.99	.92	.76	.57
23F261	8411K8	B	3/4 A	1/4 A	Black	S. Lug	.84	.78	.65	.48
67F1621	8423K1	C	3/4 A	1/4 A	White	Spade	.84	.78	.65	.46

One Pole—Push On/Push Off

67F1622	7206K4	.	6A	3A	Nickel	S. Lug	1.84	1.70	1.42	1.04
67F1623	7207K4	.	6A	3A	Nickel	Wires	2.10	1.94	1.62	1.19
23F364	7208K4	.	6A	3A	Nickel	Screw	2.10	1.94	1.62	1.19

AC PUSHBUTTON SWITCHES

Slow-make, Slow-break momentary contact mechanism. Bright nickel plated button. Mounting hardware furnished unassembled. 15/32" diameter bushing.

One Pole—Normally Open

Stock No.	Type	Fig.	Rating 125V	Rating 250V	125V 250V	Terms.	1-24	25-49	50-99	100-499
23F262	8440K2	F	3A			S. Lug.	2.04	1.88	1.57	.96
23F441	8440K3	F	3A			Screw	2.18	2.01	1.68	1.11
67F1624	8442K2	G	6A	3A		Spade	1.47	1.36	1.13	.93
23F360	8442K4	H	6A	3A		Screw	1.68	1.55	1.29	1.05
67F1625	8444K2	G	15A	10A	1/3 HP	Spade	1.62	1.49	.81	1.02
23F443	8444K3	G	15A	10A	1/3 HP	Screw	1.81	1.67	1.39	1.14
23F361	8444K4	H	15A	10A	1/3 HP	Screw	1.81	1.67	1.39	1.14

One Pole—Double Throw

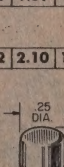
41F609	8446K2	G	15A	10A	1/2 HP	Screw	2.07	1.91	1.59	1.30

Two Pole—Normally Open

23F362	8448K2	K	15A	10A	.....	Screw	2.73	2.52	2.10	1.63

OPTIONAL SLIP-ON CAPS

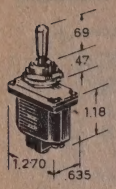
These optional caps slip onto the ultra-ultra-miniature switches listed above. Round cap instead of the button type shaft on the switch.



Stock No.	Type	Button Color	1-24	25-49	50-99	100-249
41F578	SW53AA1	Red	.15	.12	.11	.10
41F579	SW53AA2	Black	.15	.12	.11	.10

Cutler-Hammer Military Switches

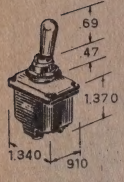
MIL-S-3950 ENVIRONMENTALLY SEALED



One Pole

- **Patented Sealing Process**
- **Positive Detent Feel**
- **Rated 20 A at 28 VDC**
- **Rated 15 A at 115 VAC**

Brown base has patented sealing process. Molding material provides greater safety, higher ignition time and increased arc resistance under contaminated conditions. Positive detent feel and reliable momentary return action. Improved dielectric capability. Simplified wiring and bussing together with excellent sealing in medium-range pricing. Current rating is 20 amperes at 28 VDC and 15 amperes at 115 VAC resistive.



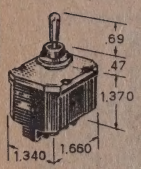
Two Pole

ONE POLE

Stk. No.	Type	Gov't MS. No.	Key	1-9	10-24	25-49	50-99
23F1077	8500K1	24523-21	A	7.65	6.89	6.12	5.36
23F1078	8500K9	24523-22	B	7.65	6.89	6.12	5.36
23F1079	8500K4	24523-23	C	7.65	6.89	6.12	5.36
23F1080	8500K7	24523-28	K	8.85	7.97	7.08	6.20
23F1081	8500K2	24523-27	F	7.65	6.89	6.12	5.36
23F1082	8500K11	24523-30	I	7.65	6.89	6.12	5.36

TWO POLE

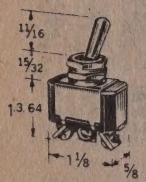
23F1083	8501K1	24524-21	A				
23F1084	8501K9	24524-22	B				
23F1085	8501K4	24524-23	C	10.35	9.32	8.28	7.25
23F1087	8501K5	24524-26	E				
23F1088	8501K2	24524-27	F				
23F1089	8501K3	24524-31	J				
23F1090	8504K6	24659-23D	N	16.00	14.40	12.80	11.20



Four Pole

FOUR POLE

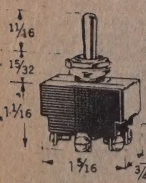
23F1091	8502K1	24525-21	A				
23F1093	8502K4	24525-23	C	16.35	14.72	13.08	11.45
23F1094	8502K5	24525-26	D				
23F1096	8502K3	24525-31	J				
23F1097	8505K6	24660-23D	N	22.05	19.85	17.64	15.44



One Pole

MIL-S-83731 STANDARD LEVER SEALED

Employs a rocker-type contact mechanism, has silicone rubber lever seal assembled between the lever and the bushing to stop contaminants. Hot tin-dipped screw terminals (to facilitate soldering when used as lug). Positive snap-acting rocker type movable contactor assembly. Phenolic and metal housing. Rated 20 amps at 28 VDC, 10 amps at 115 VAC.



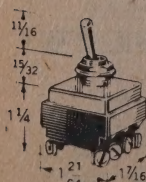
Two Pole

ONE POLE

Stock No.	Type	Gov't MS No.	Key	1-9	10-24	25-49	50-99
23F307	8800K16	35058-21	A	4.08	3.83	3.57	3.06
23F300	8801K22	35058-22	B	3.68	3.45	3.22	2.76
23F306	8810K15	35058-23	C	4.08	3.83	3.57	3.06
23F301	8801K23	35058-24	D	3.68	3.45	3.22	2.76
23F309	8812K14	35058-27	F	4.52	4.24	3.96	3.39
23F305	8811K17	35058-30	I	4.00	3.75	3.50	3.00

TWO POLE

23F316	8820K16	35059-21	A	5.72	5.36	5.01	4.29
23F311	8822K20	35059-22	B	5.24	4.91	4.59	3.93
23F315	8824K14	35059-23	C	5.72	5.36	5.01	4.29
23F312	8822K21	35059-24	D	5.24	4.91	4.59	3.93
41F646	8830K13	35059-26	E	7.28	6.83	6.37	5.46
23F317	8834K5	35059-27	F	7.56	7.09	6.62	5.67
23F318	8832K6	35059-31	J	7.12	6.68	6.23	5.34



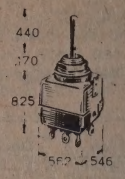
Four Pole

FOUR POLE

41F650	7662K7	25068-21	A	11.60	10.88	10.15	8.70
23F319	7664K5	25068-23	C	11.60	10.88	10.15	8.70

MIL-S-8834 MINIATURE LEVER SWITCHES

One Pole



Two Pole

Miniature size switches are completely "tease-proof". Enclosed in nylon-filled molding and stainless steel housing. Bushing size: ¼-40 thread, .170" long. Toggle size: 440 mounting; one facenut, internal tooth lock washer and silicone "O" ring panel seal. Lever seal withstands 15 feet of water pressure. Rating and description same as 8834B switches .75x.56x.35".

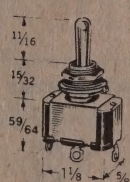
ONE POLE

Stock No.	Type	Gov't MS. No.	Key	1-9	10-24	25-49	50-99
23F327	8866K1	24655-211	A				
23F330	8866K7	24655-221	B	9.56	8.96	8.37	7.17
23F329	8866K4	24655-231	C				
23F328	8866K2	24655-271	F	10.36	9.71	9.07	7.77
23F449	8866K6	24655-281	L				
23F494	8866K8	...	K	10.88	10.20	9.52	8.16

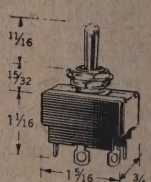
TWO POLE

23F331	8867K1	24656-211	A				
23F334	8867K7	24656-221	B	11.64	10.91	10.19	8.73
23F333	8867K4	24656-231	C				
23F499	8867K5	24656-241	D				
23F332	8867K2	24656-271	F	12.92	12.11	11.31	9.69
23F497	8867K6	24656-281	L				
23F495	8867K3	24656-311	J				
23F498	8867K8	...	K	13.68	12.83	11.97	10.26

JAN-S-23 SEALED SWITCHES



One Pole



Two Pole

JAN-S-23 is an original switch specification; latest specification is MIL-S-3950C which should be used whenever possible. New numbers are shown in "Cross Reference." All have solder lug terminals and are sealed.
*Unsealed

ONE POLE

Stock No.	Type	Jan #	Cross to MS 3950	Key	1-9	10-24	25-49	50-99
23F200	8803K10	ST42A	35058-22	B	3.60	3.38	3.15	2.70
23F201	8816K9	ST42D	35058-23	C	4.00	3.75	3.50	3.00
23F203	8805K9	ST42F	35058-26	E	4.40	4.13	3.85	3.30
23F204	8818K9	ST42G	35058-27	F	4.16	3.90	3.64	3.12

TWO POLE

23F210	8823K6	ST52K	35059-22	B	5.24	4.91	4.59	3.93
23F211	8825K6	ST52N	35059-23	C	5.24	4.91	4.59	3.93
23F212	8821K6	ST52P	35059-21	A	5.40	5.06	4.73	4.05
23F217	8835K3*	ST52S	35059-27	F	7.00	6.56	6.13	5.25
41F656	8835K4	ST52S	35059-27	F	7.20	6.75	6.30	5.40

Cutler-Hammer Military Switches

MIL-S-8834 MINIATURE LARGE LEVER

One Pole

Two Pole

Mechanism similar to standard size positive action switches. Gold-plated contacts with wiping action. Gold-plated terminals are potted. All levers are sealed. Size: SP, .562x.354x.706"; DP, .562x.556x.706". Rated 5 amps at 28 VDC 400Hz 2 amps at 60 Hz 3 amps at 115 VAC resistive load. With 2 locknuts, lockwasher, locking ring.

ONE-POLE

Stock No.	Type	Gov't MS No.	Key	1-24	25-49	50-99	249
23F781	8868K1	90310-211	A	10.00	9.38	8.75	7.50
23F274	8868K7	90310-221	B				
23F784	8868K4	90310-231	C				
23F785	8868K5	90310-241	D	10.80	10.13	9.45	8.10
23F782	8868K2	90310-271	F				
23F786	8868K6	90310-281	L				
23F783	8868K3	90310-311	J				
23F787	8868K8	90310-321	K	11.28	10.58	9.87	8.46

TWO-POLE

23F788	8869K1	90311-211	A	12.32	11.55	10.78	9.24
23F794	8869K7	90311-221	B				
23F791	8869K4	90311-231	C				
23F792	8869K5	90311-241	D	13.60	12.75	11.90	10.20
23F789	8869K2	90311-271	F				
23F793	8869K6	90311-281	L				
23F790	8869K3	90311-311	J				
23F795	8869K8	90311-321	K	14.08	13.20	12.32	10.56

MILITARY SWITCH SEALS

A B C D

Meet MIL-B-5423. Grey silicone rubber seals make switches watertight, dustproof. Install easily to provide vibration-resistant seal. Designed for operating temperatures between -160°F and +500°F.

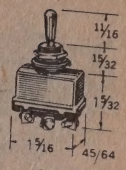
Stk. No.	Type	Size	Fig.	MIL-B-5423	1-99	100-249	250-999
41F629	SW1AN1030	15/32-32	B	1-A1	1.01	.99	.78
41F630	SW1BN1030	15/32-32	A	2-A3	1.01	.99	.78
41F631	SW1LN5030	1/4-40	B	5-A71	1.41	1.41	1.01
41F632	SW1BN5032	1/4-40	A	11-A8	1.41	1.41	1.01
41F633	SW1AN3030	15/32-32 5/16	C	7-B21	.91	.89	.72
41F634	SW1NC3030	15/32-32 7/16	C	7-B22	.91	.89	.72
41F635	SW1AN9060-14	15/32-32	D	9-C6	1.59	1.49	1.11
41F636	SW1AN9030-14	3/8-32	D	9-C2	.84	.84	.66
41F637	SW1AN9040-18	1/4-32	D	9-C4	.87	.87	.70
41F639	SW1RC3030-1	15/32-32	C	RF1	3.00	3.00	2.34
41F640	SW1RN9030-14	3/8-32	D	RF1	1.86	1.82	1.53

For All Your Industrial Electronic Needs Whether Listed Or Not Write Or Call Your Nearest NEWARK Facility

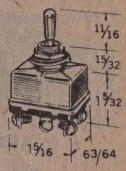
MIL-S-8834 POSITIVE ACTION

- **Environmentally Sealed**
- **"Tease Proof" Action**
- **Positive Make and Break Action**
- **Wiping Action for Good Contact**
- **Rugged Nylon and Brass or Stainless Housing**

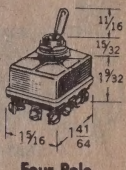
Nylon parts provide high arc-tracking resistance and excellent recovery voltage characteristics. 25A @ 28VDC, 20A @ 115VAC.



One Pole



Two Pole



Four Pole

ONE-POLE

Stock No.	Type	Gov't MS No.	Key	1-9	10-24	25-49	50-99
23F650	8836K1	25306-212	A	21.20	19.88	18.55	15.90
23F658	8836K9	25306-222	B	20.80	19.50	18.20	15.60
23F653	8836K4	25306-232	C	21.20	19.88	18.55	15.90
23F655	8836K6	25306-242	D	21.20	19.88	18.55	15.90
23F1073	8836K2	25306-272	F	22.00	20.63	19.25	16.50
23F660	8836K11	25306-302	I	21.20	19.88	18.55	15.90

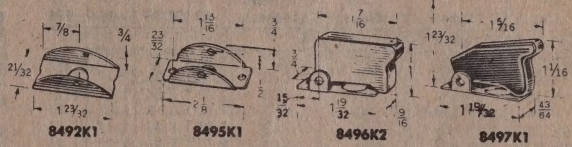
TWO-POLE

23F661	8837K1	25307-212	A	27.20	25.50	23.80	20.40
23F669	8837K9	25307-222	B	27.00	25.31	23.63	20.25
23F664	8837K4	25307-232	C	27.20	25.50	23.80	20.40
23F666	8837K6	25307-242	D	27.40	25.69	23.98	20.55
23F1074	8837K5	25307-262	E	28.40	26.63	24.85	21.30
23F662	8837K2	25307-272	F	28.40	26.63	24.85	21.30

FOUR-POLE

23F672	8838K1	25308-212	A	45.60	42.75	39.90	34.20
23F680	8838K9	25308-222	B	44.00	41.25	38.50	33.00
23F675	8838K4	25308-232	C	45.60	42.75	39.90	34.20

MILITARY SWITCH GUARDS



8492K1 8495K1 8496K2 8497K1

Type 8495. Switch guards are for two screw flush mounted switches. They can be used to prevent accidental operation of the switch lever by inserting a pin through the holes provided in the side brackets. With a pin in place across the guard, single pole switches are locked in position and double pole switches will operate from the first position to the second position, but not to the extreme position. The guard is black enamel metal.

Type 8492K1. The same as the 8495 guard except for its use on one hole mounting switches.

Type 8496. For three position switches. Pushing the guard down returns the switch lever to the "center" position from either the up or down positions. These guards are available in red or black phenolic with black enamel flush plate.

Type 8497. Designed for use with single throw switches. The switch can only be operated when the guard is up. Returning the guard to the down position forces the switch lever to the "off" position. Available in red or green phenolic with a black enamel plate.

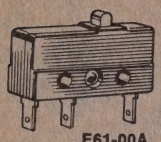
Stock No.	Type	MS Type	Color	Mtg.	Material	1-9	10-24	25-49	50-99
41F675	8497K2	MS25224-2	Red	Flush	Phenolic	4.80	4.50	4.20	3.60
41F676	8495K1	MS25221-1	Blk	Flush	Metal	4.56	4.28	3.99	3.42
23F145	8497K1	MS25224-1	Red	OHM	Phenolic	4.80	4.50	4.20	3.60
41F678	8497K3	MS25224-3	Red	OHM	Phenolic	4.80	4.50	4.20	3.60
23F140	8492K1	MS24417-1	Blk	OHM	Metal	2.04	1.91	1.79	1.53

LEVER TRAVEL CHART OHM

Key	Up Position	Center Position	Down Position (Keyway)
A	ON	OFF	ON
B	ON	NONE	OFF
C	ON	NONE	ON
D	ON	OFF	NONE
E	ON	NONE	ON*
F	ON*	OFF	ON*
G	ON*	OFF	ON
H	ON	NONE	OFF
I	OFF	NONE	ON*
J	ON	OFF	ON*
K	NONE	ON	ON*
L	NONE	OFF	ON*
M	ON-	—OFF—	-ON
N	ON-	NONE	-ON

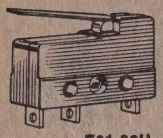
*Momentary — Direction in which lever is locked

SERIES E61 & E62 SUBMINIATURE



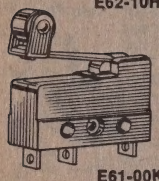
E61-00A

E62-10A



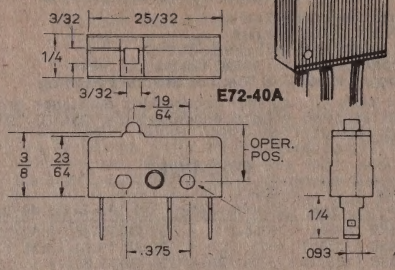
E61-00H

E62-10H



E61-00K

E62-10K

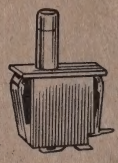


- **Long Life Coil Spring Mechanism**
- **Large Overtravel**
- **Rock Wipe Contact Action**
- **Integral Hinged Actuator**
- **Small Compact Size**

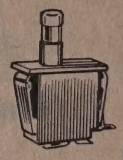
Subminiature SPDT snap-action switches with phenolic case. Coil-spring mechanism. Rock-wipe contact action. Large overtravel: Wear-resistant acetal button. Light-force versions rated 5 amps at 125/250 VAC; standard-force versions, 10.1 amps at 125/250 VAC; ¼ hp at 125 VAC. .093" QC terminals standard; (*) short solder terminals. Size: 25/32" x 23/64" x ¼". **Series E72** is sealed, watertight, weatherproof version of **E62:** same specs and rating.

Stk. No.	Type	Max. Op. Force (Gms.)	Minimum Overtravel (Inches)	EACH 1-49	50-99	100-499	500-999
SERIES E61—LIGHT FORCE—5 AMPS							
29F2908	E61-00A	90	.035	1.59	1.17	1.01	.91
29F2909	E61-00H	24	.040	1.85	1.36	1.17	1.06
29F2910	E61-00K	26	.030	2.11	1.54	1.33	1.21
29F2911	E61-10A*	90	.035	1.59	1.17	1.01	.91
29F2912	E61-10H*	24	.040	1.85	1.36	1.17	1.06
29F2913	E61-10K	26	.030	2.11	1.54	1.33	1.21
SERIES E62—STANDARD FORCE—10.1 AMPS							
29F2914	E62-00A	90	.035	1.59	1.17	1.01	.91
29F2915	E62-00H	24	.040	1.85	1.36	1.17	1.06
29F2916	E62-00K	26	.030	2.11	1.54	1.33	1.21
29F2917	E62-10A*	90	.035	1.59	1.17	1.01	.91
29F2918	E62-10K*	26	.030	2.11	1.54	1.33	1.21
SERIES E72—SEALED STD. FORCE—10.1 AMPS							
29F2922	E72-40A	10	.035	3.15	2.30	1.99	1.80

PANEL-MOUNT PUSHBUTTON SNAP ACTION SWITCHES

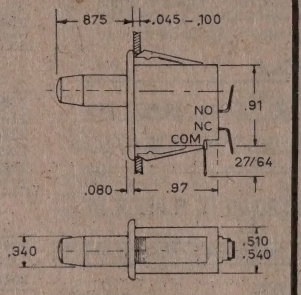


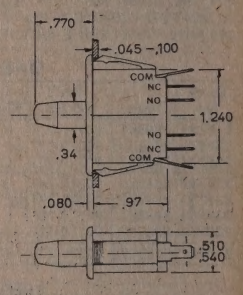
E69-00A



E69-30A

E79-30A



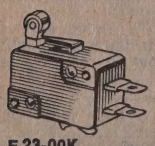


Series E69 and E79. Rating 10 amp, ⅓ h.p. at 125/250 VAC. Quick connect terminals .187"x.020". Snap-in panel-mount switches. Coil spring snap-action mechanism. Rock-wipe contact action. White nylon case, white acetal button, brass terminals, beryllium copper moving blade, stainless steel coil spring, silver-cadmium contacts. UL listed, CSA approved. **E69** is SPDT version. Size 1¼x1x1 1/16". **E79** is DPDT version. Size: 1½x1x 1 1/16".

Action: All momentary except for those with additional "cheat" interlock feature indicated with (*).

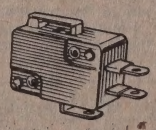
Stk. No.	Type	Max. Op. Force (Ozs.)	Minimum Overtravel (Ins.)	EACH 1-49	50-99	100-249	250-999
29F2920	E69-00A	15	.375	1.39	1.02	.88	.80
29F2921	E69-30A	15 (10*)	.100 (.050*)	1.84	1.35	1.16	1.05
29F2923	E79-30A	26 (20*)	.100 (.050*)	3.44	2.52	2.17	1.97

MINIATURE SNAP-ACTION SWITCHES—STANDARD AND LIGHT FORCE



E23-00K

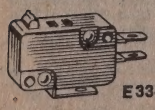
E33-00K



E23-00A

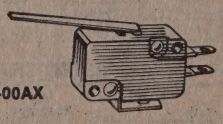
E33-00A

E34-00A



E33-00H

E22-00AX

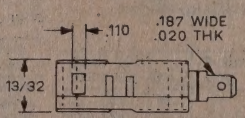


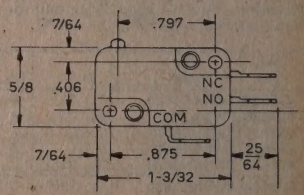
E22-50HX

- **Standard and Light Force**
- **Wide Rounded Wear Resistant Button**
- **UL Listed—CSA Approved**

Miniature SPDT snap-action switches with phenolic case. Coil spring mechanism. Rock-wipe contact action. Large overtravel. Wide, rounded wear-resistant acetal resin button. Integral hinged lever and roller actuators in 2 pivot positions. Contact ratings from 3 to 15 amps. .187 QC terminals standard. Size: 1 3/32"l.x1 3/32w.x5/8"h.

Series E22 Force: 75 gms. max...Rating 3A @ 125 VAC.
Series E23 Force: 170 gms. max...Rating: 5A @ 125/250 VAC, ¼ hp.
Series E33 Force: 285 gms. max...Rating: 10A @ 125/250 VAC, ½ hp.
Series E34 Force: 400 gms. max...Rating: 15A @ 125/250 VAC, ½ hp.



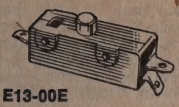


Stk. No.	Type	Max. Op. Force (Gms.)	Min. Overtrv. (Ins.)	Actr. Lgth. (Ins.)	EACH 1-49	50-99	100-499	500-999
29F2887	E22-00AX	15	.050	...	1.39	1.02	.88	.80
29F2888	E22-50HX	8	.090	1 13/32	1.58	1.16	1.00	.91
29F2889	E22-55HX	3½	.187	2¾	1.65	1.21	1.04	.95
29F2890	E22-85HX	2	.312	2.932	1.65	1.21	1.04	.95
29F2891	E23-00A	170	.050	...	1.04	.76	.66	.60
29F2892	E23-00K	170	.040	13/16"	1.47	1.08	.93	.84
29F2893	E23-50K	86	.085	1 11/32	1.47	1.08	.93	.84
29F2898	E33-85HX	10	.312	2.932	1.40	1.03	.89	.80
29F2894	E33-00A	285	.050	...	1.08	.79	.68	.62
29F2895	E33-00K	285	.040	13/16	1.48	1.08	.94	.85
29F2896	E33-50H	144	.090	1 13/32	1.23	.90	.78	.71
29F2897	E33-50K	144	.085	1 11/32	1.48	1.08	.94	.85
29F2899	E34-00A	400	.050	...	1.08	.79	.68	.62

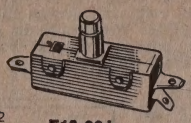
Snap-Action Switches

CHERRY

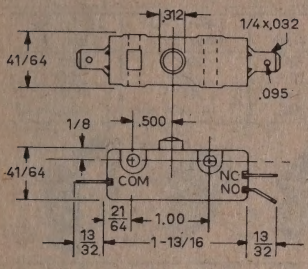
GENERAL-PURPOSE SNAP ACTION SWITCHES

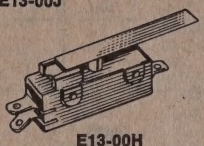


E13-00E

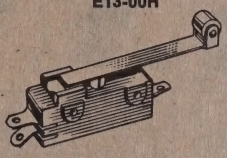


E13-00J





E13-00H



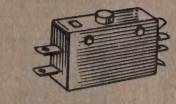
E13-00K

- **Large Overtravel**
- **Long Life Coil Spring Mechanism**
- **Wear Resistant Nylon Button**

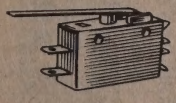
SPDT snap-action switches with phenolic case. Coil spring mechanism. Rock-wipe contact action. Silver-cadmium oxidized contacts. ¼" Quick Connect terminals. UL listed. CSA approved.

Stk. No.	Type	Description	EACH 1-49	50-99	100-499	500-999
29F2875	E13-00E	Button	1.06	.78	.67	.61
29F2876	E13-00H	1½" Actr, Std. Ratio	1.53	1.12	.97	.88
29F2877	E13-00J	Button, Ferrule Mtg.	1.20	.88	.76	.69
29F2878	E13-00K	1⅜" Roller Actr, Std. Ratio	1.92	1.41	1.21	1.10
29F2879	E13-00M	Button, Ferrule Mtg. Hi Overtravel	1.48	1.08	.94	.85

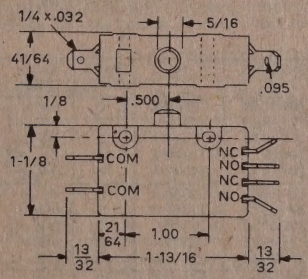
DOUBLE POLE STANDARD SNAP ACTION SWITCHES



E19-00A



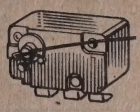
E19-00H



DPDT standard switches with contacts rated at 15 amps at 125/250 VAC; ¾ hp at 125 VAC; 1½ hp at 250 VAC. Standard ¼" Quick Disconnect terminals. Switch Body: 1 13/16"x1 1/8"x41/64". **E19-00A:** Button. **E19-00H:** 1½" Actuator, standard ratio. **E19-50H:** 1¾" Actuator, high ratio. **E19-00M:** Button; Ferrule mounting, high overtravel.

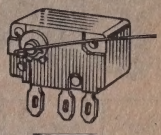
Stk. No.	Type	Max. Op. Force (Ozs.)	Minimum Overtravel (Ins.)	EACH 1-49	50-99	100-499	500-999
29F2881	E19-00A	30	.080	2.31	1.69	1.46	1.32
29F2882	E19-00H	7	.187	2.57	1.88	1.62	1.47
29F2883	E19-00M	30	.218	2.70	1.98	1.71	1.54
29F2884	E19-50H	4½	.187	2.57	1.88	1.62	1.47

LOW TORQUE SNAP ACTION SWITCHES

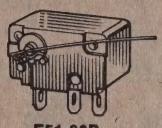


E51-00B

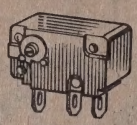
E51-00E



E51-50B

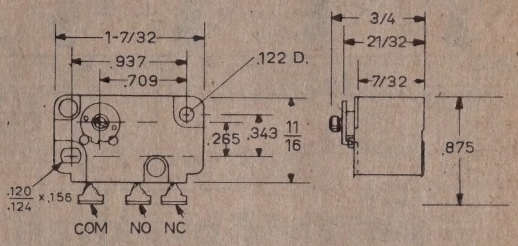


E51-60B



E51-60E

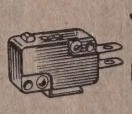
- **Low Torque Rotary Actuation**
- **Double Rivet Sturdy Case Construction**
- **Combination QC and Solder Terminals**



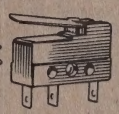
Clockwise (CW) or counter-clockwise (CCW) actuation. Gold-flashed silver-cadmium oxidized SPDT contacts, rated 5 amps at 125/250 VAC. Wireform actuators supplied; unassembled. Terminals available in standard/parallel, vertical/twist and vertical/straight.

Stk. No.	Type	Actn.	Terminals	EACH 1-49	50-99	100-499	500-999
29F2900	E51-00B	CW	.205", std./par.				
29F2901	E51-00E	CCW	.205", std./par.				
29F2902	E51-00R	CW	.187", std./par.				
29F2903	E51-00T	CCW	.187", std./par.	**3.27**	**2.39**	**2.06**	**1.87**
29F2904	E51-50B	CW	.205", vert./twist				
29F2905	E51-50R	CW	.187", vert./twist				
29F2906	E51-60B	CW	.205", vert./str.				
29F2907	E51-60E	CCW	.205", vert./str.				

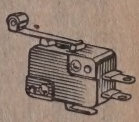
LOW ENERGY SNAP ACTION SWITCHES



E21-00A



E21-50K

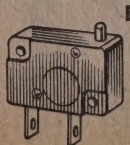


E63-00H

QC gold crosspoint SPDT contacts rated 0.1 amp at 125 VAC.

Stk. No.	Type	Description	EACH 1-49	50-99	100-499	500-999
29F2885	E21-00A	Button	2.03	1.49	1.28	1.16
29F2886	E21-50K	1 11/32" Roller Actr, Std. Ratio	2.47	1.81	1.56	1.41
29F2919	E63-00H	9/32" Actr, Std. Ratio	2.78	2.03	1.76	1.59

ENCLOSED SINGLE-THROW SNAP ACTION SWITCHES



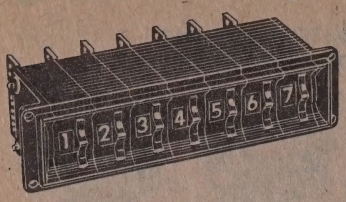
Model E18-00M. SPST switch with light force and large overtravel. Solderable QC ¼" terminals. Switch body: 1⅛"x47/64"x7/16". Contacts: Normally Open. Rating: 3¼ amps at 125 VAC.

29F2880. NET.....1.40

8

CHERRY

Leverwheel and Thumbwheel Switches



T-Series indicates thumbwheel switch, **L-Series** indicates Leverwheel switch. **T-50 Series** rated at 50 volts @ .125 amp., 3 amps. carrying current. All other switches rated at 28 volts @ .125 amp., 3 amps. carrying current. Contact resistance .1 ohm max. Insulation resistance: 1000M ohms. Dielectric strength: (50, 65 and 71 Series) 500 volt AC; (10, 11 and 20 Series) 1000 volts AC. Switch life: 1 x 10^6 operations at nominal load. Switch operating force: 7-10 oz. Weight: ¾ oz. per module (except T-50 which is 1/6 oz. per module. **Type 71** has an integral bezel and requires no hardware. (#) Available in either gloss black finish—suffix A or matte black finish—suffix M.

Type	Bk. Mnt.	Frt. Mnt.	Width	2-8-10 Pos. Char. Ht.	12-16 Pos. Char. Ht.
T10	*		.500	.250″	.170″
L10	*		.500	.150″	——
T11		*	.500	.250″	.170″
L11		*	.500	.150″	——
T20	*		.500	.200″	.110″

Type	Bk. Mnt.	Frt. Mnt.	Width	2-8-10 Pos. Char. Ht.	12-16 Pos. Char. Ht.
L20	*		.500	.200″	.160″
T50	*		.315	.158″	.100″
T65		*	.315	.200″	.110″
T71		*	.315	——	——

T-10

L-10

T-11

L-11

T-20

L-20

T-50

T-65

T-71

Suffix No.	Description	Positions	Read-out	T-10	L-10	T-11	L-11	T-20	L-20	T-50	T-65	T-71
—01	Decimal	10	0-9	T10-01A	L10-01A	T11-01A	.....	T20-01A#	L20-01A	T50-01M	T65-01A	T71-01A
—02	BCD	10	0-9	T10-02A	L10-02A	T11-02A	L11-02A	T20-02A#	L20-02A#	T50-02M	T65-02A	.....
—03	Hex	16	0-15	T10-03A	.....	T11-03A	.....	T20-03A	.....	.....	T65-03A	.....
—04	BCD & Comp.*	10	0-9	T10-04A	.....	T11-04A	L11-04A	T20-04A	L20-04A	T60-04M	T65-04A	.....
—07	BCO	8	0-7	.....	.....	.....	.....	T10-07A#	L20-07A	.....	.....	.....
—08	Hex & Comp.*	16	0-15	.....	.....	.....	.....	T20-08A	.....	.....	.....	.....
—09	Hex & Comp.†	16	0-15	.....	.....	.....	.....	T20-09A	.....	.....	.....	.....
—11	Double Pole Decimal	10	0-9	T10-11A	.....	.....	.....	.....	.....	.....	.....	.....
—12	BCD Comp. Only	10	0-9	.....	.....	.....	.....	T20-12A	L20-12A#	T50-12M	.....	.....
—13	Hex	16	0-9, A-F	T10-13A	.....	.....	.....	T20-13A	.....	.....	T65-13A	.....
—15	BCD w/Sep. C to False bits	10	0-9	.....	.....	T11-13A	.....	T20-15A	L20-15A#	.....	.....	.....
—20	Decimal	12	0-11	.....	.....	.....	.....	.....	L20-20A	.....	.....	.....
—52	BCD w/Diode Provisions	10	0-9	.....	.....	.....	.....	T20-52A	L20-52A	T60-52M	.....	.....
—54	BCD & Comp., w/Diode provision*	10	0-9	.....	.....	.....	.....	T20-54A	.....	.....	.....	.....
—65	Kelvin-Varley Volt. Divider	10	0-9	.....	.....	.....	.....	T20-65A	.....	.....	.....	.....
—67	1-2-2-2-2 Res. Decade	10	0-9	.....	.....	.....	.....	T20-67A	.....	.....	.....	.....
—88	Hex & Comp.*	16	0-9, A-F	.....	.....	.....	.....	T20-88A	.....	.....	.....	.....
—89	Hex. & Comp.†	16	0-9, A-F	.....	.....	.....	.....	T20-89A	.....	.....	.....	.....
—94	Single Pole Repeating	2	-†	.....	.....	.....	.....	T20-94A	L20-94A	.....	.....	.....
—95	Single Pole Repeating	2	0-1	.....	.....	.....	.....	T20-95A	.....	.....	.....	.....

(*) 1 Common. (†) 2 Commons.

8

ORDERING INFORMATION

First letter indicates type of switch; **T**-Thumbwheel type and **L**-Leverwheel type. Description No. selected depends on application of switch located in chart above. Finish is either **A** (gloss black) or **M** (matt black). # indicates available in either A or M finish.

T10 - 03 - A

SERIES — DESCRIPTION — FINISH

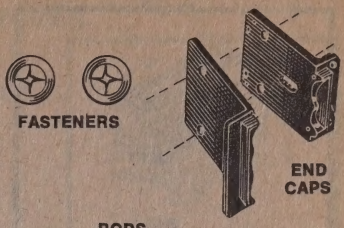
A — GLOSS FINISH
M — MATT FINISH

Stock No.	Type	Positions	Read-out	1-49	50-99	100-199
29F2946	T10-01A	10	0-9	5.00	4.00	3.75
29F2947	T10-02A	10	0-9	5.00	4.00	3.75
29F2948	T10-03A	16	0-15	9.00	7.20	6.75
29F2949	T10-04A	10	0-9	8.50	6.80	6.38
29F2950	T10-11A	10	0-9	7.85	6.28	5.89
29F2951	T10-13A	16	0-9, A-F	9.10	7.28	6.83
29F2930	L10-01A	10	0-9	5.50	4.40	4.13
29F2931	L10-02A	10	0-9	5.50	4.40	4.13
29F2952	T11-01A	10	0-9	4.90	3.92	3.68
29F2953	T11-02A	10	0-9	4.90	3.92	3.68
29F2954	T11-03A	16	0-15	9.10	7.28	6.83
29F2955	T11-04A	10	0-9	8.30	6.64	6.23
29F2956	T11-13A	16	0-9, A-F	9.10	7.28	6.83
29F2932	L11-02A	10	0-9	5.50	4.40	4.13
29F2933	L11-04A	10	0-9	8.40	6.72	6.30
29F2957	T20-01A	10	0-9	4.30	3.44	3.23
29F2975	T20-01M	10	0-9	4.60	3.68	3.45
29F2958	T20-02A	10	0-9	4.30	3.44	3.23
29F2976	T20-02M	10	0-9	4.60	3.68	3.45
29F2959	T20-03A	16	0-15	7.00	5.60	5.25
29F2960	T20-04A	10	0-9	6.00	4.80	4.50
29F2961	T20-07A	8	0-7	4.50	3.60	3.38
29F2977	T20-07M	8	0-7	4.80	3.84	3.60
29F2962	T20-08A	16	0-9	8.10	6.48	6.08
29F2963	T20-09A	16	0-15	9.00	7.20	6.75
29F2964	T20-12A	10	0-9	5.00	4.00	3.75
29F2965	T20-13A	16	0-9, A-F	7.00	5.60	5.25
29F2966	T20-15A	10	0-9,	6.85	5.48	5.14
29F2967	T20-52A	10	0-9	5.40	4.32	4.05

Stock No.	Type	Positions	Read-out	1-49	50-99	100-199
29F2968	T20-54A	10	0-9	7.00	5.60	5.25
29F2969	T20-65A	10	0-9	6.50	5.20	4.88
29F2970	T20-67A	10	0-9	6.50	5.20	4.88
29F2971	T20-88A	16	0-9, A-F	8.10	6.48	6.08
29F2972	T20-89A	16	0-9, A-F	9.30	7.44	6.98
29F2973	T20-94A	2	-†	4.30	3.44	3.23
29F2974	T20-95A	2	0-1	4.30	3.44	3.23
29F2934	L20-01A	10	0-9	5.40	4.32	4.05
29F2935	L20-02A	10	0-9	5.40	4.32	4.05
29F2943	L20-02M	10	0-9	5.70	4.56	4.28
29F2936	L20-04A	10	0-9	6.50	5.20	4.88
29F2937	L20-07A	16	0-7	5.40	4.32	4.05
29F2938	L20-12A	10	0-9	5.90	4.72	4.43
29F2944	L20-12M	10	0-9	6.20	4.96	4.65
29F2939	L20-15A	10	0-9	9.20	7.36	6.90
29F2945	L20-15M	10	0-9	9.50	7.60	7.13
29F2940	L20-20A	12	0-11	5.40	4.32	4.05
29F2941	L20-52A	10	0-9	6.50	5.20	4.88
29F2942	L20-94A	2	0-1	5.40	4.32	4.05
29F2978	T50-01M	10	0-9	3.80	3.04	2.85
29F2979	T50-02M	10	0-9	3.80	3.04	2.85
29F2980	T50-04M	10	0-9	4.70	3.76	3.53
29F2981	T50-12M	12	0-9	4.90	3.92	3.68
29F2982	T50-52M	10	0-9	4.50	3.60	3.38
29F2983	T65-01A	10	0-9	3.00	2.40	2.25
29F2984	T65-02A	10	0-9	3.00	2.40	2.25
29F2985	T65-03A	16	0-15	5.50	4.40	4.13
29F2986	T65-04A	10	0-9	4.00	3.20	3.00
29F2987	T65-13A	16	0-9, A-F	5.50	4.40	4.13
29F2988	T71-01A	10	0-9	3.00	2.40	2.25

Leverwheel/Thumbwheel Hardware

Assembly of Thumbwheel and Leverwheel switches requires the assembly hardware listed below. Order by Type No. of switch and number of switches in unit. Stop Pins are used to limit wheel rotation.



STOP PINS

Stk. No.	For Series	Type	Each
29F3046	T20/T50	607-0011	.05
29F3048	T65	607-0017	.05

FASTENERS

Stk. No.	For Series	Type	Each
29F3003	L20/T20 T50/T65	12-0744	.02
29F3004	T10/L10 T11/L11	12-0093	.03

RODS

Description	Stk. No.	T10/L10 T11/L11	Each	Stk. No.	T20/L20	Each	Stk. No.	T50	Each	Stk. No.	T65	Each
1 Module	29F3006	12-0147		29F3022	12-0340		29F3028	12-0640		29F3034	12-0450	
2 Module	29F3007	12-0148		29F2023	12-0341		29F3029	12-0641		29F3035	12-0451	
3 Module	29F3008	12-0149		29F3024	12-0342		29F3030	12-0642		29F3036	12-0452	
4 Module	29F3009	12-0150	.19	29F3025	12-0343	.11	29F3031	12-0643	.11	29F3037	12-0453	.11
5 Module	29F3020	12-0151		29F3026	12-0344		29F3032	12-0644		29F3038	12-0454	
6 Module	29F3021	12-0152		29F3027	12-0345		29F3033	12-0645		29F3039	12-0455	

END CAPS

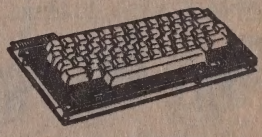
Description	Stk. No.	T10/L10	Each	Stk. No.	T11/L11	Each	Stk. No.	T20/L20	Each	Stk. No.	T50	Stk. No.	T65	Each
Left Gloss	29F2997	09-0498		29F2999	09-0496		29F2996	09-1034		.....	.....	29F3002	609-0810	
Right Gloss	29F2998	09-0499	.35	29F3000	09-0497	.35	29F2996	09-1034		.....	.....	29F3002	609-0810	
Left Matte	29F2940	09-0705		29F3042	09-0719		29F3044	09-1153		.....	.....	29F3045	09-1691	
Right Matte	29F2941	09-0706		29F3043	09-0720		29F3044	09-1153	.35	.....	.....	29F3045	09-1691	.35
Left Matte 8MM	.....	.....		.....	.....		.....	.....		29F3001	609-0970	.....	.....	
Right Matte 8MM	.....	.....		.....	.....		.....	.....		29F3001	609-0970	.....	.....	

8

Keyboards and Keyboard Switches

B80-31AA
TRI MODE 66 KEY
ASCII in Housing

B70-54AA
QUAD MODE 53 KEY
ASCII in Housing



B70-4753
QUAD MODE 53 KEY
ASCII (ASR 33) w/o Housing

Model B70-60AA comes with stepped keys (10°), remainder are sloped at the angle of the panel. Encoded boards have 7 data bits; ASR-33 type keyboards have 4 modes, ASCII have 3 modes. 2-key roller and logic data resting high are standard features. Type TTL components used in all keyboards. Power Requirements: 5V, 350 ma. Drive Capability: 10 standard TTL loads. Utilizes same switch modules as listed below. Gold crosspoint contacts standard. Keyboards not temperature or humidity sensitive.

KEYBOARD SPECIFICATIONS

Cherry Part No.	Key Legend Format Similar to	No. of Keys	Sloped or Stepped	Housing	Code	No. of Modes	Strobe Goes	Logic
B70-4753	ASR-33	53	SL	NO	SPECIAL	4	HIGH	POS
B70-54AA	ASR-33	53	SL	YES	SPECIAL	4	HIGH	POS
B70-60AA	ASR-33	53	ST	NO	SPECIAL	4	HIGH	POS
B80-3766	ASCII TRI-MODE	66	SL	NO	ASCII	3	LOW	NEG
B80-31AA	ASCII TRI-MODE	66	SL	YES	ASCII	3	LOW	NEG
B65-1712	3 x 4	12	SL	NO	NONE	—	—	—
B65-1716	4 x 4	16	SL	NO	NONE	—	—	—

Stk. No.	Type	1-9	10-249
29F2991	B70-4753	105.00	85.00
29F2992	B70-54AA	160.00	140.00
29F2993	B70-60AA	105.00	85.00
29F2994	B80-3766	110.00	90.00

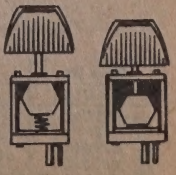
Stk. No.	Type	1-9	10-249
29F2995	B80-31AA	165.00	145.00
29F2989	B65-1712	31.00	21.00
29F2990	B65-1716	37.00	27.00

KEYBOARD SWITCHES

Stk. No.	Type	Contacts	Oper. Force (oz.)	1-49	50-99	100-499
29F2926	M61-0120	SPST-NO	2½	1.40	1.03	.89
29F2927	M61-0800	SPST-(Alt.)	2½	2.23	1.63	1.41
29F2928	M62-0100	DPST-NO	2½	1.97	1.44	1.25
29r2929	M62-0900	SPST-NO/SPST-NC	3½	2.17	1.59	1.37
29F2924	M41-0103*	SPST-NO	2½	2.37	1.73	1.50

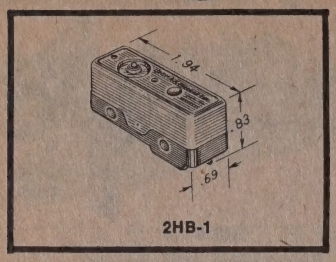
* Lighted switch requires standard T-1 type bulb.

Pretravel: .085" ±.03", total travel is .160" ±.020". Key module case material is Thermoplastic nylon. External terminals are tin plated brass alloy. Contacts are W/E #1 Alloy (69% gold, 25% silver, 6% platinum). Contacts rated at 28 volts max. .125 amp. max. switching current, .5 amp. max. carrying current. DC resistive: 3 watts max.; AC resistive 3 VA max. Initial contact resistance: 200 milliohms max., 25 milliohms typical.

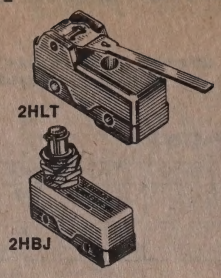


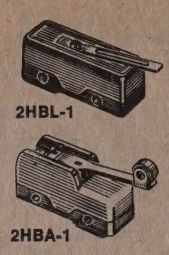
Unimax Switch

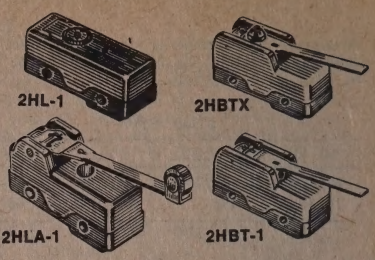
Snap-Action Switches



2HB-1





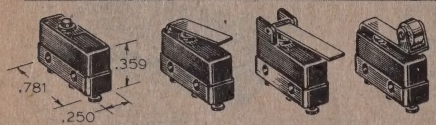


PRECISION BASIC TYPE SWITCHES

Pin actuator. Used in applications requiring minimum pre-travel and over-travel, with moderate operating force. 20 amps 125/250/480 VAC. ½ amp, 125 VDC. ¼ amp, 250 VDC. UL and CSA listed. Double-throw. Mounting holes will accept .139″ dia. max. on 1.0″ centers ±.002″. **Suffix —1:** solder lug terminals of tinned copper, recessed between molded ribs that provide increased creep-distance. **Suffix —5:** screw terminals widely spaced on a stepped base, with #6-32 binding-head screws and cup washers facing bottom.

2HB. Basic type. **2HBL.** Leaf-spring actuator. Moderate over-travel. **2HBJ.** Large plunger actuator. Long over-travel. Single hole panel mounting. **2HBT.** Rigid lever actuator. Low operating force. Long over-travel. **2HBTX.** Permits operating point to be precisely adjusted from the top after switch is installed. **2HBA.** Rolling contact with actuating device. Long over-travel. Low operating force. **2HL.** Heavy duty. **2HLA.** Rolling contact. Long over-travel. Low operating force. **2HLT.** Rigid lever actuator. Low operating force. Long over-travel.

Stock No.	Type	Operate Force Ounces	Release Force Ounces	Movement Differential Inches	Pretravel Inches	Total Overtravel Inches	Contact Separation Inches	1-9	10-19	20-49	50-99
07F041	2HB-1	9 to 13	4 min.	.0004-.002	.020	.005	.020	2.80	2.52	2.24	1.96
07F042	2HB-5	9 to 13	4 min.	.0004-.002	.020	.005	.020	3.05	2.75	2.44	2.14
07F043	2HBL-1	5 max.	.5 min.	.050 max.	.156	.062	.020	3.00	2.70	2.40	.....
07F045	2HBJ-5	9 to 13	4 min.	.0004-.002	.020	.219	.020	6.40	5.76	5.12	4.48
07F046	2HBT-1	1 to 2.5	.5	.078 max.	.125-.375	.188	.020	3.85	3.47	3.08	2.70
07F047	2HBT-5	1 to 2.5	.5	.078 max.	.125-.375	.188	.020	3.90	3.51	3.12	2.73
07F048	2HBTX-1	2 max.	.25	.031 max.	.05-.187	.093	.020	4.65	4.19	3.72	3.26
07F049	2HBTX-5	2 max.	.25	.031 max.	.05-.187	.093	.020	4.85	4.37	3.88	3.40
07F050	2HBA-1	1 to 3.5	.75	.062 max.	.094-.313	.156	.020	4.70	4.23	3.76	3.29
07F051	2HBA-5	1 to 3.5	.75	.062 max.	.094-.313	.156	.020	4.85	4.37	3.88	3.40
07F053	2HLT-5	2.5 max.	.5 min.	.109 max.	.59	.078	.025	3.95	3.56	3.16	2.77
07F054	2HLA-1	2.5 max.	.5 min.	.085 max.	.56	.062	.025	5.15	4.64	4.12	3.61
07F055	2HLA-5	2.5 max.	.5 min	.085 max.	.56	.062	.025	5.00	4.50	4.00	3.50

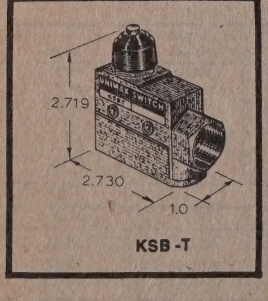


2LM-C 2LML-C 2LMT-C 2LMW-C

SUBMINIATURE SWITCHES

Provide reliable switching in limited space. **2LM-C.** Pin type switch. 5 amps 250 VAC. **2LML-E.** Integral leaf actuator for long over-travel. Solder lug terminals. **5LMI-E.** Integral roller leaf actuator. Long over-travel. Rolling contact with the operating device. **2LMW-E.** Integral roller leaf actuator. Long over-travel. Rolling contact with the operating device. **2LMT-C.** Integral rigid lever actuator. Low force and low differential motion.

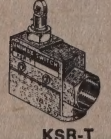
Stock No.	Type	Operate Force Ounces	Release Force Ounces	Movement Differential Inches	Pretravel Inches	Overtravel Inches	1-9	10-19	20-49	50-99
07F059	2LM-C	5 max.	1 min.	.004 max.	.030	.005	1.75	1.58	1.40	1.23
07F060	2LMW-C	6 max.	.5 min.	.031 max.	.094	.047	3.00	2.70	2.40	2.10
07F062	2LML-C	6 max.	.5 min.	.031 max.	.094	.047	2.50	2.25	2.00	1.75
07F063	2LMT-C	40 max.	7 min.	.019 max.	.085	.020	2.00	1.80	1.60	1.40



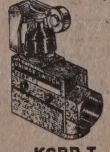
KSB-T

METAL-CASED KS SERIES SNAP-ACTION SWITCHES

EASY WIRING SWITCHES


KSR-T

KSJ-T


KSBP-T

KSJP-T

TC-2

Precision switches combine 20 amp basic switches with sturdy die-cast aluminum housings for maximum ease in mounting and wiring. Switch can be mounted flat with style T housing or upright with style F housing. Conduit-hub has ½-14 NPSM internal thread. Hex shape facilitates installation. Two part housing separates so screw terminals of basic switch are fully accessible. 20 amps, 125/250/480 VAC. ½ amp, 125 VDC. ¼ amp 250 VDC. **Type KSB.** Sealed plunger for long overtravel applications. Switch protected against dirt and splashable liquids. **Type KSB15.** Semi-rigid rod actuator. Allows lateral application of operating force from any direction. **Type KSJ.** Plain plunger for long overtravel where operating force is applied in line with plunger. **Type KSR.** Roller plunger for use with cams or slides that move in same plane as length of switch. **Type KSBP.** Roller lever actuator with sealed plunger for slide or cam operation. Adjustable vertically. Can be rotated horizontally. **Type KSJP.** Actuator without sealing boot. **Type KSBN.** Spring loaded roller arm permits non-operate return stroke of sliding cam. Lever adjustable vertically. Can be rotated horizontally. **Type TC.** Switch and terminal enclosure.

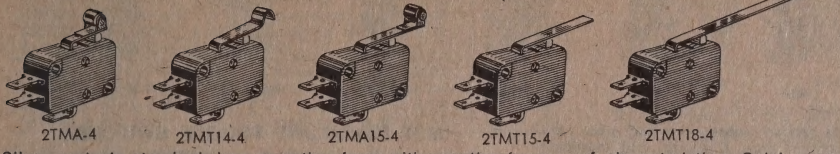
Stock No.	Type	Operating Force Ounces	Release Force Ounces	Differential Motion Inches	Pretravel Inches	Total Overtravel Inches	Contact Separation Inches	1-9	10-19	20-49	50-99
07F013	KSB-T	9 to 24	4 min.	.002 max.	.078 max.	.219	.020	11.10	9.99	8.88	7.77
07F017	KSJ-T	9 to 13	4 min.	.002 max.	.020 max.	.219	.020	8.60	7.74	6.88	6.02
07F019	KSR-T	9 to 13	4 min.	.002 max.	.020 max.	.140	.020	14.55	13.10	11.64	10.19
07F021	KSBP-T	10 to 20	6 min.	.006 max.	.188 max.	.219	.020	16.55	14.90	13.24	11.59
07F023	KSJP-T	10 to 18	6 min.	.006 max.	.188 max.	.219	.020	14.55	13.10	11.64	10.19
07F026	TC-2	Thru bolt mounting enclosure						3.55	3.20	2.84	2.49

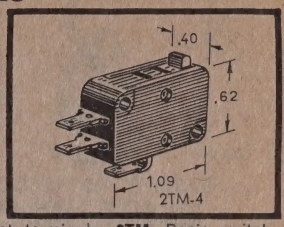
Snap-Action Switches

Unimax Switch

GENERAL PURPOSE MINIATURE SWITCHES

SERIES TM BASIC TYPES

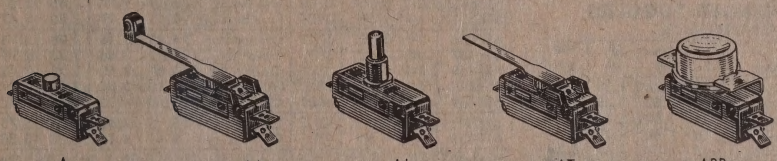


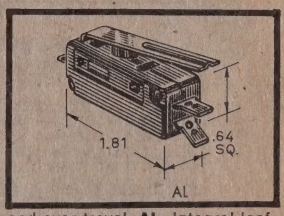


Silver contacts standard. Low operating force with negative force gradient (overtravel forces less than operating forces). Long life-molded in overtravel stop limits button movement preventing over-stressing and severe shock loading of the blade. Mounting holes independent of cover, giving improved electrical insulation and high case (mounting) strength. Simplified one-piece blade design ensures reliability. Two lever pivot locations afford wide selection of characteristics. Quick connect terminals. **2TM.** Basic switch. **2TMA.** Short roller lever. **2TMA15.** Standard roller lever. Low motion lever position. **2TMT15.** Standard lever. Low motion lever position. **2TMT14.** Simulated roller. **2TMT18.** Extra long lever. Electrical Ratings: 10 amps—250 VAC, ½ amp—125 VAC, ¼ amp—250 VDC, ⅓ HP—125/250 VDC.

Stock No.	Type	Operate Force Grams	Movement Differential Inches	Pretravel Inches	Total Overtravel Inches	1-49	50-99	100-499
07F028	2TM-4	75 max.	.013 max.	.056 max.	.040	1.15	.84	.73
07F029	2TMA-4	90 max.	.013 max.	.420 max.	.040	1.60	1.17	1.01
07F030	2TMT15-4	45 max.	.032 max.	.160 max.	.075	1.30	.95	.82
07F031	2TMA15-4	45 max.	.030 max.	.160 max.	.065	1.60	1.17	1.01
07F032	2TMT14-4	50 max.	.050 max.	.140 max.	.060	1.35	.99	.86
07F033	2TMT18-4	15 max.	.078 max.	.375 max.	.160	1.35	.99	.86

SERIES A GENERAL PURPOSE



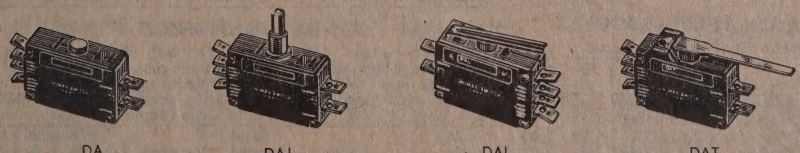


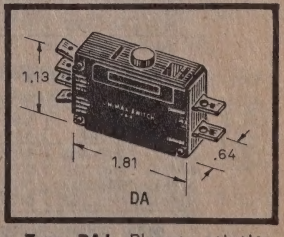
Fully enclosed, high performance, low cost, snap-acting switches with quick connect terminals integral with stationary contacts and spring mechanism. High strength. Low heating. Overlap construction where switch halves meet provide excellent resistance to dirt, dust and moisture. 15 amps 125/250 VAC. ¾ Hp 125 VAC. 1½ Hp 250 VAC. UL and CSA listed.

A. Button actuator. Moderate pre- and over-travel. **AL.** Integral leaf actuator. Moderate overtravel. Light operating force. **AT.** Hinged lever actuator integral with switch. Very light operating force with long overtravel. **AA.** Hinged roller lever actuator. Rolling contact with actuating device. **AJ.** Plunger actuator. Threaded bushing. **ABB.** Red push button actuator. **ABB1.** Black push button actuator.

Stock No.	Type	Operate Force Ounces	Release Force Ounces	Movement Differential Inches	Pre-travel Inches	Total Overtravel Inches	Contact Separation Inches	1-49	50-99	100-499
07F034	A	20 max.	3 min.	.010 max.	.050	.050	.020	1.05	.77	.67
07F035	AL	12 max.	1 min.	.093 max.	.281	.062	.020	1.20	.88	.76
07F036	AT	4 max.	.5 min.	.062 max.	.250	.187	.020	1.45	1.06	.92
07F037	AA	4 max.	.5 min.	.062 max.	.250	.187	.020	1.85	1.35	1.17
07F038	AJ	20 max.	3 min.	.010 max.	.050	.187	.020	1.45	1.06	.92
07F039	ABB	20 max.	3 min.	.010 max.	.050	.050	.020	1.65	1.21	1.04
07F040	ABB1	20 max.	3 min.	.010 max.	.050	.050	.020	1.65	1.21	1.04

SERIES DA GENERAL PURPOSE





Provides convenient double-pole double-throw switching or operation of two independent single-pole double-throw switches by the same actuating button. Poles can be arranged to operate in sequence. Quick connect terminals integral with stationary contacts and spring mechanism. Overlap construction. 15 amps 125/250 VAC. ¾ hp, 125 VAC. 1½ hp, 250 VAC. UL and CSA listed. Resistant to dust and moisture.

Type DA. Push button actuator. **Type DAJ.** Plunger actuator. Threaded bushing for panel mounting. Actuator provides long overtravel. **Type DAL.** Integral leaf actuator with moderate overtravel and light operating force. **Type DAT.** Hinged lever actuator that is integral part of switch. Provides very light operating force with long overtravel. Note: Mounting holes accept .139 dia. max. on 1.0″ ±.002″ centers.

Stock No.	Type	Operate Force Ounces Max.	Release Force Ounces Max.	Movement Differential in Max. per Pole	Pretravel Inches Max. First Pole	Total Overtravel Inches Second Pole	Contact Separation Inches Min.	1-49	50-99	100-499
07F001	DA	30	6	.010	.050	.050	.020	2.25	1.65	1.42
07F002	DAJ	30	6	.010	.050	.187	.020	2.65	1.94	1.67
07F003	DAL	18	2	.090	.281	.062	.020	2.35	1.72	1.49
07F004	DAT	6	1	.062	.250	.187	.020	2.50	1.83	1.58

ALCOSWITCH Subminiature Toggle Switches

MST

MTF

MTB

MTA

MTA-PC

MTA-WW

MTE

Have molded-in terminals to prevent solder, flux and other contaminants from entering contact area. Contacts and terminals have gold finish. Green diallyl phthalate case All types have ¼"-40 high torque bushings except **MTG Series** has $^{15}/_{32}$"-32 bushings. Rated 6 amps @ 125VAC, 3 amps @ 250VAC.

MTA MINIATURE TOGGLES WITH PC AND WIRE WRAP TERMINALS

PC terms: 0.250" long. WW type: 0.031" x 0.050" x 0.740" long.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F792	MTA-106D-PC	SPDT	On-none-on	2.05	1.54	1.39	1.29
61F793	MTA-106E-PC	SPDT	On-off-on	2.50	1.88	1.70	1.58
61F794	MTA-106F-PC	SPDT	On-none-on†	2.55	1.91	1.73	1.61
61F795	MTA-206N-PC	DPDT	On-none-on	2.85	2.14	1.94	1.80
61F796	MTA-206P-PC	DPDT	On-off-on	3.30	2.48	2.24	2.08
61F797	MTA-206R-PC	DPDT	On-none-on†	3.35	2.51	2.28	2.11
61F798	MTA-106D-WW	SPDT	On-none-on	2.25	1.69	1.53	1.42
61F799	MTA-206N-WW	DPDT	On-none-on	3.20	2.40	2.18	2.02

(†) denotes Momentary positions.

8

MTA MINIATURE BAT HANDLE TOGGLES

Solder Terminals accept two #20 AWG wires.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F1245	MTA-106D	SPDT	On-none-on	1.95	1.46	1.33	1.23
61F1246	MTA-106E	SPDT	On-off-on	2.40	1.80	1.63	1.51
61F800	MTA-106F	SPDT	On-none-on†	2.45	1.84	1.67	1.54
61F801	MTA-106G	SPDT	On-off-on†	2.45	1.84	1.67	1.54
61F802	MTA-106H	SPDT	On-off-on†	2.45	1.84	1.67	1.54
61F1247	MTA-206N	DPDT	On-none-on	2.65	1.99	1.80	1.67
61F1248	MTA-206P	DPDT	On-off-on	3.10	2.33	2.11	1.95
61F803	MTA-206R	DPDT	On-none-on†	3.15	2.36	2.14	1.98
61F804	MTA-206S	DPDT	On-off-on†	3.15	2.36	2.14	1.98
61F805	MTA-206T	DPDT	On-off-on†	3.15	2.36	2.14	1.98
61F1249	MTA-206PA	DPDT	On-on-on	3.45	2.59	2.35	2.17
61F1250	MTA-306D	3PDT	On-none-on	4.50	3.38	3.06	2.84
61F1251	MTA-306E	3PDT	On-off-on	4.90	3.68	3.33	3.09
61F1252	MTA-406N	4PDT	On-none-on	5.70	4.28	3.88	3.59
61F1253	MTA-406P	4PDT	On-off-on	6.15	4.61	4.18	3.87

(†) denotes Momentary positions.

MTF MINIATURE FLAT HANDLE TOGGLES

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F806	MTF-106D	SPDT	On-none-on	2.50	1.88	1.70	1.58
61F807	MTF-106E	SPDT	On-off-on	2.90	2.18	1.97	1.83
61F808	MTF-106G	SPDT	On-off-on†	2.95	2.21	2.01	1.86
61F809	MTF-206N	DPDT	On-none-on	3.20	2.40	2.18	2.02
61F810	MTF-206P	DPDT	On-off-on	3.60	2.70	2.45	2.27
61F811	MTF-206R	DPDT	On-none-on†	3.65	2.74	2.48	2.30
61F812	MTF-306D	3PDT	On-none-on	5.00	3.75	3.40	3.15

(†) denotes Momentary

MTB MINIATURE BATON LEVER TOGGLES

0.6" long baton with black plastic tip. Solder lug terms.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F813	MTB-106D	SPDT	On-none-on	2.15	1.61	1.46	1.35
61F814	MTB-106E	SPDT	On-off-on	2.55	1.91	1.73	1.61
61F815	MTB-206N	DPDT	On-none-on	2.85	2.14	1.94	1.80
61F816	MTB-206P	DPDT	On-off-on	3.25	2.44	2.21	2.05

MTE MINIATURE WATERPROOF TOGGLES

Bat Handle. "O" ring seals inside bushing. Solder lug terms.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F871	MTE-106D	SPDT	On-none-on	2.60	1.95	1.77	1.64
61F872	MTE-106E	SPDT	On-off-on	3.00	2.25	2.04	1.89
61F817	MTE-106F	SPDT	On-none-on†	3.05	2.29	2.07	1.92
61F873	MTE-206N	DPDT	On-none-on	3.30	2.48	2.24	2.08
61F874	MTE-206P	DPDT	On-off-on	3.70	2.78	2.52	2.33
61F875	MTE-206PA	DPDT*	On-on-on	4.05	3.04	2.75	2.55
61F818	MTE-206R	DPDT	On-none-on†	3.75	2.81	2.55	2.36
61F876	MTE-306D	3PDT	On-none-on	5.10	3.83	3.47	3.21
61F877	MTE-306E	3PDT	On-off-on	5.50	4.13	3.74	3.47
61F878	MTE-406N	4PDT	On-none-on	6.30	4.73	4.28	3.97
61F879	MTE-406P	4PDT	On-off-on	6.75	5.06	4.59	4.25

(†) denotes Momentary, (*) denotes useable as SP3T

MST MINIATURE TOGGLE SWITCHES

Contact rating for silver is 5A @ 125VAC or 3A @ 250VAC; for gold contacts: 0.4VA, max, or 20 volts AC/DC. Case material is black DAP resin. Initial contact resistance is 10 milliohms, max. with silver or gold plated, suffix G1: gold; Suffix PC: silver; contacts. Dielectric strength is 1 kV RMS at sea level.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F854	MST-105D	SPDT	On-none-on	1.90	1.43	1.29	1.20
61F855	MST-105E	SPDT	On-off-on	2.30	1.73	1.56	1.45
61F856	MST-105F	SPDT	None-on-on†	2.35	1.76	1.60	1.48
61F857	MST-105G	SPDT	On†-off-on†	2.35	1.76	1.60	1.48
61F858	MST-105H	SPDT	On-off-on†	2.35	1.76	1.60	1.48
61F850	MST-115D	SPDT	On-none-on*	1.95	1.46	1.33	1.23
61F859	MST-205N	DPDT	On-none-on	2.60	1.95	1.77	1.64
61F860	MST-205P	DPDT	On-off-on	3.00	2.25	2.04	1.89
61F864	MST-205PA	DPDT	On-on-on	3.30	2.48	2.24	2.08
61F861	MST-205R	DPDT	None-on-on†	3.05	2.29	2.07	1.92
61F862	MST-205S	DPDT	On†-off-on†	3.05	2.29	2.07	1.92
61F1184	MST-205SA	DPDT	On†-on-on†	3.60	2.70	2.45	2.27
61F863	MST-205T	DPDT	On-off-on†	3.05	2.29	2.07	1.92
61F865	MST-205TA	DPDT	On-on-on†	3.60	2.70	2.45	2.27
61F851	MST-215N	DPDT	On-none-on*	2.65	1.99	1.80	1.67
61F866	MST-305D	3PDT	On-none-on	4.35	3.26	2.96	2.74
61F867	MST-305E	3PDT	On-off-on	4.75	3.56	3.23	2.99
61F868	MST-305H	3PDT	On-off-on†	4.80	3.60	3.26	3.02
61F852	MST-315D	3PDT	On-none-on*	4.40	3.30	2.99	2.77
61F869	MST-405N	4PDT	On-none-on	5.50	4.13	3.74	3.47
61F870	MST-405P	4PDT	On-off-on	5.95	4.46	4.05	3.75
61F853	MST-415N	4PDT	On-none-on*	5.55	4.16	3.77	3.50
23F5620	MST-125D-PC	SPDT	On-none-on	2.00	1.50	1.36	1.26
23F5623	MST-121D-PC/G1	SPDT	On-none-on	2.00	1.50	1.36	1.26
23F5621	MST-125E-PC	SPDT	On-off-on	2.40	1.80	1.63	1.51
23F5624	MST-121E-PC/G1	SPDT	On-off-on	2.40	1.80	1.63	1.51
23F5622	MST-125F-PC	SPDT	On-none-on†	2.45	1.84	1.67	1.54
23F5625	MST-121F-PC/G1	SPDT	On-none-on†	2.45	1.84	1.67	1.54

(†) denotes Momentary; (*) denotes white cap

MSTG STANDARD TOGGLE

Case material made of black DAP resin with $^{15}/_{32}$" bushing. Solid silver contacts with silver plated terminals are rated 5 amps @ 125VAC or 3 amps @ 250VAC. Dielectric strength is 1 kV RMS at sea level with initial contact resistance of 10 milliohms, max. Chrome toggle is pinned on bushing for added stability and longer life. Toggle length is .689".

Stk. No.	Model	Contacts	Operation	1-24	25-49	50-99	100-249
23F5626	MSTG-125D	SPDT	On-none-on	2.50	1.88	1.70	1.58
23F5627	MSTG-125E	SPDT	On-off-on	2.90	2.18	1.97	1.83
23F5628	MSTG-225N	DPDT	On-none-on	3.20	2.40	2.18	2.02
23F5629	MSTG-225P	DPDT	On-off-on	3.60	2.70	2.45	2.27
23F5630	MSTG-225PA	DPDT	On-on-on	3.90	2.93	2.65	2.46
23F5631	MSTG-325D	3PDT	On-none-on	4.55	3.41	3.09	2.87
23F5632	MSTG-425N	4PDT	On-none-on	6.10	4.58	4.15	3.84

MST-RA RIGHT ANGLE P.C.

Maximum voltage is 20 volts AC/DC with contact rating of 0.4 VA, max. Black case material is DAP resin. Initial contact resistance is 10 milliohms, max. Contacts and terminals are gold plated over nickel with a dielectric strength of 1 kV RMS at sea level. P.C. mount with side ways toggle.

Stk. No.	Model	Contacts	Operation	1-24	25-49	50-99	100-249
23F5633	MST-121D-RA/G1	SPDT	On-none-on	2.25	1.69	1.53	1.42
23F5634	MST-121E-RA/G1	SPDT	On-off-on	2.65	1.99	1.80	1.67
23F5635	MST-121F-RA/G1	SPDT	None-on-on	2.70	2.03	1.84	1.70
23F5636	MST-221N-RA/G1	DPDT	On-none-on	3.30	2.48	2.24	2.08
23F5637	MST-221P-RA/G1	DPDT	On-off-on	3.70	2.78	2.52	2.33
23F5638	MST-221R-RA/G1	DPDT	None-on-on†	3.75	2.81	2.55	2.36

(†) denotes Momentary.

MST-VRA VERTICAL RIGHT ANGLE P.C.

Same as above except with up-down actuation.

23F5639	MST-121D-VRA/G1	SPDT	On-none-on	2.30	1.73	1.56	1.45
23F5640	MST-121E-VRA/G1	SPDT	On-off-on	2.70	2.03	1.84	1.70
23F5641	MST-121F-VRA/G1	SPDT	None-on-on†	2.75	2.06	1.87	1.73
23F5642	MST-221N-VRA/G1	DPDT	On-none-on	3.40	2.55	2.31	2.14
23F5643	MST-221P-VRA/G1	DPDT	On-off-on	3.80	2.85	2.58	2.39
23F5644	MST-221R-VRA/G1	DPDT	None-on-on†	3.85	2.89	2.62	2.43

(†) denotes Momentary.

Subminiature Toggle Switches ALCOSWITCH

MTG MUSTANG TOGGLES

Bat Handle. 15/32" bushing. Solder lug terminals.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F1187	MTG-106D	SPDT	On-none-on	2.75	2.06	1.87	1.73
61F819	MTG-106E	SPDT	On-off-on	3.15	2.36	2.14	1.98
61F884	MTG-206N	DPDT	On-none-on	3.45	2.59	2.35	2.17
61F885	MTG-206P	DPDT	On-off-on	3.85	2.89	2.62	2.43
61F886	MTG-206PA	DPDT	On-on-on	4.20	3.15	2.86	2.65
61F887	MTG306D	3PDT	On-none-on	5.25	3.94	3.57	3.31
61F888	MTG-306E	3PDT	On-off-on	5.65	4.24	3.84	3.56
61F889	MTG-406N	4PDT	On-none-on	6.45	4.84	4.39	4.06
61F890	MTG-406P	4PDT	On-off-on	6.90	5.18	4.69	4.35

MTL MINIATURE LOCKING TOGGLES

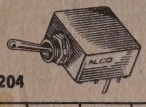
Lever lock must be pulled out to operate. Sol. lug terms.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F972	MTL-106D	SPDT	On-none-on	3.55	2.66	2.41	2.24
61F973	MTL-106E	SPDT	On-off-on†	3.95	2.96	2.69	2.49
61F974	MTL-206N	DPDT	On-none-on	4.25	3.19	2.89	2.68
61F975	MTL-206P	DPDT	On-off-on	4.65	3.49	3.16	2.93
61F989	MTL-206PA	DPDT	On-on-on*	4.90	3.68	3.33	3.09
61F990	MTL-306D	3PDT	On-none-on	6.05	4.54	4.11	3.81
61F991	MTL-406N	4PDT	On-none-on	7.25	5.44	4.93	4.57

(†) denotes Momentary; (*) denotes useable as SP3T

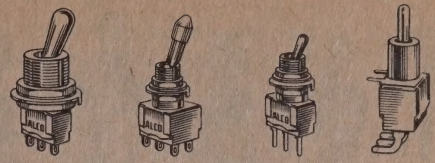
RIGHT ANGLE TOGGLE SWITCHES WITH PC TERMINALS AND THREADED BUSHING

MSTS-104



MSTS-204

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F772	MSTS-104D	SPDT	On-none-on	1.85	1.39	1.26	1.17
61F773	MSTS-204N	DPDT	On-none-on	2.55	1.91	1.73	1.61



MTG MTL MTM-PC MTM-RA

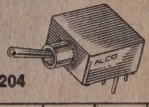
MTM MINIATURE SHORT LEVER TOGGLE 0.27" LONG TOGGLE PC TERMINALS

RA types have right angle PC terminals & unthreaded bushing.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F820	MTM-106D-PC	SPDT	On-none-on	2.10	1.58	1.43	1.32
61F821	MTM-106E-PC	SPDT	On-off-on	2.50	1.88	1.70	1.58
61F822	MTM-206N-PC	DPDT	On-none-on	2.90	2.18	1.97	1.83
61F823	MTM-206P-PC	DPDT	On-off-on	3.30	2.48	2.24	2.08
61F824	MTM-106D-RA	SPDT	On-none-on	2.35	1.76	1.60	1.48
61F825	MTM-106E-RA	SPDT	On-off-on	2.75	2.06	1.87	1.73
61F826	MTM-206N-RA	DPDT	On-none-on	3.40	2.55	2.31	2.14
61F827	MTM-206P-RA	DPDT	On-off-on	3.80	2.85	2.58	2.39

RIGHT ANGLE TOGGLE SWITCHES WITH PC TERMINALS AND PLAIN BUSHING

MTMS-104



MTMS-204

Stk. No.	Type	Contacts	Operation	1-24	49 25-	99 50-	249 100-
61F774	MTMS104D	SPDT	On-none-on	1.70	1.28	1.16	1.07
61F775	MTMS-204N	DPDT	On-none-on	2.40	1.80	1.63	1.51

8

SPLASHPROOF SEALS-TOGGLES AND PUSHBUTTONS

Seals made for toggle and pushbutton switching applications. Protect against contaminants as dirt, dust, gas, and liquids. Sealing boot is flexible neoprene.

B-1048 B-1440 B-588 BP-1532

Stk. No.	Model	Mt. Color	Size	Use With Series:	1-24	25-99	100-499	500-999
23F5645	B-1048	Black	10-48	TT	1.15	1.06	.93	.84
23F5646	B-210	Nickel	1/4-40	TT,MST,MTA, MSTS	.95	.87	.77	.69
23F5647	B-221	Black	1/4-40	TT,MST,MTA, MSTS	1.15	1.06	.93	.84
23F5648	B-1440	Black	1/4-40	TT,MST,MTA, MSTS	1.30	1.20	1.05	.95
23F5649	B-588	Nickel	15/32-32	MTG & MSTG	1.05	.97	.85	.77
23F5650	B-226	Black	15/32-32	MTG & MSTG	1.35	1.24	1.09	.99
23F5651	B-1532	Black	15/32-32	MTG & MSTG	1.45	1.33	1.17	1.06

Stk. No.	Model	Mt. Color	Size	Use With Series:	1-24	25-99	100-499	500-999
23F5652	BP-1048	Black	10-48	TP	1.20	1.10	.97	.88
23F5653	BP-190	Nickel	1/4-40	MSPM,MSP-3, MPA-3,MPC	.95	.87	.77	.69
23F5654	BP-201	Black	1/4-40	MSPM,MSP-3, MPA-3,MPC	1.25	1.15	1.01	.91
23F5655	BP-1440	Black	1/4-40	MSPM,MSP-3, MPA-3,MPC	1.35	1.24	1.09	.99
23F5656	BP-589	Nickel	15/32-32	MSPF,MPG,SPV	1.15	1.06	.93	.84
23F5657	BP-590	Black	15/32-32	MSPF,MPG,SPV	1.45	1.33	1.17	1.06
23F5658	BP-1532	Black	15/32-32	MSPF,MPG,SPV	1.55	1.43	1.26	1.13

HARDWARE

ALUMINUM SWITCH PLATES AND HARDWARE

SPA 32

SPA 42

N-1A

N-2

SWITCH HARDWARE (Pkg. of 25 only)

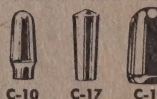
Stk. No.	Type	Description	Each 25-75	100-475	500-975
61F913	N-1	1/4"-40 Knurled Nut	.05	.05	.04
61F914	N-1A	1/4"-40 Perfect Fit Chrome Nut	.10	.09	.08
61F915	N-1B	15/32" Perfect Fit Nut	.14	.12	.11
61F916	N-2	1/4"-40 Hex Nut	.05	.05	.04

SWITCH PLATES

Stk. No.	Type	Description	Price Per Pkg of 10 1-9 Pkgs.	10-49 Pkgs.	50-99 Pkgs.	100-499 Pkgs.
61F948	SPA32/10	Aluminum. 1/4" Dia.	2.00	1.45	1.20	1.10
61F949	SPA42/10	Aluminum. 15/32" Dia.	2.20	1.60	1.42	1.10

COLOR CODED CAPS FOR SWITCHES ON THIS PAGE

C-10 and C-17 for MST, MTA & MTE.
C-15 for MTG Series switches.



C-10 C-17 C-15

Stk. No.	Type	Color	1-24	25-99	100-499	500-999
61F881	C-10	White	.04	.04	.03	.03
61F880	C-10	Black				
61F882	C-10	Red				
61F883	C-10	Blue				
57F2086	C-10	Grey				
57F2088	C-10	Yellow				
57F2089	C-10	Pink				
61F951	C-15	Black	.08	.08	.06	.05
61F952	C-15	White				
61F953	C-15	Red				
61F954	C-15	Blue				
61F1202	C-17	Black	.05	.06	.04	.03
61F1203	C-17	White				
61F1204	C-17	Red				
61F1205	C-17	Blue				

PUSHBUTTON MINIATURE SWITCHES

MSP

MSPS

MSPM

MPA-103

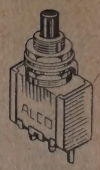
MPA-106

MPE

MPN

MPG

MSPF


MPC

MSP MINIATURE PUSHBUTTON SWITCHES

MSP-105, MSP-205. 5 A, 125 VAC. Silver contacts and terminals. Bushing ¼"—40 w/keyway. Blk. phenolic case. Life: 25,000 cycles. **MSP-103.** 3 A, 125 VAC. Silver plated brass contacts & terminals. Bushing ¼"—40. Dia. .408" **MSPS-103C.** Dia. .310". Rated 0.5 A @ 125 VAC.

Stk. No.	Model	Cont.	Operation	1-24	25-49	50-99	100-249
61F908	MSP-105D	SPDT	Push-On-Off	3.10	2.33	2.11	1.95
61F906	MSP-105F	SPDT	Momentary	3.10	2.33	2.11	1.95
61F909	MSP-205N	DPDT	Push-On-Off	4.10	3.08	2.79	2.58
61F907	MSP-205R	DPDT	Momentary	4.10	3.08	2.79	2.58
61F1212	MSP-103B	SPST	NC Black Button	1.25	.94	.85	.79
61F1213	MSP-103C	SPST	NO Red Button	1.25	.94	.85	.79
61F1214	MSP-103C-B	SPST	NO Black Button	1.25	.94	.85	.79
57F2072	MSPS-103B	SPST	NC Black Button	.70	.53	.48	.44
61F1215	MSPS-103C	SPST	NO Red Button	.70	.53	.48	.44

MAGNETIC REPULSION PUSHBUTTON

Momentary switch. Ceramic magnets eliminate springs. Contacts are glass encapsulated reeds. Rated 100 mA @ 50 VDC, resistance 100 milliohms. Contacts bounce 1 millisecond. Plunger travel 5/64". Oper. force, under 2 ozs. SPST. Accepts C-22.

Stk. No.	Model	Description	1-24	25-99	100-499	500-999
61F1207	MSPM101B	N.C., Solder lug	4.65	3.95	3.63	3.35
61F1208	MSPM101C	N.O., Solder lug	4.50	3.83	3.51	3.24
61F1209	MSPM101B-1	N.C., .110" Terminal	4.65	3.95	3.63	3.35
61F1210	MSPM101C-1	N.O., .110" Terminal	4.50	3.83	3.51	3.24

SUBMINIATURE PUSHBUTTON SWITCHES

Cylindrical pushbutton switch, gold flashed terminals molded in DAP base. One piece bushing, ¼—40. Rating: 3 amps @ 125 VAC D and F Series. 1 amp @ 125 VAC, B and C Series. Supplied with C5 black cap.

Stk. No.	Model	Cont.	Operation	1-24	25-49	50-99	100-249
25F2020	MPA-103B	SPST	NC	1.45	1.09	.99	.91
25F2021	MPA-103C	SPST	NO	1.45	1.09	.99	.91
25F2022	MPA-103D	SPDT	Push-On-Off	2.70	2.03	1.84	1.70
25F2023	MPA-103F	SPDT	Momentary	2.70	2.03	1.84	1.70

MINIATURE PUSHBUTTONS

Supplied with black C-22 button.

Stk. No.	Type	Cont.	Operation	1-24	25-49	50-99	100-249
61F752	MPA-106D	SPDT	Push on/off	3.05	2.29	2.07	1.92
61F753	MPA-106F	SPDT	Momentary	3.05	2.29	2.07	1.92
61F754	MPA-206N	DPDT	Push on/off	3.90	2.93	2.65	2.46
61F755	MPA-206R	DPDT	Momentary	3.90	2.93	2.65	2.46

MPE MINIATURE WATERPROOF PUSHBUTTONS

"O" rings inside bushing and at panel. 6 amps at 125 VAC ¼" bushing. Gold flash terminals. Green DAP case. Supplied with black button.

Stk. No.	Model	Cont.	Operation	1-24	25-49	50-99	100-249
61F959	MPE-106D	SPDT	Push-On-Off	3.60	2.70	2.45	2.27
61F957	MPE-106F	SPDT	Momentary	3.60	2.70	2.45	2.27
61F960	MPE-206N	DPDT	Push-On-Off	4.50	3.38	3.06	2.84
61F958	MPE-206R	DPDT	Momentary	4.50	3.38	3.06	2.84
61F961	MPE-406N	4PDT	Push-On-Off	7.65	5.74	5.20	4.82
61F1211	MPE-406R	4PDT	Momentary	7.65	5.74	5.20	4.82

MPG MUSTANG PUSHBUTTON

1 9/32" bushing with solder lug terminals. PC suffix for PC terminals. 6 A @ 125 VAC. Green DAP case.

Stk. No.	Model	Cont.	Operation	1-24	25-49	50-99	100-249
61F756	MPG-106D	SPDT	Push on/off	3.60	2.70	2.45	2.27
61F757	MPG-106F	SPDT	Momentary	3.60	2.70	2.45	2.27
61F993	MPG-206N	DPDT	Push on/off	4.50	3.38	3.06	2.84
61F994	MPG-206R	DPDT	Momentary	4.50	3.38	3.06	2.84
61F758	MPG-406R	4PDT	Momentary	7.65	5.74	5.20	4.82
61F759	MPG-206R-PC	DPDT	Momentary	4.70	3.53	3.20	2.96

MSPF MOMENTARY PUSHBUTTON

Rating: 0.5 A @ 125 VAC. 1 9/32" bushing. Extra-large black button. Threaded types include N-35 decorative nut, washer, and hex nut. Contacts: Heavy silver plate on brass.

Stk. No.	Type	Cont.	Operation	1-24	25-49	50-99	100-249
11F402	MSPF-101B	SPST	NC Momentary	1.60	1.20	1.09	1.01
11F403	MSPF-101C	SPST	NO Momentary	1.60	1.20	1.09	1.01
11F404	MSPF-101BC	2 Ckt.	NO/NC Mom.	1.85	1.39	1.26	1.17
11F405	MSPF-101B-PC	SPST	NC Momentary	1.50	1.13	1.02	.95
11F406	MSPF-101C-PC	SPST	NO Momentary	1.50	1.13	1.02	.95
11F407	MSPF-101BC-PC	2 Ckt.	NO/NC Mom.	1.75	1.31	1.19	1.10

MPN ILLUMINATED PUSHBUTTON SWITCHES

Snap action DPDT. DAP case. Silver contacts. 6A @ 125 VAC. 1 9/32" dia. mounting hole. Button, guard, lamp not supplied. Order separately. (††) Translucent button colors: Amber, Blue, Red, White, Green. State color when ordering.

Stk. No.	Model	Cont.	Operation	1-24	25-49	50-99	100-249
61F1216	MPN-206N	DPDT	Push-on-off	6.85	5.14	4.66	4.32
61F1217	MPN-206R	DPDT	Momentary	6.85	5.14	4.66	4.32
61F1218	RS-XP††		½" Round Button	.18	.12	.11	.10
61F1222	CGR-½		½" Round Chrome Guard	.60	.41	.41	.36

INCANDESCENT T-1¾ LAMPS

Stock No.	Type	V	Amps	MCSP	1-19	20-99	100-499	500-999
61F1226	379—T-1¾ Mid.	6.3	.200	.40	.45	.41	.36	.33
61F1227	386—Grooved	14.0	.080	.30	.47	.42	.38	.35
61F1228	388—Base	28.0	.040	.30	.47	.42	.38	.35

PROTECTIVE BUTTON GUARDS/MPA and MPE SERIES

Stk. No.	Type	Style	Matching Button	1-24	25-99	100-499	500-999
57F2112	G12-C	Plain*	C22	.50	.34	.30	.28
57F2113	G12-A	Plain†	C22	.45	.31	.27	.25
57F2114	G12-B	Plain‡	C22	.45	.31	.27	.25
25F2035	G12K-C	Knurled*	C22	.55	.37	.33	.30
57F2110	G12K-A	Knurled†	C22	.50	.34	.30	.28
57F2111	G12K-B	Knurled‡	C22	.50	.34	.30	.28
57F2118	G13-C	Plain*	C23	.60	.41	.36	.33
57F2119	G13-A	Plain†	C23	.55	.37	.33	.30
57F2120	G13-B	Plain‡	C23	.55	.37	.33	.30
57F2115	G13K-C	Knurled*	C23	.65	.44	.39	.36
57F2116	G13K-A	Knurled†	C23	.60	.41	.36	.33
57F2117	G13K-B	Knurled‡	C23	.60	.41	.36	.33

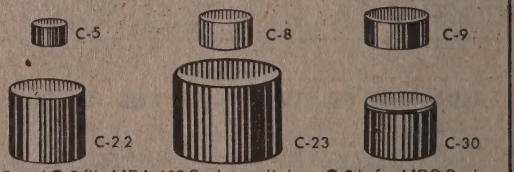
(*) Chromed Brass. (†) Nat. Aluminum. (‡) Blk. Aluminum

MPC SNAP ACTION MOMENTARY SWITCHES

Rating: 2 amps at 115 VAC or 28 VDC. Life expec.: 50,000 operations. Oper. Force: 0.3 to 0.6 Kg.. Supplied with C-30 black button.

Stock No.	Type	Action	1-24	25-49	50-99	100-249
11F400	MPC-101F	Momentary	3.30	2.48	2.24	2.08
11F401	MPC-101F/PC	Momentary	3.40	2.55	2.31	2.14

COLOR CODED CAPS AND BUTTONS



C-5 and **C-8** fits MPA-103 Series switches. **C-9** is for MPG Series switches. **C-12** and **C-13** fit MSP Series switches. **C-14** and **C-14L** are chrome and fit MSP Series. **C-22** and **C-23** fit MPA and MPE Series switches. C-30 fits MPC Series.

PLASTIC

Type	Black Stk. No.	Red Stk. No.	Green Stk. No.	1-99	100-499	500-999
C-5#	25F2029	25F2030	25F2031	.05	.05	.04
C-8**	25F2032	25F2033	25F2034	.07	.06	.06
C-9	61F760	61F761	61F762	.08	.07	.07
C-12#	61F910	61F911	61F763	.14	.12	.11
C-13**	57F2091	57F2090	57F2092	.17	.15	.14
C-22#	61F764	61F765	61F766	.10	.09	.08
C-23**	61F767	61F768	61F769	.14	.12	.11
C-30	11F408	11F409		.10	.09	.08

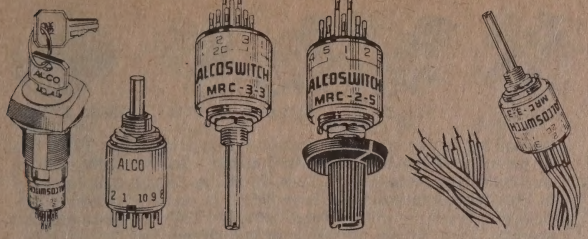
CHROME

Type	Stk. No.	1-99	100-499	500-999
C-14#	61F912	.14	.12	.11
C-14**	61F770	.17	.15	.14

(#) Small (**) Large

Keylock and Miniature Switches

ALCOSWITCH



SKFC MRB MRC-3-3S MRC-2-5 MRC-2-5S

SKFC SERIES KEYLOCK ROTARY SWITCHES

Contact Rating: 500 ma @ 125 VAC or 28 VDC (resistive). Non-shorting (break before make). Contact Resistance: 10 milliohms max. Contacts: solid silver. Type numbers ending in "L" are with 8½" color coded wire leads; others come with turret lugs.

Stock No.	Type	No. of Poles	Max. Position	EACH 1-24	25-49	50-99	100-249
11F410	SKFC-1-6	1	6				
11F411	SKFC-1-7	1	7				
11F412	SKFC-1-8	1	8	10.65	7.99	7.24	6.71
11F413	SKFC-1-9	1	9				
11F414	SKFC-1-10	1	10				
11F415	SKFC-2-3	2	3	11.05	8.29	7.51	6.96
11F416	SKFC-2-4	2	4	11.05	8.29	7.51	6.96
11F417	SKFC-2-5	2	5	11.05	8.29	7.51	6.96
11F418	SKFC-3-2	3	2	11.35	8.51	7.72	7.15
11F419	SKFC-3-3	3	3	11.35	8.51	7.72	7.15
11F420	SKFC-4-4	4	4	11.85	8.89	8.06	7.47
11F421	SKFC-1-6-L	1	6				
11F422	SKFC-1-7-L	1	7				
11F423	SKFC-1-8-L	1	8				
11F424	SKFC-1-9-L	1	9	12.45	9.34	8.47	7.84
11F425	SKFC-1-10-L	1	10				
11F426	SKFC-2-3-L	2	3				
11F427	SKFC-2-4-L	2	4				
11F428	SKFC-2-5-L	2	5				
11F429	SKFC-3-2-L	3	2	13.15	9.68	8.94	8.28
11F430	SKFC-3-3-L	3	3	11.15	8.36	7.58	7.02
11F431	SKFC-4-4-L	4	4	13.65	10.24	9.28	8.60

MRB SERIES MINIATURE ROTARY SWITCHES

MRB adjustable-stop rotary switches are rated 500 mA @ 125VAC Non-shorting. 36° spacing. Silver clad/plated contacts, terminals. Bushing: ¼"-28. Less knob. Refer to Alco Knob Series PKG for mating knobs. All have short shafts except those with suffix "S"—long shaft.

Stock No.	Model	Poles	Positions	1-24	25-49	50-99	100-249
25F2024	MRB-1-10	1	2-10	7.25	5.44	4.93	4.57
25F2025	MRB-2-5	2	2-5	8.20	6.15	5.58	5.17
25F2026	MRB-3-3	3	2-3	8.90	6.68	6.05	5.61
25F2036	MRB-1-10S	1	2-10	7.25	5.44	4.93	4.57
25F2037	MRB-2-5S	2	2-5	8.20	6.15	5.58	5.17
25F2038	MRB-3-3S	3	2-3	8.90	6.68	6.05	5.61
25F2027	MRB-1-12S*	1	1-12	9.05	6.79	6.15	5.70
25F2039	MRB-1-10SC*†	1	10	7.25	5.44	4.93	4.57
25F2040	MRB-4-3S*	4	2-3	10.55	7.91	7.17	6.65
25F2028	MRB-2-6S*	2	2-6	9.80	7.35	6.66	6.17

(*) 30° spacing. (†) Continuous rotation.

MRC SERIES MINIATURE ROTARY SWITCHES

Terminals are permanently molded into DAP base. ‡Available with knobs. Cylinders are .610" diameter with switch depth behind panel of .620", less terminals. Adjustable stop.

Stock No.	Type	Description	1-24	25-49	50-99	100-249
61F830	MRC-1-10	1 pole, 2-10 pos.	6.95	5.21	4.73	4.38
61F831	MRC-2-5	2 pole, 2-5 pos.	7.35	5.51	5.00	4.63
61F832	MRC-3-3	3 pole, 2-3 pos.	7.65	5.74	5.20	4.82
61F833	MRC-4-2	4 pole, 2 pos.	8.15	6.11	5.54	5.13
61F834	MRC-1-10S‡	1 pole, 2-10 pos.	6.95	5.21	4.73	4.38
61F835	MRC-2-5S‡	2 pole, 2-5 pos.	7.35	5.51	5.00	4.63
61F836	MRC-3-3S‡	3 pole, 2-3 pos.	7.65	5.74	5.20	4.82
61F837	MRC-4-2S‡	4 pole, 2 pos.	8.15	6.11	5.54	5.13
11F432	MRC-1-10SL	1 pole, 2-10 pos.	8.75	6.56	5.95	5.51
11F433	MRC-2-5SL	2 pole, 2-5 pos.	9.15	6.86	6.22	5.76
11F434	MRC-3-3SL	3 pole, 2-3 pos.	9.45	7.09	6.43	5.95
11F435	MRC-4-2SL	4 pole, fixed	9.95	7.46	6.77	6.27
11F436	MRC-1-10L	1 pole, 2-10 pos.	8.75	6.56	5.95	5.51
11F437	MRC-2-5L	2 pole, 2-5 pos.	9.15	6.86	6.22	5.76
11F438	MRC-3-3L	3 pole, 2-3 pos.	9.45	7.09	6.43	5.95
11F439	MRC-4-2L	4 pole, fixed	9.95	7.46	6.77	6.27

MNL ROCKER SWITCHES

Convenient front-panel lamp replacement; snaps into .765" x .756" hole. Rated 6 amps at 125 VAC. Supplied with white lens cap. For use with Alco No. 378 (6.3V), 362 (14.0V) or 388 SC (28.0V) lamps.

Stk. No.	Type	Description	1-24	25-49	50-99	100-249
57F2073	MNL-206N	DPDT, on-none-on	4.85	3.64	3.30	3.06
57F2074	MNL-206P	DPDT, on-off-on	5.20	3.90	3.54	3.28
57F2075	MNL-206R	DPDT, none-on-on#	5.25	3.94	3.57	3.31

#Momentary position.

LAMPS FOR MNL SWITCHES

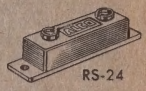
57F2256	362	T-1¾	14.0	.080	.30	.95	.62	.48	.41
57F2257	378	Midget	6.3	.200	.40	.95	.62	.48	.41
57F2258	399	Screw Base	28.0	.040	.30	.95	.62	.48	.41

BEZELS FOR MNL SERIES

Stk. No.	Type	Color	1-24	25-99	100-499	500-999
11F441	SNF-0	Black	.30	.20	.18	.17
11F442	SNF-2	Red				
11F443	SNF-5	Green				
11F444	SNF-9	White				

PROXIMITY MAGNETIC REED SWITCHES

RS-24: Alnico-5 magnet actuates reed switch within distance of 1". Rated 0.5 amp break, 1.0 amp carry over. 18 million operations. **Miniature RS-11:** Alnico-5 magnet actuates reed switch within distance of .39". Current rating: 0.15 amp break, 0.5 amp carry at 50 VDC, 200 VDC breakdown. Life: 10 million cycles. **RS-51:** Alnico 5 magnet actuates reed switch within distance of 1". Rated 0.5 amps @ VDC. Life: 10,000,000 cycles.



RS-24

RS-11

Stock No.	Type	Description	1-49	50-99	100-249	250-499
61F1623	RS-24-NC	Norm. closed (apart)	3.75	2.81	2.55	2.36
61F971	RS-24-NO	Norm. open (apart)	3.55	2.66	2.41	2.24
61F1256	RS-11-NC	Norm. closed (apart)	3.55	2.66	2.41	2.24
61F1255	RS-11-NO	Norm. open (apart)	2.95	2.21	2.01	1.86
61F1270	RS-51-NC	Norm. closed (apart)	2.65	1.99	1.80	1.67
61F1271	RS-51-NO	Norm. open (apart)	2.25	1.69	1.53	1.42

SQUARE FLANGE KEYLOCK SWITCHES

SKF SKM SKT

SKF Series. Rating: 4 amps @ 125 VAC. SPST. Screw-type terminals. **SKM Series.** Rating: 1.0 VA optimum (100 ma max., 50 VDC max.). Glass reed switches. Initial contact resistance: 100 mΩ. SPST. **SKT Series.** Silver contacts and wired terminals. Rating: 3 amps @ 125 VAC or 28 VDC (resistive). DPDT.

Stock No.	Type	Position ½	Remove Key	EACH 1-49	50-99	100-249	250-499
11F445	SKF-13-1	off/on	pos. 1	3.95	3.36	3.08	2.69
11F446	SKF-13-2	off/on	pos. ½	3.95	3.36	3.08	2.69
11F447	SKF-13-3	on/off	pos. 1	3.95	3.36	3.08	2.69
11F448	SKM-13-1	off/on	pos. 1	8.55	7.27	6.67	5.81
11F449	SKM-13-2	off/on	pos. ½	8.55	7.27	6.67	5.81
11F450	SKT-33-1	off/on	pos. 1	6.50	5.53	5.07	4.42
11F451	SKT-33-2	off/on	pos. ½	6.50	5.53	5.07	4.42
11F440	SK-13K	spare key	for above	.70	.60	.55	.48

KEYLOCK SWITCHES

Roller-type mechanical action with positive contact. Choice of 25 keys. Rated 5 A resis. 115 VAC; 15A 24 VDC. Flatted ¾" dia. barrel fits panels to ¾" thick.

Stock No.	Type	Position ½	Remove Key	1-24	25-99	100-499	500-999
57F2159	SWK-12	on/off	pos. ½	5.65	4.80	4.41	3.84
61F845	SWK-12-1	on/off	pos. 2	5.65	4.80	4.41	3.84
61F846	SWK-12-3	on/off	pos. 1	5.65	4.80	4.41	3.84
61F847	SWK-13-1	off/on	pos. 1	3.65	3.10	2.85	2.48
61F848	SWK-13-2	off/on	pos. ½	3.65	3.10	2.85	2.48
61F849	SWK-13-3	on/off	pos. 1	3.65	3.10	2.85	2.48
11F452	SWK-23-1	off/mom. on	pos. 1	3.80	3.23	2.96	2.58
11F453	SWK-23-3	on/mom. off	pos. 1	3.80	3.23	2.96	2.58
11F454	SWK-12K	Spare key for	SWK-12	.95	.81	.74	.65
11F455	SWK-13K	Spare key for	SWK-13	.70	.80	.55	.48

8

ALCOSWITCH 7/8" OIL-TIGHT SWITCHES & PILOTS

KEYLOCK OR SELECTOR SWITCHES

T2302 T2310 T2200 T2210

2 or 3 position, maintained or momentary, key or selector type. Selector types —0 are black, —2 are red, Meets NEMA 13 requirements. Includes legend plate. Contact block not included. ( ) Indicates momentary action. *Large turning radius.

Switch No.	Type	Switch Action	Key Remvbl. from Pos.#	1-9	10-99	100-499	500-999
65F397	T2200	Key, 0 1	0	10.60	9.54	8.48	7.95
65F398	T2201	Key, 0 1	0, 1	10.60	9.54	8.48	7.95
65F399	T2202*	Key, 0 1	0	10.60	9.54	8.48	7.95
65F400	T2203*	Key, 0 1	0, 1	10.60	9.54	8.48	7.95
65F401	T2250	Key, 0 (1)	0	10.95	9.86	8.76	8.21
65F402	T2210	Key, 2 0 1	0	10.60	9.54	8.48	7.95
65F403	T2220	Key, 2 0 1	0, 1	10.60	9.54	8.48	7.95
65F404	T2230	Key, 2 0 1	0, 1, 2	10.60	9.54	8.48	7.95
65F405	T2240	Key, 2 0 1	0, 2	10.60	9.54	8.48	7.95
65F406	T2260	Key, 2 0 (1)	0	10.95	9.86	8.76	8.21
65F407	T2270	Key, 2 0 (1)	0, 2	10.95	9.86	8.76	8.21
65F408	T2280	Key, (2) 0 (1)	0	10.95	9.86	8.76	8.21
65F409	G-001	Additional Keys		.75	.68	.60	.56

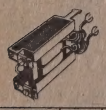
Stk. No.	Type	Switch Action	Lever Lgth.	1-9	10-99	100-499	500-999
65F377	T2302-0	Lev, 0 1	Short	6.95	6.26	5.56	5.21
65F378	T2302-2	Lev, 0 1	Short				
65F379	T2402-0	Lev, 0 1	Long				
65F380	T2402-2	Lev, 0 1	Long				
65F381	T2352-0	Lev, 0 (1)	Short	7.95	7.16	6.36	5.96
65F382	T2352-2	Lev, 0 (1)	Short				
65F383	T2452-0	Lev, 0 (1)	Long				
65F384	T2452-2	Lev, 0 (1)	Long				
65F385	T2310-0	Lev, 2 0 1	Short	6.95	6.26	5.56	5.21
65F386	T2310-2	Lev, 2 0 1	Short				
65F387	T2410-0	Lev, 2 0 1	Long				
65F388	T2410-2	Lev, 2 0 1	Long				
65F389	T2370-0	Lev, 2 0 (1)	Short	7.95	7.16	6.36	5.96
65F390	T2370-2	Lev, 2 0 (1)	Short				
65F391	T2470-0	Lev, 2 0 (1)	Long				
65F392	T2470-2	Lev, 2 0 (1)	Long				
65F393	T2380-0	Lev, (2) 0 (1)	Short	7.95	7.16	6.36	5.96
65F394	T2380-2	Lev, (2) 0 (1)	Short				
65F395	T2480-0	Lev, (2) 0 (1)	Long				
65F396	T2480-2	Lev, (2) 0 (1)	Long				

T2603 T2604

PUSHBUTTON PILOT LAMPS

Oil tight, flat or round lens. Available in a choice of four lens colors. Lamps not included. Order 300 Series lamps found at bottom of page.

Stock No.	Type	Color	Lens	1-9	10-99	100-499	500-999
65F438	T2603-2-560	Red	Flat	5.95	5.36	4.76	4.46
65F439	T2603-4-560	Yellow	Flat				
65F440	T2603-5-560	Green	Flat				
65F441	T2603-9-560	White	Flat				
65F442	T2604-2-560	Red	Round				
65F443	T2604-4-560	Yellow	Round				
65F444	T2604-5-560	Green	Round				
65F445	T2604-9-560	White	Round				



TRANSFORMER LINE-6V

Snap mounts to any operator or T-260 (3) or 4 pilot light. Spade-tipped leads connect to terminal block on operator. Screw terminals. Use 6 V lamps.

Stk. No.	Type	Primary	Secondary	1-9	10-99	100-499	500-999
65F426	580	110-120 VAC	6 VAC	7.00	6.30	5.60	5.25
65F427	570	220-240 VAC	6 VAC	7.85	7.07	6.28	5.89

T-1¾ Midget Flange Base

T-1¾ 300 SERIES LAMPS

Midget flange lamps. For use with 2000 Series Switches. Sold in packages of ten.

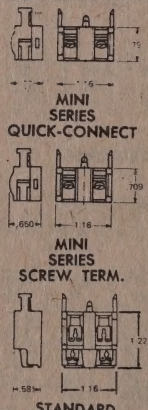
Stock Number	Type	Volts	Amps	Rated MSCP	PER PKG. 1-10	20-99	100-up
57F2252	381	6.3	.20	.40	.47	.42	.38
57F2253	382	14	.08	.30			
57F2254	387	28	.04	.30			

LIGHTED PUSHBUTTON OR SELECTOR

T2123 T2125 T2124 T2151 T2680 & T2673

All use 300 Series lamps. Lamp circuit is isolated. **Type T2123** has an extended button and momentary action. **Type T2124** Momentary pushbutton w/ metal guard. **Type T2125** has plastic guard around button, momentary action. **Type T2151** is mushroom type pushbutton momentary action. **Type T2673 & T2680** are three position selector types. All are ⅞" diameter and are oil-tight.

Stk. No.	Type	Switch Action	Color	Description	1-9	10-99	100-499	500-999
65F410	T2123-2-506	Momen.	Red	Ext. Butn.	6.95	6.26	5.56	5.21
65F411	T2123-4-506	Momen.	Yellow	Ext. Butn.				
65F412	T2123-5-506	Momen.	Green	Ext. Butn.				
65F413	T2123-9-506	Momen.	Clear	Ext. Butn.				
65F414	T2125-2-506	Momen.	Red	Plas. Grd.	7.25	6.53	5.80	5.44
65F415	T2125-4-506	Momen.	Yellow	Plas. Grd.				
65F416	T2125-5-506	Momen.	Green	Plas. Grd.				
65F417	T2125-9-506	Momen.	Clear	Plas. Grd.				
65F418	T2124-2-506	Momen.	Red	Metal Grd.	8.45	7.61	6.76	6.34
65F419	T2124-4-506	Momen.	Yellow	Metal Grd.				
65F420	T2124-5-506	Momen.	Green	Metal Grd.				
65F421	T2124-9-506	Momen.	Clear	Metal Grd.				
65F422	T2151-2-506	Momen.	Red	Mushroom	7.25	6.53	5.80	5.44
65F423	T2151-4-506	Momen.	Yellow	Mushroom				
65F424	T2151-5-506	Momen.	Green	Mushroom				
65F425	T2151-9-506	Momen.	Clear	Mushroom				
65F429	T2673-2-506	Maint.	Red	3 pos. sel.	8.95	8.06	7.16	6.71
65F430	T2673-4-506	Maint.	Yellow	3 pos. sel.				
65F431	T2673-5-506	Maint.	Green	3 pos. sel.				
65F435	T2680-2-506	Momen.	Red	3 pos. sel.	9.95	8.96	7.96	7.46
65F436	T2680-4-506	Momen.	Yellow	3 pos. sel.				
65F437	T2680-5-506	Momen.	Green	3 pos. sel.				



MINI SERIES QUICK-CONNECT

MINI SERIES SCREW TERM.

STANDARD SERIES SCREW TERM.

CONTACT BLOCKS

For use with all 2000 series switches. **500 & 200 Types** are Miniature Series. 300 VAC max. Will carry 5A cont. AC or DC. **V & F Types** are Standard Series 600 VAC max. Will carry 6A cont. AC or DC. *Screw Terminal. †Quick Connect Terminals. —0 types are black. —2 types are red.

Desc.	Stk. No.	Type	Stk. No.	Type	Net.
1NC&NO*	65F451	510-0	65F450	510-2	4.20
1NC&NO†	65F453	210-0	65F452	210-2	4.20
1 N.C.*	65F432	V40-0	65F428	V40-2	2.00
1 N.C.†	65F434	F40-0	65F433	F40-2	2.00
1 N.C.*	65F455	540-0	65F454	540-2	2.25
2 N.C.†	65F457	220-0	65F456	220-2	4.20
1 N.O.*	65F447	V50-0	65F446	V50-2	2.00
1 N.O.†	65F449	F50-0	65F448	F50-2	2.00
1 N.O.*	65F459	550-0	65F458	550-2	2.25
2 N.O.†	65F461	230-0	65F460	230-2	4.20

MINIATURE MOTOR START POWER SWITCHES

SW-251 SW-251L SW-251D SW-251S

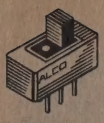
Oil tight pushbutton switches are compact, flexible and low in cost. Mount in 1" hole. Positive double break silver contacts rated to carry 6 amps, 230 VAC. Supplied with single (NO-NC) block. Additional blocks available to convert switches to double pole. Three way selector switch has bar knob with pointer. Black.

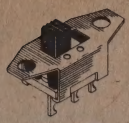
Stk. No.	Type	Description	1-9	10-99	100-499	500-999
57F2151	SW-251	Standard button	5.90	4.72	4.43	3.84
57F2152	SW-251D	Mushroom button	6.90	5.52	5.18	4.49
61F843	SW-251L	Long button	6.20	4.96	4.65	4.03
61F844	SW-251S-2	Selector, No-none-NC	7.35	5.88	5.51	4.78
57F2153	SW-251S-3	Selector, No-off-NC	7.35	5.88	5.51	4.78
57F2154	SU-251	NO-NC block	3.60	2.88	2.70	2.34
57F2155	C-251-00	On-off buttons	.60	.48	.45	.39
57F2156	C-251-SS	Stop-start buttons				
57F2157	C-251-HL	High-low btns., pair				
57F2158	C-251-UD	Up-down btns., pair				

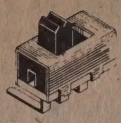
8

Miniature Switches

ALCOSWITCH


MSS-104

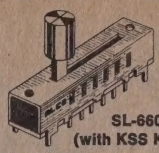

SLSA-120


SLS-121-RA

MSS-4200

MSS-22

MSS-2250R


SL-660 (with KSS Knob)

SLS MINIATURE SLIDE SWITCHES

Designed for hand-wired or printed circuit applications. Self-cleaning action. Encased in plated steel frames. Non-shorting contacts are rated 500 mA @ 125 VAC, 200 mA @ 12 VDC. Actuators are blk. thermo-plastic. Contacts and terminals are silver-plated. Life expectancy: 10,000 oper. SLSA types have turret terminals for suitable PC applications.

Stk. No.	Type SLS	Description	1-24	25-99	100-499	500-999
65F340	A-120	SPST, w/tabs, Turret	.60	.41	.36	.30
65F342	A-120-1	SPDT, w/o tabs, Turret	.60	.41	.36	.30
65F344	121-PC	SPDT, PC mount	.60	.41	.36	.30
65F349	121-RA	SPDT, Rt. Ang. PC mount	.70	.48	.42	.35
65F345	131-PC	SP3P, PC mount	.80	.54	.48	.40
65F350	131-RA	SP3P, Rt. Ang. PC mount	.90	.61	.65	.45
65F346	141-PC	SP4P, PC mount	1.00	.68	.60	.50
65F351	141-RA	SP4P, Rt. Ang. PC mount	1.10	.75	.66	.55
65F347	151-PC	SP5P, PC mount	1.20	.82	.72	.60
65F352	151-RA	SP5P, Rt. Ang. PC mount	1.30	.88	.78	.65
65F341	A-220	DPDT, w/tabs, Turret	.75	.51	.45	.38
65F343	A-220-1	DPDT, w/o tabs, Turret	.75	.51	.45	.38
65F353	121	SPDT, w/tabs	.60	.41	.36	.30
65F348	121-1	SPDT, w/o tabs	.60	.41	.36	.30

MINIATURE PC SLIDE SWITCHES

Designed for printed circuit applications. Require less space than conventional switches. Mounting styles are vertical or right angle. All have mounting tabs on the parameter of the frames for added stability on PC boards. Features positive wiping action. **Contacts rated:** Silver, 300 mA @ 125 VAC. Gold Plated, .4 VA max. @ 20 VAC or DC. Life expectancy 15,000 oper. **Contacts and Terminals:** Epoxy sealed w/silver plate or .00004" gold plate over nickel.

Stk. No.	Type MSS	Description	1-24	25-99	100-499	500-999
65F354	1200	SPDT, Uprt., Sil., .197" Lever	.75	.51	.45	.39
65F355	1200G	SPDT, Uprt., Gold, .197" Lever	1.00	.68	.60	.52
57F2134	1200R	SPDT, Rt.Ang., Sil., .160" Lev.	.80	.54	.48	.42
57F2135	1200RG	SPDT, Rt.Ang., Gold, .160" Lev.	1.00	.68	.60	.52
59F815	1300	SP3T, Uprt., Sil., .150" Lever	.85	.58	.51	.44
65F356	1300G	SP3T, Uprt., Gold, .150" Lever	1.05	.71	.63	.55
65F357	1300R	SP3T, Rt.Ang., Sil., .335" Lev.	.90	.61	.54	.47
65F358	1300RG	SP3T, Rt.Ang., Gold, .335" Lev.	1.10	.75	.66	.57
65F359	1400	SP4T, Uprt., Sil., .140" Lever	.75	.51	.45	.39
57F2136	2200	DPDT, Uprt., Sil., .092" Lever	.75	.51	.45	.39
57F2137	2200G	DPDT, Uprt., Gold, .092" Lever	1.20	.82	.72	.62
59F816	2220	DPDT, Uprt., Sil., .200" Lever	.75	.51	.45	.39
57F2138	2220G	DPDT, Uprt., Gold, .200" Lever	1.20	.82	.72	.62
65F360	2225	DPDT, Uprt., Sil., .255" Lever	.80	.54	.48	.42
65F361	2225G	DPDT, Uprt., Gold, .255" Lever	1.25	.85	.75	.65
57F2133	2250	DPDT, Uprt., Sil., .432" Lever	.80	.54	.48	.42
57F2139	2250G	DPDT, Uprt., Gold, .432" Lever	1.25	.85	.75	.65
57F2140	2250R	DPDT, Rt.Ang., Sil., .375" Lev.	.90	.61	.54	.47
57F2141	2250RG	DPDT, Rt.Ang., Gold, .375" Lev.	1.35	.92	.81	.70
65F362	2450	DP4T, Uprt., Sil., .394" Lever				
57F2143	4200	4PDT, Uprt., Sil., .323" Lever	.85	.58	.51	.44
57F2144	4200G	4PDT,Uprt., Gold, .323" Lever	1.90	1.29	1.14	.99
57F2145	4200R	4PDT, Rt.Ang., Sil., .270" Lev.	1.00	.68	.60	.52
57F2132	4200RG	4PDT, Rt.Ang., Gold, .270" Lev.	2.05	1.39	1.23	1.07
65F363	4250	4PDT, Uprt., Sil., .465" Lever	.95	.65	.57	.49
65F364	4300	4P3T, Uprt., Sil., .210" Lever	1.20	.82	.72	.62
57F2146	4300G	4P3T, Uprt., Gold, .210" Lever	2.75	1.87	1.65	1.43
65F366	4300R	4P3T, Rt.Ang., Sil., .160" Lev.	1.30	.88	.78	.68
65F367	4300RG	4P3T, Rt.Ang., Gold, .160" Lev.	2.85	1.94	1.71	1.48
65F365	4335	4P3T, Uprt., Sil., .350" Lever	1.30	.88	.78	.68
57F2147	4350R	4P3T, Rt.Ang., Sil., .583" Lev.	1.40	.95	.84	.73

MINIATURE PC SLIDE SWITCHES

Instrument grade switches designed for printed circuit board mounting. Primarily for use in programming, test apparatus and other instrumentation applications. All models available in SPDT and DPDT except right angle models (RA). Rated at 2 amps @ 230 VAC and 4 amps @ 115 VAC.

Stk. No.	Type MSS	Description	1-24	25-49	50-99	100-249
59F802	104D	1 Pole, 2 Pos., upright	1.55	1.16	1.05	.98
59F812	104D-RA	1 Pole, 2 Pos., rt. angle	1.70	1.28	1.16	1.07
59F808	104D-1	1 Pole, 2 Pos., flush	1.55	1.16	1.05	.98
59F810	204N	2 Poles, 2 Pos., upright	2.15	1.61	1.46	1.35
59F805	204N-1	2 Poles, 2 Pos., flush	2.15	1.61	1.46	1.35

MSS MINIATURE SLIDE SWITCHES

Anti-tease design. Break before make. Rated .5 amps @ 125 VAC. Life: 250,000 operations. Size, .500" x .305".

Stk. No.	Type	Contacts	Description	1-24	25-99	100-499	500-999
61F947	MSS-22	SPDT	2-Ckt. NO-NC with tabs	1.65	1.12	.99	.86
61F995	MSS-44	DPDT	On-None-On with tabs	2.95	2.01	1.77	1.53

MULTI-POSITION SLIDE SWITCHES

SS TYPE: Contacts are self-cleaning, rated at 300 mA @ 30 VDC, and silver plated. Terminals are epoxy sealed. Life exp.: 20,000 cycles. **SL TYPE:** Low profile, sealed terminals, designed for PC appl., Contacts Rated: 250 mA @ 125 VAC, 150 mA @ 12 VDC. Contacts and term. area silver plated copper. Life exp.: 6000 cycles.

Stk. No.	Type	Description	1-24	25-99	100-499	500-999
57F2388	SS-111	SP11Pos,w/o knob.	1.85	1.26	1.11	.96
57F2387	SS-24	DP4Pos. Upright, .354 Lever	1.25	.85	.75	.65
65F368	SL-220	2Pos., Metal Tabs, Sil.Con.	.85	.58	.51	.43
65F369	SL-330	3Pos., Metal Tabs, Sil.Con.	1.00	.68	.60	.50
65F370	SL-550	5Pos., Metal Tabs, Sil.Con.	1.15	.78	.69	.58
65F371	SL-660	5Pos., Metal Tabs, Sil.Con.	1.30	.88	.78	.65
65F372	SL-770	7Pos., Metal Tabs, Sil.Con.	1.45	.99	.87	.73
65F373	SL-880	8Pos., Metal Tabs, Sil.Con.	1.60	1.09	.96	.80

ACTUATOR KNOBS FOR SS* & SL† SERIES

Types w/"A" are anodized natural aluminum.

Types w/"B" are anodized black aluminum.

Stk. No.	Type	Description	1-99	100-249	250-499	500-999
*57F2400	KSS-1A	Small; w/o hairline	.30	.27	.26	.24
*57F2401	KSS-1B	Small; w/o hairline	.30	.27	.26	.24
*57F2402	KSS-2A	Large; w/o hairline	.35	.32	.30	.28
*57F2403	KSS-2B	Large; w/o hairline	.35	.32	.30	.28
*57F2404	KSS-3A	Large; dbl. hairline	.40	.36	.34	.32
*57F2405	KSS-3B	Large; dbl. hairline	.40	.36	.34	.32
†65F374	KSS-10A	Small; w/o hairline	.25	.23	.21	.20
†65F375	KSS-10B	Small; w/o hairline	.25	.23	.21	.20
†65F376	KSS-20A	Large; w/o hairline	.30	.27	.26	.24

ISOLATED RELAYS

TYPE FR-102. Pri. & sec. are stepdown trans. sec. shorted, pri. & outer core operate as relay. SPDT action, 115 VAC. 6" leads Dust-proof case. Core assembly is for all of the following also.

TYPE FR-105. Same core as FR-102 except: SPST, more compact, UL.

Stk. No.	Type	Action	1-99	100-499	500-999
61F969	FR-102	SPDT	5.50	4.29	3.74
61F1206	FRE-103	SPDT	7.75	6.05	5.27
61F970	FRP-104	SPDT	6.65	5.19	4.52
59F803	FR-105A1	SPST	4.95	3.86	3.37

TYPE FRE-103. Same core as FR-102 except: side rectp. for remote switch, unit plugs into wall outlet, stylized plastic case.

TYPE FRP-104. Same core as FR-102 except: octal base, for panel or equipment mount, clear industrial dust cover.

FRE-103

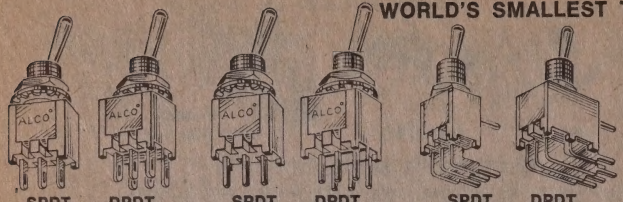
FRP-104

FR-102

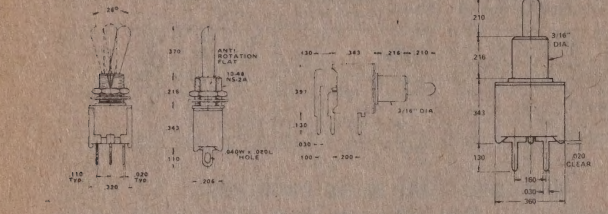
FR-105

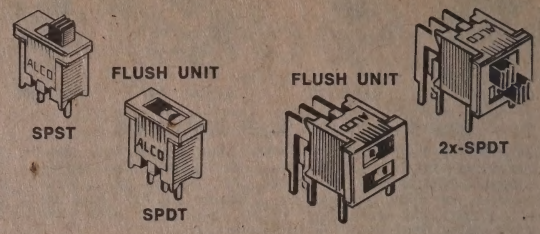
ALCOSWITCH Subminiature Toggle Switches

WORLD'S SMALLEST TOGGLE SWITCH



SPDT Hand Wired | DPDT Hand Wired | SPDT DPC Model | DPDT DPC Model | SPDT Right Angle | DPDT Right Angle





SPST | SPDT | FLUSH UNIT | FLUSH UNIT | 2x-SPDT

TOGGLES

1 2 3 9 4 5 6

BAT: (1) .21" (2) .29" (3) .37" (4) .413" extends above bushing.
BALL: (4) .29". Plastic ball, 5/32" dia.
GROOVE: (5) .39"
BATON: (6) .39" vinyl inlay.

8

SERIES TT AND TTE 3A SUBMINIATURE WITH LUG TERMINALS

Silver contacts: rated 3 A @ 125 VAC or 28 VDC; gold flashed solder lug terminals. Instrument grade. Can be mounted only 3/8" apart on panel. Uniform 0.1" spacing between all terminals and mounting studs permits mounting on standard "perf" boards. **TTE** models have watertight bushings and panel seals. ***Color-Black. Red or White available on special order.**

Stock No.	Type	Contacts	Action	Each 1-24	25-49	50-99	100-249
13F3990	TT13A-6T(*)	SPST	On None Off	1.75	1.31	1.19	1.10
13F3991	TT13D-6T(*)	SPDT	On None On	1.75	1.31	1.19	1.10
13F3992	TT13E-6T(*)	SPDT	On Off On	2.05	1.54	1.39	1.29
13F3993	TT23K-6T(*)	DPST	On None Off	2.45	1.84	1.67	1.54
13F3994	TT23N-6T(*)	DPDT	On None On	2.45	1.84	1.67	1.54
13F3995	TT23P-6T(*)	DPDT	On Off On	2.75	2.06	1.87	1.73
13F3996	TT13A-6T¼ (*)	SPST	On None Off	1.75	1.31	1.19	1.10
13F3997	TT13D-6T¼ (*)	SPDT	On None On	1.75	1.31	1.19	1.10
13F3998	TT13E-6T¼ (*)	SPDT	On Off On	2.05	1.54	1.39	1.29
13F3999	TT23K-6T¼ (*)	DPST	On None Off	2.45	1.84	1.67	1.54
13F4000	TT23N-6T¼ (*)	DPDT	On None On	2.45	1.84	1.67	1.54
13F4001	TT23P-6T¼ (*)	DPDT	On Off On	2.75	2.06	1.87	1.73
13F4002	TT13A-9T¼	SPST	On None Off	1.75	1.31	1.19	1.10
13F4003	TT13D-9T¼	SPDT	On None On	1.75	1.31	1.19	1.10
13F4004	TT13E-9T¼	SPDT	On Off On	2.05	1.54	1.39	1.29
13F4005	TT23K-9T¼	DPST	On None Off	2.45	1.84	1.67	1.54
13F4006	TT23N-9T¼	DPDT	On None On	2.45	1.84	1.67	1.54
13F4007	TT23P-9T¼	DPDT	On Off On	2.75	2.06	1.87	1.73
13F3970	TT13A-2T	SPST	On None Off	1.65	1.24	1.12	1.04
13F3971	TT13D-2T	SPDT	On None On	1.65	1.24	1.12	1.04
13F3972	TT13E-2T	SPDT	On Off On	1.95	1.46	1.33	1.23
13F3973	TT23K-2T	DPST	On None Off	2.35	1.76	1.60	1.48
13F3974	TT23N-2T	DPDT	On None On	2.35	1.76	1.60	1.48
13F3975	TT23P-2T	DPDT	On Off On	2.65	1.99	1.80	1.67
13F3976	TT13A-3T	SPST	On None Off	1.65	1.24	1.12	1.04
61F780	TT13D-3T	SPDT	On None On	1.65	1.24	1.12	1.04
61F781	TT13E-3T	SPDT	On Off On	1.95	1.46	1.33	1.23
13F3977	TT23K-3T	DPST	On None Off	2.35	1.76	1.60	1.48
61F782	TT23N-3T	DPDT	On None On	2.35	1.76	1.60	1.48
61F783	TT23P-3T	DPDT	On Off On	2.65	1.99	1.80	1.67
13F3978	TT13A-4T(*)	SPST	On None Off	1.70	1.28	1.16	1.07
13F3979	TT13D-4T(*)	SPDT	On None On	1.70	1.28	1.16	1.07
13F3980	TT13E-4T(*)	SPDT	On Off On	2.00	1.50	1.36	1.26
13F3981	TT23K-4T(*)	DPST	On None Off	2.40	1.80	1.63	1.51
13F3982	TT23N-4T(*)	DPDT	On None On	2.40	1.80	1.63	1.51
13F3983	TT23P-4T(*)	DPDT	On Off On	2.70	2.03	1.84	1.70
13F3984	TT13A-4T¼ (*)	SPST	On None Off	1.80	1.35	1.22	1.13
13F3985	TT13D-4T¼ (*)	SPDT	On None On	1.80	1.35	1.22	1.13
13F3986	TT13E-4T¼ (*)	SPDT	On Off On	2.10	1.58	1.43	1.32
13F3987	TT23K-4T¼ (*)	DPST	On None Off	2.50	1.88	1.70	1.58
13F3988	TT23N-4T¼ (*)	DPDT	On None On	2.50	1.88	1.70	1.58
13F3989	TT23P-4T¼ (*)	DPDT	On Off On	2.80	2.10	1.90	1.76

SERIES TSS SLIDE SWITCHES WITH PC OR RIGHT ANGLE PC TERMINALS

Instrument grade subminiature slide switches; gold plated terminals, spaced for 0.1" PC grids. **-PC** types have straight PC terminals; **-RA** types, right-angle PC terminals. 1 or 2 actuators optional on double pole versions. Series TSS actuation standard height is .11". -1 identifies flush unit.

Stock No.	Type	Contacts	Action	Each 1-24	25-49	50-99	100-249
13F4008	TSS11AG-PC	SPST	On None Off	1.65	1.24	1.12	1.04
13F4009	TSS11DG-PC	SPDT	On None On	1.65	1.24	1.12	1.04
13F4010	TSS11EG-PC	SPDT	On Off On	1.95	1.46	1.33	1.23
13F4011	TSS21KG-PC	DPST	On None Off	2.55	1.91	1.73	1.61
13F4012	TSS21NG-PC	DPDT	On None On	2.55	1.91	1.73	1.61
13F4013	TSS21PG-PC	DPDT	On Off On	2.85	2.14	1.94	1.80
13F4014	TSS11AG-1-PC	SPST	On None Off	1.65	1.24	1.12	1.04
13F4015	TSS11DG-1-PC	SPDT	On None On	1.65	1.24	1.12	1.04
13F4016	TSS11EG-1-PC	SPDT	On Off On	1.95	1.46	1.33	1.23
13F4017	TSS21KG-1-PC	DPST	On None Off	2.55	1.91	1.73	1.61
13F4018	TSS21NG-1-PC	DPDT	On None On	2.55	1.91	1.73	1.61
13F4019	TSS21PG-1-PC	DPDT	On Off On	2.85	2.14	1.94	1.80
13F4020	TSD21AAG-PC	2xSPST	On None Off	2.60	1.95	1.77	1.64
13F4021	TSD21DDG-PC	2xSPDT	On None On	2.60	1.95	1.77	1.64
13F4022	TSD21EEG-PC	2xSPDT	On Off On	2.90	2.18	1.97	1.83
13F4023	TSD21AAG-1-PC	2xSPST	On None Off	2.60	1.95	1.77	1.64
13F4024	TSD21DDG-1-PC	2xSPDT	On None On	2.60	1.95	1.77	1.64
13F4025	TSD21EEG-1-PC	2xSPDT	On Off On	2.90	2.18	1.97	1.83
13F4026	TSS11DG-RA	SPDT	On None On	1.90	1.43	1.29	1.20
13F4027	TSS11EG-RA	SPDT	On Off On	2.25	1.69	1.53	1.42
13F4028	TSS21NG-RA	DPDT	On None On	3.05	2.29	2.07	1.92
13F4029	TSS21PG-RA	DPDT	On Off On	3.35	2.51	2.28	2.11
13F4030	TSS11DG-1-RA	SPDT	On None On	1.90	1.43	1.29	1.20
13F4031	TSS11EG-1-RA	SPDT	On Off On	2.25	1.69	1.53	1.42
13F4032	TSS21NG-1-RA	DPDT	On None On	3.05	2.29	2.07	1.92
13F4033	TSS21PG-1-RA	DPDT	On Off On	3.35	2.51	2.28	2.11
13F4034	TSD21DDG-RA	2xSPDT	On None On	3.10	2.33	2.11	1.95
13F4035	TSD21EEG-RA	2xSPDT	On Off On	3.40	2.55	2.31	2.14
13F4036	TSD21DDG-1-RA	2xSPDT	On None On	3.10	2.33	2.11	1.95
13F4037	TSD21EEG-1-RA	2xSPDT	On Off On	3.40	2.55	2.31	2.14

SERIES TT SUBMINIATURE TOGGLE SWITCHES WITH PC AND RIGHT ANGLE PC TERMINALS

Gold plated contacts. Terminals spaced for 0.1" PC grids. **-PC** types have upright PC terminals; **-RA** types, right-angle PC terminals; **-WW** types, 0.590" extended PC terminals.

Stock No.	Type	Contacts	Action	Each 1-24	25-49	50-99	100-249
13F4038	TT11AG-PC-1	SPST	On None Off	1.75	1.31	1.19	1.10
61F784	TT11DG-PC-1	SPDT	On None On	1.75	1.31	1.19	1.10
61F785	TT11EG-PC-1	SPDT	On Off On	2.05	1.54	1.39	1.29
13F4039	TT21KG-PC-1	DPST	On None Off	2.55	1.91	1.73	1.61
61F786	TT21NG-PC-1	DPDT	On None On	2.55	1.91	1.73	1.61
61F787	TT21PG-PC-1	DPDT	On Off On	2.85	2.14	1.94	1.80
13F4040	TT11AG-PC-9T¼	SPST	On None Off	1.85	1.39	1.26	1.17
13F4041	TT11DG-PC-9T¼	SPDT	On None On	1.85	1.39	1.26	1.17
13F4042	TT11EG-PC-9T¼	SPDT	On Off On	2.15	1.61	1.46	1.35
13F4043	TT21KG-PC-9T¼	DPST	On None Off	2.65	1.99	1.80	1.67
13F4044	TT21NG-PC-9T¼	DPDT	On None On	2.65	1.99	1.80	1.67
13F4045	TT21PG-PC-9T¼	DPDT	On Off On	2.95	2.21	2.01	1.86
13F4046	TT11DG-WW-2T	SPDT	On None On	1.95	1.46	1.33	1.23
13F4047	TT11EG-WW-2T	SPDT	On Off On	2.25	1.69	1.53	1.42
13F4048	TT21NG-WW-2T	DPDT	On None On	2.90	2.18	1.97	1.83
13F4049	TT21PG-WW-2T	DPDT	On Off On	3.20	2.40	2.18	2.02
61F788	TT11DG-RA-1	SPDT	On None On	2.00	1.50	1.36	1.26
61F789	TT11EG-RA-1	SPDT	On Off On	2.30	1.73	1.56	1.45
61F790	TT21NG-RA-1	DPDT	On None On	3.05	2.29	2.07	1.92
61F791	TT21PG-RA-1	DPDT	On Off On	3.35	2.51	2.28	2.11
13F4050	TT11DG-RA-9T¼	SPDT	On None On	2.10	1.58	1.43	1.32
13F4051	TT11EG-RA-9T¼	SPDT	On Off On	2.40	1.80	1.63	1.51
13F4052	TT21NG-RA-9T¼	DPDT	On None On	3.15	2.36	2.14	1.98
13F4053	TT21PG-RA-9T¼	DPDT	On Off On	3.45	2.59	2.35	2.17

Switches, Sockets and Matrix Boards

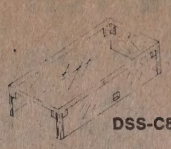
ALCOSWITCH®

DIP SERIES—DUAL IN-LINE MOUNTING

DIP switches provide high reliability at low cost. All models are designed for soldering onto PC boards. Terminals and contacts are beryllium copper with gold plating over nickel to assure dependable service for low-energy level use. The low-profile DLS and DLS-SD models are supplied with a protective cover having an "actuator lock" feature that prevents accidental operation and protects the inner mechanism during cleaning cycles.

SPECIFICATIONS

Contact Rating: Non-switching: 50 VDC @ 100 ma. Switching: 5 VDC @ 100 ma. (max.). **Initial Contact Resistance:** 100 milliohms max. **Insulation Resistance:** 100 megohms min. **Dielectric Strength:** 500 VDC at sea level. **Switch Capacitance:** 5.0 picofarads between poles. **Op. Temp:** –10°C to +60°C. **Contacts and Terminals:** .00004" gold plate over nickel.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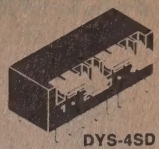
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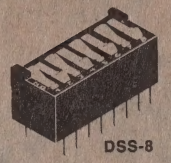
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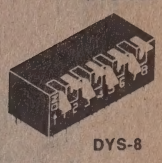
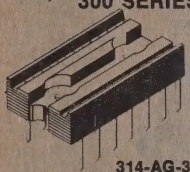

DYS-8

Stk. No.	Type	Action	Lever	1-24	25-49	50-99	100-249
61F996	DSS-4	4PST	Rocker	3.05	2.81	2.56	2.41
65F1830	DSS-C4	Cover	.....	.15	.14	.13	.12
61F997	DSS-6	6PST	Rocker	3.45	3.17	2.90	2.73
65F1831	DSS-C6	Cover	.....	.15	.14	.13	.12
61F998	DSS-7	7PST	Rocker	3.65	3.36	3.07	2.88
65F1832	DSS-C7	Cover	.....	.15	.14	.13	.12
61F999	DSS-8	8PST	Rocker	3.85	3.54	3.23	3.04
65F1833	DSS-C8	Cover	.....	.15	.14	.13	.12
61F1000	DSS-10	10PST	Rocker	4.25	3.91	3.57	3.36
65F1834	DSS-C10	Cover	.....	.15	.14	.13	.12
61F1001	DBS-5	5PST	Rocker	3.25	2.99	2.73	2.57
65F1835	DBS-6	6PST	Rocker	3.45	3.17	2.90	2.73
61F1002	DLS-4	4PST	Slide	3.20	2.94	2.69	2.53
61F1003	DLS-6	6PST	Slide	3.60	3.31	3.02	2.84

Stock No.	Type	Action	Lever	1-24	25-49	50-99	100-249
61F1004	DLS-8	8PST	Slide	4.00	3.68	3.36	3.16
61F1005	DLS-10	10PST	Slide	4.40	4.05	3.70	3.48
61F1006	DLS-2SD	(2) NO-NC	Slide	3.20	2.94	2.69	2.53
65F1836	DLS-3SD	(3) NO-NC	Slide	3.60	3.31	3.02	2.84
65F1837	DLS-4SD	(4) NO-NC	Slide	4.00	3.68	3.36	3.16
65F1838	DLS-5SD	(5) NO-NC	Slide	4.40	4.05	3.70	3.48
61F748	DYS-4	4PST	Piano	4.00	3.68	3.36	3.16
61F749	DYS-6	6PST	Piano	4.20	3.86	3.53	3.32
61F750	DYS-8	8PST	Piano	4.40	4.05	3.70	3.48
65F1839	DYS-10	10PST	Piano	4.60	4.23	3.86	3.63
61F751	DYS-2SD	(2) NO-NC	Piano	4.00	3.68	3.36	3.16
65F1840	DYS-3SD	(3) NO-NC	Piano	4.20	3.86	3.53	3.32
65F1841	DYS-4SD	(4) NO-NC	Piano	4.40	4.05	3.70	3.48
65F1842	DYS-5SD	(5) NO-NC	Piano	4.60	4.23	3.86	3.63

8

300 SERIES LOW PROFILE DIP SOCKET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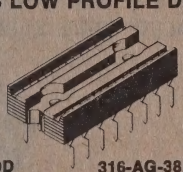

316-AG-38D

Contact Detail

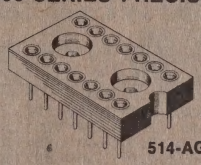
100% greater contact on the wide, flat surface of IC leads. "Side-wipe" contact provides constant low contact resistance not possible with edge bearing contacts. Tapered entry insulator guarantees fast IC insertion and full seating; gold or tin plated beryllium copper contacts; Wafer on the bottom of each socket to prevent IC leads from shorting to PC traces.

SPECIFICATIONS

Low Profile: .163" above board (IC Seating Plane). **Application:** Style A: any hole size down to .025" diameter. Style B: recommended hole size .035 ±.002" diameter. **Mounting:** Continuous X & Y .100" (2.54mm) grid spacing. **Contact Terminals:** Beryllium copper, gold or tin plating on nickel. **Wafer Insulator:** .005" thick polyester. **Body Material:** Glass filled polyester, UL rated SE-O Black.

Stk. No.	Style A Type	Stk. No.	Style B Type	Contacts No./Plating	1-24	25-99	100-499	500-999
13F208	308-AG-39D	13F212	308-AG-37D	8/Tin	.30	.27	.24	.22
13F209	314-AG-39D	13F213	314-AG-37D	14/Tin	.39	.35	.31	.28
13F210	316-AG-39D	13F214	316-AG-37D	16/Tin	.45	.41	.36	.32
13F211	318-AG-39D	13F215	318-AG-37D	18/Tin	.50	.45	.40	.36

500 SERIES PRECISION MACHINED DIP SOCKETS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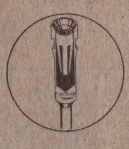

Inner Contact Detail

Low profile socket. 4-leaf machined closed entry beryllium contact insert retains lead or pin over its entire dimensional range. Inner contact is gold plated to insure low contact and corrosion resistance. Outer sleeve and post available in gold or tin plate finish. Closed end design eliminates flux wicking. Nylon bases are color coded.

SPECIFICATIONS

Inner Contact: 4-leaf machined Beryllium, gold plated. **Outer Sleeve/Pin:** Machined brass, gold or tin plate option. **Contact Feature:** Closed end construction eliminates solder flux wicking or cleaning solvent problems. **Low Profile:** .180" max. above board. **Application:** Accepts flat IC lead or round pin .016" to .020" dia. **Pin Spacing:** .300" between rows.

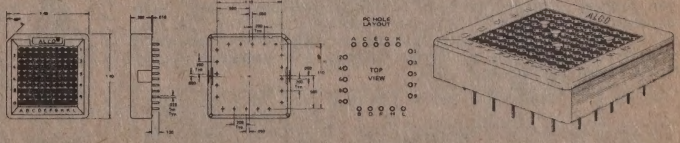
Stk. No.	Type	No. of Contacts	1-24	25-99	100-499	500-999
13F703	514-AG-11D	14	.79	.71	.63	.57
13F704	516-AG-11D	16	.89	.80	.71	.64
13F705	518-AG-11D	18	1.12	1.01	.90	.81

AMX PROGRAMMABLE MATRIX BOARDS

100 point matrix; 200 contacts; 10 shorting pins allow connections between any X-axis (1-10) and Y-axis (A-K). Contacts and pins spaced at 0.1" center. Contact rating 30 VDC, 100 Ma.

Stk. No.	Type	1-24	25-49	50-99
65F1843	AMX-1010	19.95	16.96	15.56

Stk. No.	Type	Description	1-99	100-499	500-999
65F1844	AMX-T	Pin Rmvl. Tool	3.95	3.36	3.08
65F1845	AMSP	Shorting Pin	.19	.16	.15
65F1846	AMSP-0	Black Shtg. Pin	.24	.20	.19
65F1847	AMSP-2	Red Shtg. Pin	.24	.20	.19
65F1848	AMSP-3	Orange Shtg. Pin	.24	.20	.19
65F1849	AMSP-5	Green Shtg. Pin	.24	.20	.19
65F1850	AMSP-6	Blue Shtg. Pin	.24	.20	.19
65F1851	AMSP-9	White Shtg. Pin	.24	.20	.19
65F1852	AMDF	Diode Pin Fwd.	1.35	1.15	1.05
65F1853	AMDR	Diode Pin Rev.	1.35	1.15	1.05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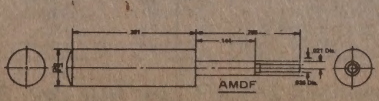
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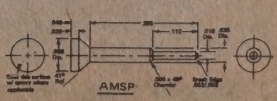
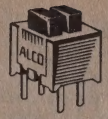

AMSP

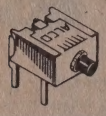
ALCOSWITCH Mini Pushbutton Switches

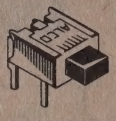
TP/TPA SERIES

TPA11CG-PC

TP11CG-PC


TP21CCG-PC


TPA11CG-RA


TP11CG-RA

- **For Instrumentation, Telecoms, Computers**
- **Compact For PC Use**
- **Good Solderability**
- **10,000 Operation Life**

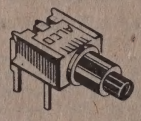
Suffix RA in type number signifies Right Angle contacts for edge PC board mounting. PC models having 4 stabilizing standoffs. Dual actuator types conserve space. Choice of small round or rectangular buttons. **Contact Rating:** Gold Plated, 0.4 VA max. @ 20 VDC or Peak AC. **Contact Resistance:** 10 milliohms max. **Insulation Resistance:** Over 1,000 megohms @ 500 VDC. **Gold Plating:** .00005" min. Gold over nickel barrier. **Frame:** Cadmium plate or bright reflowed tin plated. **Life Expectancy:** 100,000 operations at full rating. **Dielectric Strength:** 1,000 VAC RMS at sea level. **Case Material:** Green diallyl phthalate. 94V-0. **Button Color:** Black.

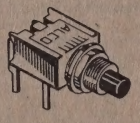
Stk. No.	Type	Action	Style	1-24	25-49	50-99	100-249
13F3632	TP11CG-PC	SPST/NO	Rect.	1.35	1.01	.92	.85
13F3633	TPA11CG-PC	SPST/NO	Round	1.35	1.01	.92	.85
13F3634	TP21CCG-PC	2xSPST/NO	Rect.	2.25	1.69	1.53	1.42
13F3635	TPA21MG-PC	DPDT/NO	Round	2.25	1.69	1.53	1.42
13F3636	TPA21CCG-PC	2xSPST/NO	Round	2.25	1.69	1.53	1.42
13F3637	TP11CG-RA	SPST/NO	Rect.	1.60	1.20	1.09	1.01
13F3638	TPA11CG-RA	SPST/NO	Round	1.60	1.20	1.09	1.01
13F3639	TP21CCG-RA	2xSPST/NO	Rect.	2.75	2.06	1.87	1.73
13F3640	TPA21MG-RA	DPDT/NO	Round	2.75	2.06	1.87	1.73
13F3641	TPA21CCG-RA	2xSPST/NO	Round	2.75	2.06	1.87	1.73

TPD/TPF SERIES

TPD11CG-PC

TPF11CG-PC


TPD11CG-RA

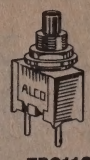

TPF11CG-RA

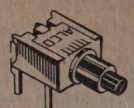
¼" bushing. **Contact Rating:** Gold Plated, 0.4 VA max. @ 20 VDC or peak AC. **Contact Resistance:** 10 milliohms max. **Insulation Resistance:** Over 1,000 megohms @ 500 VDC. **Dielectric Strength:** 1,000 VAC RMS at sea level. **Life Expectancy:** 100,000 operations at full rating. **Gold Plating:** .00005" min. Gold over nickel barrier. **Frame:** Cadmium plate or bright reflowed tin plated. **Case Material:** Green diallyl phthalate. Type number suffix -RA signifies Right Angle contacts suitable for edge board mounting to protrude through panel. **Button Color:** Black. **Action:** Normally Open. Large round button style.

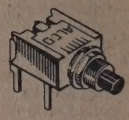
Stk. No.	Type	Action	Bushing	1-24	25-49	50-99	100-249
13F3650	TPD11CG-PC	SPST/NO	.250	1.50	1.13	1.02	.95
13F3651	TPF11CG-PC	SPST/NO	¼-40	1.60	1.20	1.09	1.01
13F3652	TPD21MG-PC	DPST/NO	.250	2.30	1.73	1.56	1.45
13F3653	TPF21MG-PC	DPST/NO	¼-40	2.40	1.80	1.63	1.51
13F3654	TPD11CG-RA	SPST/NO	.250	1.75	1.31	1.19	1.10
13F3655	TPF11CG-RA	SPST/NO	¼-40	1.85	1.39	1.26	1.17
13F3656	TPD21MG-RA	DPST/NO	.250	2.80	2.10	1.90	1.76
13F3657	TPF21MG-RA	DPST/NO	¼-40	2.90	2.18	1.97	1.83

TPB/TPC SERIES

TPB11CG-PC


TPC11CG-PC


TPB11CG-RA

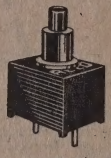

TPC11CG-RA

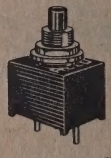
- **100,000 Operation Life**
- **Gold Over Nickel Barrier**
- **0.4 VA Max. Rating @ 20 VDC**

Although this series uses basic TPA mechanism and has the same specifications, its value is enhanced because of added stability offered by the small bushing. Threaded version makes it adaptable for front panel use and is supplied with appropriate hardware. Black button standard. Standard gold plated contacts and terminals. -RA suffix on type number signifies right angle; -PC models have 4 standoffs.

Stk. No.	Type	Action	Bushing Dia.	1-24	25-49	50-99	100-249
13F3642	TPB11CG-PC	SPST/NO	.176	1.45	1.09	.99	.91
13F3643	TPC11CG-PC	SPST/NO	10-48	1.50	1.13	1.02	.95
13F3644	TPB21MG-PC	DPST/NO	.176	2.30	1.73	1.56	1.45
13F3645	TPC21MG-PC	DPST/NO	10-48	2.25	1.69	1.53	1.42
13F3646	TPB11CG-RA	SPST/NO	.176	1.70	1.28	1.16	1.07
13F3647	TPC11CG-RA	SPST/NO	10-48	1.75	1.31	1.19	1.10
13F3648	TPB21MG-RA	DPST/NO	.176	2.75	2.06	1.87	1.73
13F3649	TPC21MG-RA	DPST/NO	10-48	2.80	2.10	1.90	1.76

SEALED TP-ES SERIES


TPB11CG-PC-ES


TPC11CG-PC-ES

Same as other TP switches with body and frame fully encapsulated. Disposable protective boots are provided to seal the actuator only during the washing process. Switches are impervious to solder, flux and cleaning solvents that could enter the contact area of normally unsealed switches to cause intermittent operation or impair its useful life expectancy. Case of black polyester, 94V-O. Specifications same as TP series.

Stk. No.	Type	Action	Bushing Dia.	1-24	25-49	50-99	100-249
13F3662	TPB11CG-PC-ES	SPST/NO	.176	2.10	1.58	1.43	1.32
13F3663	TPC11CG-PC-ES	SPST/NO	10-48	2.15	1.61	1.46	1.35
13F3664	TPB21MG-PC-ES	DPST/NO	.176	3.10	2.33	2.11	1.95
13F3665	TPC21MG-PC-ES	DPST/NO	10-48	3.15	2.36	2.14	1.98
13F3666	TPD11CG-PC-ES	SPST/NO	.176	2.20	1.65	1.50	1.39
13F3667	TPF11CG-PC-ES	SPST/NO	½-40	2.30	1.73	1.56	1.45
13F3668	TPD21MG-PC-ES	DPST/NO	.176	3.15	2.36	2.14	1.98
13F3669	TPF21MG-PC-ES	DPST/NO	¼-40	3.25	2.44	2.21	2.05

WIRED TERMINAL SERIES TPC/TPF

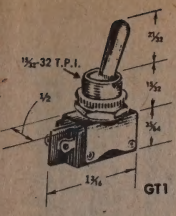
TPC13C

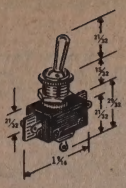
Contact Rating: 1 amp @ VDC or Peak AC. **Contact Resistance:** 10 milliohms max. **Insulation Resistance:** Over 1,000 Megohms @ 500 VDC. **Dielectric Strength:** 1,000 VAC RMS at sea level. **Life Expectancy:** 100,000 operations at full rating. **Contacts:** Fine Silver. **Frame:** Bright reflowed tin plated. **Case Material:** Green diallyl phthalate 94V-O. Series features threaded bushings for panel mounting in a choice of two button sizes: Large Round and Small Round. Silver contacts are gold flashed to minimize tarnishing.

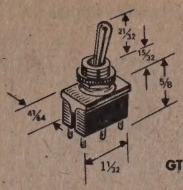
Stk. No.	Type	Action	Button Style	Bushing Dia.	1-25	25-49	50-99	100-249
13F3658	TPC13C	SPST/NO	Small	10-48	1.40	1.05	.95	.88
13F3659	TPC23M	DPST/NO	Small	10-48	2.10	1.58	1.43	1.32
13F3660	TPF13C	SPST/NO	Large	¼-40	1.50	1.13	1.02	.95
13F3661	TPF23M	DPST/NO	Large	¼-40	2.20	1.65	1.50	1.39

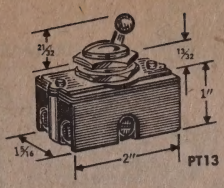
All Buttons Come In Standard Black Color But Can Be Special Ordered In Red Or Blue.

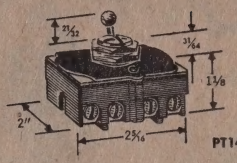
Switches

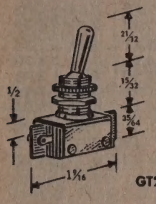


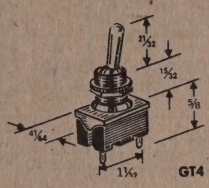


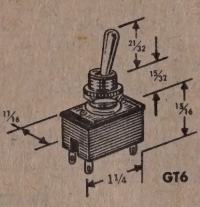


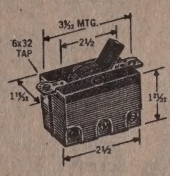


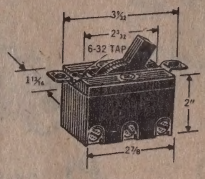


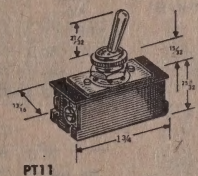


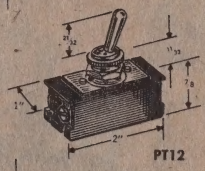


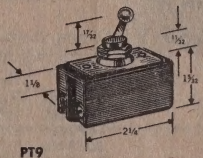


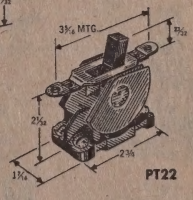


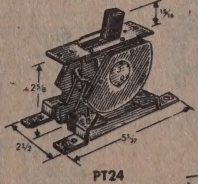


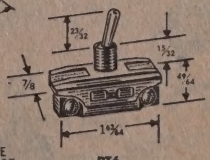


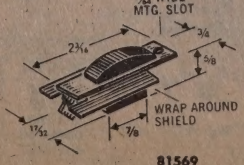












SNAP ACTION TOGGLE SWITCHES AC/DC

Providing long life at low cost. Ideal for light duty applications U.L. listed.

Stock No.	Type	Fig.	Positive Action (*momentary)	Rating T25V	Rating 250V	Lever Type	Term Type	1-24	25-99	100-499	500-999
23F021	20994-CS	GT1	SPST-OFF-ON	6	3	Ball	Lug	2.68	2.14	1.61	1.34
23F013	20994-LH	GT1	SPST-OFF-ON	6	3	Bat	Lug	2.68	2.14	1.61	1.34
23F063	80054S	GT1	SPST-OFF-ON	3	1	Bat	Lug	4.92	3.94	2.95	2.46
23F024	213050-BF	GT2	SPDT-ON-ON	3	1	Ball	Lug	3.40	2.72	2.04	1.70
23F011	21350-EH	GT2	SPDT-ON-ON	3	1	Bat	Lug	3.40	2.72	2.04	1.70
23F075	21827-GA	GT2	SPDT-ON-ON	3	1	Bat	Lug	5.00	4.00	3.00	2.50
23F025	20902-N	GT2	DPST-OFF-ON	3	1	Ball	Lug	4.88	3.90	2.93	2.44
23F012	20902-CX	GT2	DPST-OFF-ON	3	1	Bat	Lug	4.88	3.90	2.93	2.44
23F015	20905-FR	GT3	DPDT-ON-ON	3	1	Bat	Lug	5.60	4.48	3.36	2.80
23F028	20905-BX	GT3	DPDT-ON-ON	3	1	Ball	Lug	5.60	4.48	3.36	2.80

MIDGET WIPING ACTION TOGGLE SNAP SWITCH

For electronic applications demanding small size highly dependable performance. U.L. listed.

60F2322	83050	GT4	SPST-OFF-ON	3	1	Bat	Lug	2.15	1.72	1.29	1.08
60F2323	80352	GT4	SPDT-ON-ON	3	1	Bat	Lug	2.56	2.05	1.54	1.28
60F2328	83053	GT4	DPST-ON-ON	3	1	Bat	Lug	3.19	2.55	1.91	1.60
60F2325	83054	GT4	DPDT-ON-ON	3	1	Bat	Lug	3.66	2.93	2.20	1.83

THREE-POSITION TOGGLES—SOLDER LUGS/QUICK-CONNECT TERMINALS

23F064	84105	GT5	SPDT-ON-OFF-ON	3	1	Bat	CSQC	5.65	4.52	3.39	2.83
23F065	84104	GT5	DPST-ON-OFF-ON	3	1	Bat	CSQC	6.75	5.40	4.05	3.38

INTERMEDIATE SIZE TOGGLE TWO POSITION SNAP ACTION SWITCH

Silver plated wiping action contacts for low contact resistance applications. U.L. Listed.

23F006	81015-AW	GT6	SPST-ON-OFF	6	3	Bat	Lug	1.83	1.46	1.10	.92
23F007	81021-AV	GT6	SPDT-ON-ON	6	1	Bat	Lug	2.23	1.78	1.34	1.12
23F008	81024-GB	GT6	DPST-OFF-ON	6	3	Bat	Lug	3.26	2.61	1.96	1.63
23F009	81027-CE	GT6	DPDT-ON-ON	6	3	Bat	Lug	3.30	2.64	1.98	1.65
23F074	81054H	GT6	DPST-OFF-ON*	6	3	Bat	Lug	4.88	3.90	2.93	2.44
23F005	81057N	GT6	DPDT-ON-ON*	6	3	Bat	Lug	4.96	3.97	2.98	2.48

THREE POSITION STANDARD DUTY TOGGLE QUICK MAKE & BREAK AC/DC

Switch presents a foolproof answer to control problems requiring a positive stop at center position (OFF) U.L. listed.

23F060	80638-D	PT13	DPDT-ON-OFF-ON	14	7	Ball	Screw.	10.81	8.65	6.49	5.41
23F019	80983	PT14	3PDT-ON-OFF-ON	10	5	Ball	Screw.	16.68	13.34	10.01	8.34
23F000	80985	PT14	4PDT-ON-OFF-ON	10	5	Ball	Screw.	22.25	17.80	13.35	11.13
23F066	80364	PT15	DPDT-ON-OFF-ON	20	10	Squ.	Screw.	7.44	5.95	4.46	3.72
23F067	80988	PT16	DPDT-ON-OFF-ON	30	20	Squ.	Screw.	12.96	10.37	7.78	6.48

TWO-POSITION HEAVY DUTY TOGGLES AC/DC

Non-teasable action providing control available for motor loads up to 2 H.P. U.L. listed.

Stock No.	Type	Fig.	Action	Rating T20V	Rating 250V	HP	Cap	Term Type	1-24	25-99	100-499	500-999
23F039	80600-B	PT11	DPST-OFF-ON	16	8	1	Ball	Screw.	3.27	2.62	1.96	1.64
23F048	80600-BJ	PT11	DPST-OFF-ON	16	8	1	Bat	Screw.	3.27	2.62	1.96	1.64
23F016	80602-C	PT12	DPST-OFF-ON	15	10	1½	Ball	Screw.	5.70	4.56	3.42	2.85
23F047	80602-CA	PT12	DPST-OFF-ON	15	10	1½	Bat	Screw.	5.70	4.56	3.42	2.85
23F020	80421	PT9	DPST-OFF-ON	—	20	1½	Ball	Screw.	8.70	6.96	5.22	4.35
23F017	80093	PT22	DPST-OFF-ON	30	20	2	Squ.	Screw.	5.06	4.05	3.04	2.53
23F068	80770-K	PT24	DPST-OFF-ON	60	—	2	Squ.	Screw.	16.91	13.53	10.15	8.46

DOUBLE INSULATION DESIGN

Stock No.	Type	Fig.	Action	Rating T20V	Rating 250V	HP	Cap	Term Type	1-24	25-99	100-499	500-999
23F069	83800D	PT6	DPST-OFF-ON	16	8	1	Mid Bat	Screw.	3.41	2.73	2.05	1.71

SLIDE SWITCH

Stock No.	Type	Fig.	Action	Rating T20V	Rating 250V	HP	Cap	Term Type	1-24	25-99	100-499	500-999
23F070	81569	81569	SPST-OFF-ON	6	3	—	Blk.	Screw.	3.83	3.07	2.30	1.92

Switches

Arrow Hart

Fig. A

Fig. B

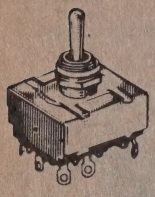


Fig. C

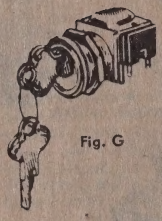


Fig. G

8

Fig. H

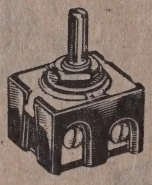


Fig. K

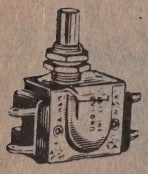


Fig. J

Fig. L

Fig. M

Fig. P

AIRCRAFT TYPE AC ONLY TOGGLE SWITCH

Butt type contacts. All have bat handles. U.L. listed.

Stock No.	Type	Fig.	Action	Rating 125V	Rating 250V	HP	Sleeve Lgth.	Term Type	1-24	25-49	50-99	100-499
23F106	82600	A	SPST-OFF-ON	15	10	¾	15/32	scrw	2.10	1.68	1.26	1.05
60F2300	82601	A	SPST-OFF-ON	15	10	¾	15/32	lug	1.83	1.46	1.10	.92
60F2308	82605	A	SPDT-ON-ON	15	10	¾	15/32	lug	2.10	1.68	1.26	1.05
23F107	82602	A	SPDT-ON-OFF-ON	15	10	¾	15/32	scrw	2.46	1.97	1.48	1.23
60F2304	82603	A	SPDT-ON-OFF-ON	15	10	¾	15/32	lug	2.10	1.68	1.26	1.05
60F3450	82606	B	DPST-OFF-ON	15	10	¾	15/32	scrw	3.40	2.72	2.04	1.70
60F2302	82607	B	DPST-OFF-ON	15	10	¾	15/32	lug	2.86	2.29	1.72	1.43
60F3451	82610	B	DPDT-ON-ON	15	10	¾	15/32	scrw	4.16	3.33	2.50	2.08
60F2310	82611	B	DPDT-ON-ON	15	10	¾	15/32	lug	3.40	2.72	2.04	1.70
23F108	82608	B	DPDT-ON-OFF-ON	15	10	¾	15/32	scrw	4.16	3.33	2.50	2.08
60F2306	82609	B	DPDT-ON-OFF-ON	15	10	¾	15/32	lug	3.40	2.72	2.04	1.70
60F3452	82612	C	3PST-ON-OFF	15	10	1	15/32	scrw	6.20	4.96	3.72	3.10
60F3453	82614	C	3PDT-ON-OFF-ON	15	10	1	15/32	scrw	7.86	6.29	4.72	3.93
60F3454	82615	C	3PDT-ON-OFF-ON	15	10	1	15/32	lug	6.56	5.25	3.94	3.28
60F3455	82616	C	3PDT-ON-ON	15	10	1	15/32	scrw	7.86	6.29	4.72	3.93
60F3456	82617	C	3PDT-ON-ON	15	10	1	15/32	lug	6.56	5.25	3.94	3.28
60F3457	82634	C	4PDT-ON-OFF-ON	15	10	¾	15/32	lug	9.90	7.92	5.94	4.95
60F3458	82636	C	4PDT-ON-ON	15	10	¾	15/32	lug	9.90	7.92	5.94	4.95

SWITCH HARDWARE

23F045	20590-1AS	On-Off Dial Plate for 15/32" dia. sleeve	.12	.10	.07	.06
60F2376	8991-1378AS	Bronze Lock washer for 15/32" dia. sleeve	4.00 per 100			
60F2377	20590-174AS	Locating Ring for 15/32" dia. sleeve	5.00 per 100			

Fig. G. SECURITY LOCK SWITCHES—ROTARY ACTION—U.L. Listed

3 pin "Corbin" security lock switch, designed for easy dead front mounting.

Stock No.	Type	Action	DC 125V	Rating 250V	Key Removable	Sleeve Lgth.	Term Type	1-24	25-99	100-499	500-999
60F3479	81721-LQ-41	SPDT-ON-ON	6	3	Pos. 1 & 2	⅞	lug	23.66	18.93	14.20	11.83
60F3480	81715-41 Both Positions							3.00	2.40	1.80	1.50
60F3484	81721-LQ-61	SPDT-ON-ON	6	3	Pos. 1	⅞	lug	23.66	18.93	14.20	11.83
60F3483	81715-61 One CC Position							3.00	2.40	1.80	1.50

FIG. H INTERMEDIATE SIZE LOCKING SWITCH—U.L. Listed

Stk. No.	Type	Action	DC 125V	Rating 250V	Key Removable	Sleeve Lgth.	Term Type	1-24	25-49	50-99	100-499
60F2316	81715-L	SPST-OFF-ON	6	3	Pos. 1	15/32"	lug	5.20	4.16	3.12	2.60
60F2320	(Key for above switch 1561-488) (Rem. Off pos. only)							.47	.38	.28	.24
60F3482	81721-L	SPDT-ON-ON	6	3	Pos. 1 & 2	15/32"	lug	5.32	4.26	3.19	2.66
60F2321	Key for above switches #1561-487 Rem. ON & OFF Pos.							.47	.38	.28	.24

ROTARY POWER SWITCHES

Wiping blade contact, ideal for control panel. Small appliance and instrument use. U.L. List.

Stock No.	Type	Fig.	Action	Rating 125V	Rating 250V	Slv. Dia.	Spld. Lgth.	Sleeve Lgth.	Term Type	1-24	25-49	50-99	100-499
60F3487	1561-B	K	SPST-ON-OFF	6	3	⅜	⅜	⅜	lug	3.63	2.90	2.18	1.82
60F3488	1575	K	DPDT-ON-ON	3	1	⅜	⅜	⅜	lug	6.92	5.54	4.15	3.46
60F3489	81715	J	SPST-ON-OFF	6	3	⅜	⅜	⅜	lug	4.47	3.58	2.68	2.24
60F3490	81727	J	DPDT-ON-ON	6	3	⅜	⅜	⅜	lug	6.53	5.22	3.92	3.27

SUBMINIATURE TOGGLE SWITCHES

Gold plated contacts. Toggle switch ratings, 5 amps at 125VAC and 29VDC. Push button switch ratings, 1 amp at 115 VAC and 2 amps at 29 VDC, # rated, 7 amps at 125 VAC and 29 VDC. Base size, SPST switches, ¼x½", DPDT ½x½". Sleeve diameters both ¼".

LEVER POSITION CHART

†denotes maint. on
*denotes momentary action

I ON-NONE-ON
II ON*-OFF-ON†
III ON*-OFF-ON*
IV ON*-NONE-ON
V OFF-NONE-ON
VI ON-OFF-ON
VII ON-ON-ON

Stock Number	Type	Fig.	Action	Lever Chart	1-24	25-49	50-99	100-499
59F521	TC-3	P	SPDT	VI	10.36	8.29	6.22	5.18
59F522	TE-3	P	SPDT	II	10.23	8.18	6.14	5.12
59F523	TG-3	P	SPDT	III	10.23	8.18	6.14	5.12
60F2389	TM-3	P	SPDT	IV	10.23	8.18	6.14	5.12
59F524	TS 3	P	SPDT	I	10.36	8.29	6.22	5.18
60F2390	TS-2	P	DPST	V	11.33	9.06	6.80	5.67
60F2391	TC-6	P	DPDT	VI	13.48	10.78	8.09	6.74
60F2392	TE-6	P	DPDT	II	17.29	13.83	10.37	8.65
60F2393	TG-6	P	DPDT	III	16.51	13.21	9.91	8.26
60F2394	TM-6	P	DPDT	IV	17.29	13.83	10.37	8.65
59F525	TS-6	P	DPDT	I	13.48	10.78	8.09	6.74

SUBMINIATURE PUSH BUTTON SERIES

Momentary action except (#) Snap Action

Stock No.	Type	Fig.	Action	1-24	25-49	50-99	100-499
23F128	PM-3	L	SPDT	9.88	7.90	5.93	4.94
23F129	PM-6	M	DPDT	12.13	9.70	7.28	6.07
59F520	PM-7	M	3PST-NO	16.07	12.86	9.64	8.04
60F2386	PM-8	M	3PST-NC	16.07	12.86	9.64	8.04
60F2387	PMQ-3	L	SPST#	11.23	8.98	6.74	5.62

Switches

Arrow Hart

MINIATURE SNAP-IN ROCKER SWITCHES

Carry UL, CSA, BS, VDE and CEE listing. 16 amp 250 VAC. Combination quick connect; solder lug terminal (.250 spade).

Stock No.	Type	Fig.	Action	1-24	25-49	50-99	100-499
23F001	160011E	1	SPST-OFF-ON	1.42	1.14	.85	.71
23F003	160211E	1	SPDT-ON-ON	1.56	1.25	.94	.78
23F004	160411E	1	SPDT-ON-OFF-ON	1.70	1.36	1.02	.85
23F010	160111E	1	SPST-OFF-MOM. ON	1.56	1.25	.94	.78
23F014	160311E	1	SPDT-ON-MOM. ON	1.70	1.36	1.02	.85
23F032	260011E	2	DPST-OFF-ON	2.15	1.72	1.29	1.08
23F033	260211E	2	DPDT-ON-ON	2.65	2.12	1.59	1.33
23F034	260411E	2	DPDT-ON-OFF-ON	2.77	2.22	1.66	1.39
23F035	260111E	2	DPST-OFF-MOM. ON	2.34	1.87	1.40	1.17
23F041	260311E	2	DPDT-ON-MOM. ON	2.71	2.17	1.63	1.36

MOMENTARY PUSHBUTTON SWITCHES—SLOW MAKE & BREAK

Long life expectancy, reliable butt type contacts, low operating pressure, single pole, for use with AC only.

Stock No.	Type	Fig.	Action	Rating 120V	Rating 250V	Cap	Term Type	1-24	25-49	50-99	100-499
23F046	3391	C	ON-MOM. OFF	1	.....	Nkl.	Lug	2.88	2.30	1.73	1.44
23F042	3391-GL	A	OFF-MOM. ON	1	.....	Blk.	Lug	3.80	3.04	2.28	1.90
23F043	3391-GLR	A	OFF-MOM. ON	1	.....	Red	Lug	3.80	3.04	2.28	1.90
23F029	3392	A	2-CIRCUIT NO-NC	1	.....	Nkl.	Lug	3.72	2.98	2.23	1.86
23F044	3392-AE	A	2-CIRCUIT NO-NC	1	.....	Blk.	Lug	4.60	3.68	2.76	2.30
23F118	80511-E	B	OFF-MOM. ON	3	1	Nkl.	Lug	2.25	1.80	1.35	1.13
23F115	80511	B	ON-MOM. OFF	3	1	Nkl.	Lug	2.25	1.80	1.35	1.13
23F119	80541-E	B	OFF-MOM. ON	3	1	Blk.	Lug	2.50	2.00	1.50	1.25
23F120	80541-ER	B	OFF-MOM. ON	3	1	Red	Lug	2.50	2.00	1.50	1.25
23F116	80541	D	ON-MOM. OFF	3	1	Blk.	Lug	2.50	2.00	1.50	1.25
23F117	80541-R	D	ON-MOM. OFF	3	1	Red	Lug	2.50	2.00	1.50	1.25

MIDGET WIPING ACTION MOMENTARY PUSHBUTTON SWITCHES—AC/DC

23F050	83090	E	SPST-OFF-MOM. ON	3	1	Nkl.	Lug	3.67	2.94	2.20	1.84
60F2330	83090-C	E	SPST-OFF-MOM. ON	3	1	*	Lug	3.67	2.94	2.20	1.84
23F049	83093-C	E	DPST-OFF-MOM. ON	3	1	*	Lug	5.00	4.00	3.00	2.50
23F053	83094-C	E	DPDT-ON-MOM. ON	3	1	*	Lug	5.46	4.37	3.28	2.73
23F123	81084-G	F	DPST-OFF-MOM. ON	6	3	Nkl.	Lug	5.57	4.46	3.34	2.79

*Order caps below.

HEAVY DUTY MOMENTARY PUSHBUTTON SWITCHES—ONE H.P. AC/DC

23F055	80631	G	SPST-OFF-MOM. ON	16	8	Nkl.	Screw	6.60	5.28	3.96	3.30
23F036	80630	G	DPST-OFF-MOM. ON	16	8	Nkl.	Screw	6.60	5.28	3.96	3.30

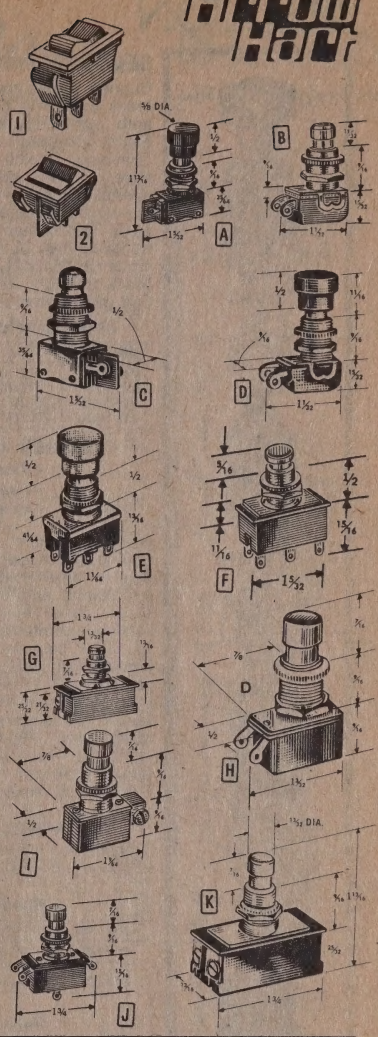
DOUBLE ACTION PUSHBUTTON SWITCHES

23F056	82403-CL	H	SPST-OFF-ON	6	3	*	Lug	2.83	2.26	1.70	1.42
23F058	82405-CL	I	SPST-OFF-ON	6	3	*	Screw	3.16	2.53	1.90	1.58
23F059	81117	J	DPDT-ON-ON	6	3	Nkl.	Lug	5.59	4.47	3.35	2.80
23F054	80863	K	DPST-OFF-ON	16	8	Nkl.	Screw	6.60	5.28	3.96	3.30

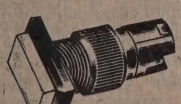
*Order caps below.

CAPS FOR MIDGET and DOUBLE ACTION PUSHBUTTON SWITCHES

Stk. No.	Type	Color	1-24	25-49	50-99	100-499
23F072	3391-194	Black	.60	.48	.36	.30
23F073	3391-372	Red	.60	.48	.36	.30



ADAPT-A-SWITCHES


Lighted Indicator

Lens

Lamp

Actuator-Indicator

Mounting Nut

Contact Block

RECTANGULAR ACTUATOR INDICATORS

Stock No.	Mfr's Type	Description	EACH 1-24	25-99	100-499	500-999
23F1100	83501	Rec. Momentary action	2.12	1.70	1.28	1.06
23F1101	83504	Rec. Alternate action	3.35	2.68	2.01	1.68
23F1102	83502	Square Momentary action	2.12	1.70	1.28	1.06
23F1103	83505	Square Alternate action	3.35	2.68	2.01	1.68
23F1104	83503	Round Momentary action	2.12	1.70	1.28	1.06
23F1105	83506	Round Alternate action	3.35	2.68	2.01	1.68

LENSES FOR ABOVE INDICATORS

Stock No.	Mfr's Type	Description	Stock No.	Mfr's Type	Description
23F1110	83500-70	Rect. white	23F1121	83500-84	Sq. yellow
23F1111	83500-71	Rect. red	23F1122	83500-85	Sq. amber
23F1112	83500-72	Rect. green	23F1123	83500-86	Sq. black
23F1113	83500-73	Rect. blue	23F1124	83500-90	Round white
23F1114	83500-74	Rect. yellow	23F1125	83500-91	Round red
23F1115	83500-75	Rect. amber	23F1126	83500-92	Round green
23F1116	83500-76	Rect. black	23F1127	83500-93	Round blue
23F1117	83500-80	Sq. white	23F1128	83500-94	Round yellow
23F1118	83500-81	Sq. red	23F1129	83500-95	Round amber
23F1119	83500-82	Sq. green	23F1130	83500-96	Round black
23F1120	83500-83	Sq. blue			

1-24.....Each .30 100-499.....Each .18
25-99.....Each .24 500-999.....Each .15

Ideal for business machines and the computer industries. Lighted pushbutton switches designed to offer 25, 344 combinations with 31 components listed below. Highly reliable—100,000 cycles mechanical and electrical at full rating. Rated: 5A @ 125vac, 2A @ 250vac, and 5A @ 28vdc. Minimum rating for dry circuit application 10 microamp, 50 mV. Uses standard T-1¾ (CM #327, #328, #330, incandescent lamp with groove base. (Lamps not supplied.) Installed through front of panel.

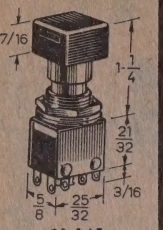
CONTACT BLOCKS (*Silver plated contacts, †gold plated)

Stock No.	Mfr's Type	Description	EACH 1-24	25-99	100-499	500-999
23F1106	83500-30	Standard Duty*	2.29	1.84	1.38	1.15
23F1107	83600-30	Low Energy†	3.82	3.06	2.30	1.91

SNAP-ON CLIP TO CONVERT ANY ACTUATOR TO INDICATOR

23F1131	83500-51	Snap-on-clip	.30	.24	.18	.15

One-Light Pushbutton Switches



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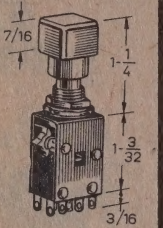

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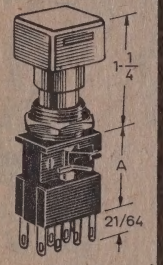

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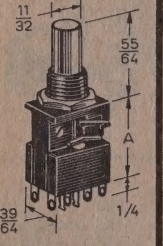

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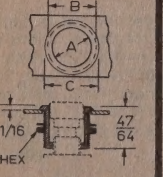
BEZEL ADAPTOR



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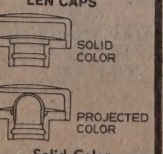
LEN CAPS



Solid Color
Projected Color

SERIES 01-145 AND 01-365 METAL CLAD ONE-LIGHT PUSHBUTTON SWITCHES

Rugged metal housing. 'Butterfly' double break switching mechanism. Available in both momentary and maintained actions. Silver and gold contacts with solder lug terminals. Choice of either T-1¾ flange base or T-1¾ screw base bulb. During operation socket remains stationary reducing lamp damage during normal operations. Lamp replacement accomplished through front of panel. UL and CSA listed. Rated 10 amps 125/250 VAC. Meets requirements of MIL-S 22885/27. Cad. plated brass bushing. Cad. plated steel bracket. (*) Gold.

BEZEL ADAPTOR ORDERING GUIDE

Stk. No.	Type	Cap	Bushing	Each
61F1893	70-2110	⅝"	1 5/32-32	2.25
61F1938	70-2116	⅝"	⅝-24	2.25
61F1920	70-2111	¾"	1 5/32-32	2.40
61F1866	70-2117	¾"	⅝-24	2.40

MOMENTARY ACTION SWITCHES

15/32" Bushing Screw		⅝" Bushing Flange			
Stk. No.	Type	Stk. No.	Type	Description	Each
61F1800	01-145510	61F1937	01-365510	1 Pole Form C	8.60
61F1822	01-145520	61F1955	01-365520	1 Pole Form Z*	9.45
61F1838	01-145530	61F1894	01-365530	1 Pole Form Z	8.55
61F1852	01-145610	61F1868	01-365610	2 Pole Form C	12.15
61F1880	01-145620	61F1959	01-365620	2 Pole Form Z*	13.90
61F1908	01-145630	61F1917	01-365630	2 Pole Form Z	12.05

MAINTAINED ACTION SWITCHES

15/32" Bushing Screw		⅝" Bushing Flange			
Stk. No.	Type	Stk. No.	Type	Description	Each
61F1941	01-145110	61F1850	01-365110	1 Pole Form C	12.30
61F1876	01-145120	61F1980	01-365120	1 Pole Form Z*	13.20
61F1947	01-145130	61F1884	01-365130	1 Pole Form Z	12.25
61F1912	01-145210	61F1904	01-365210	2 Pole Form C	15.55
61F1963	01-145220	61F2060	01-365220	2 Pole Form Z*	17.55
61F1865	01-145230	61F2044	01-365230	2 Pole Form Z	15.45

SERIES 01-748, 01-768, 01-745 ONE-LIGHT PUSHBUTTON SWITCHES

- **Compact**
- **Economical**
- **UL & CSA Listed**

One piece Lexan housing contains Butterfly double break switch in either single or double pole configurations. Momentary, maintained and indicator only functional styles. Silver and gold plated contacts. Available in standard T-1¾ flange as well as screw base lamp designs. .110" quick connect terminals. Easy front of panel lamp replacement. Direct or sub-panel mounting is accomplished via a threaded ⅝ or 15/32 bushing and lock nut. 10 amps 125/250 VAC. **Momentary.** Pre-travel: .093 maximum. Operating Force: 10 oz. maximum. **Maintained.** Pretravel: .187 maximum. Operating Force: 48 oz. maximum.

CYL. PLUNGER FOR 01-745 SERIES

Translucent cylindrical plungers. Excellent side-light viewing.

Momentary Action

Stk. No.	Type	Color	Each
61F1867	80-010768	White	.35
61F1812	80-010765	Red	
61F1911	80-010764	Green	

Maintained Action

Stk. No.	Type	Color	Each
61F1808	80-010894	White	.40
61F1841	80-010891	Red	
61F1946	80-010890	Green	

01-748/01-768 MOMENTARY ACTION SWITCHES

	15/32" Bushing Screw			⅝" Bushing Flange		
Description	Stk. No.	Type	Each	Stk. No.	Type	Each
1 Pole Form C	61F2064	01-748510	4.65	61F1882	01-768510	4.45
1 Pole Form Z	61F2077	01-748530	4.60	61F1906	01-768530	4.35
1 Pole Form Z*	61F2074	01-748520	5.20	61F1957	01-768520	4.95
2 Pole Form C	61F2048	01-748610	5.95	61F2020	01-768610	5.60
2 Pole Form Z	61F1965	01-748630	5.85	61F2000	01-768630	5.50
2 Pole Form Z*	61F1874	01-748620	7.00	61F1968	01-768620	6.70
Indicator	61F1828	01-748000	2.60	61F1930	01-768000	2.50

01-748/01-768 MAINTAINED ACTION SWITCHES

	15/32" Bushing Screw			⅝" Bushing Flange		
Description	Stk. No.	Type	Each	Stk. No.	Type	Each
1 Pole Form C	61F1801	01-748110	6.10	61F1840	01-768110	5.85
1 Pole Form Z	61F1823	01-748130	6.05	61F1854	01-768130	5.75
1 Pole Form Z*	61F2067	01-748120	6.65	61F1945	01-768120	6.35
2 Pole Form C	61F2071	01-748210	7.35	61F1976	01-768210	6.95
2 Pole Form Z	61F2051	01-748230	7.20	61F2007	01-768230	6.85
2 Pole Form Z*	61F1898	01-748220	8.45	61F2013	01-768220	8.05

01-745 MOMENTARY ACTION SWITCHES

15/32" Bushing Screwbase

Stock No.	Type	Description	Each
61F2038	01-745510	1 Pole Form C	4.45
61F1915	01-745530	1 Pole Form Z	4.35
61F2028	01-745520	1 Pole Form Z*	4.95
61F2034	01-745610	2 Pole Form C	5.60
61F2042	01-745630	2 Pole Form Z	5.50
61F2024	01-745620	2 Pole Form Z*	6.70
61F1890	01-745000	Indicator	2.40

01-745 MAINTAINED ACTION SWITCHES

15/32" Bushing Screwbase

Stock No.	Type	Description	Each
61F1806	01-745110	1 Pole Form C	5.75
61F2015	01-745130	1 Pole Form Z	5.65
61F1984	01-745120	1 Pole Form Z*	6.25
61F1926	01-745210	2 Pole Form C	6.90
61F1813	01-745230	2 Pole Form Z	6.75
61F1990	01-745220	2 Pole Form Z*	8.00

LENS CAPS FOR SERIES 01-748 AND 01-145

SOLID COLORS

Stk. No.	Type	Size	Color	Each
61F1807	01-911311	⅝" Sq.	White	.70
61F1843	01-911312	⅝" Sq.	Red	
61F1896	01-911313	⅝" Sq.	Green	
61F2096	01-931311	⅝" Rd.	White	
61F2105	01-931312	⅝" Rd.	Red	
61F1878	01-931313	⅝" Rd.	Green	
61F1892	01-911411	¾" Sq.	White	
61F2091	01-911412	¾" Sq.	Red	
61F2113	01-911413	¾" Sq.	Green	
61F1811	01-931411	¾" Rd.	White	
61F1862	01-931412	¾" Rd.	Red	
61F2030	01-931413	¾" Rd.	Green	

PROJECTED COLORS

Stk. No.	Type	Size	Color	Each
61F2073	01-911321	⅝" Sq.	White	1.20
61F2110	01-911322	⅝" Sq.	Red	
61F2116	01-911323	⅝" Sq.	Green	
61F1967	01-931321	⅝" Rd.	White	
61F2118	01-931322	⅝" Rd.	Red	
61F1919	01-931323	⅝" Rd.	Green	
61F2075	01-911421	¾" Sq.	White	
61F1932	01-911422	¾" Sq.	Red	
61F1992	01-911423	¾" Sq.	Green	
61F2053	01-931421	¾" Rd.	White	
61F2088	01-931422	¾" Rd.	Red	
61F1988	01-931423	¾" Rd.	Green	

LENS CAPS FOR SERIES 01-768 AND 01-365

SOLID COLORS

Stk. No.	Type	Size	Color	Each
61F1996	01-921311	⅝" Sq.	White	.70
61F2018	01-921312	⅝" Sq.	Red	
61F1972	01-921313	⅝" Sq.	Green	
61F1939	01-941311	⅝" Rd.	White	
61F2005	01-941312	⅝" Rd.	Red	
61F2057	01-941313	⅝" Rd.	Green	
61F2111	01-921411	¾" Sq.	White	
61F2117	01-921412	¾" Sq.	Red	
61F2040	01-921413	¾" Sq.	Green	
61F2036	01-941411	¾" Rd.	White	
61F2080	01-941412	¾" Rd.	Red	
61F2103	01-941413	¾" Rd.	Green	

PROJECTED COLORS

Stk. No.	Type	Size	Color	Each
61F2068	01-921321	⅝" Sq.	White	1.20
61F2108	01-921322	⅝" Sq.	Red	
61F2115	01-921323	⅝" Sq.	Green	
61F2084	01-941321	⅝" Rd.	White	
61F2093	01-941322	⅝" Rd.	Red	
61F1928	01-941323	⅝" Rd.	Green	
61F2026	01-921421	¾" Sq.	White	
61F1855	01-921422	¾" Sq.	Red	
61F1910	01-921423	¾" Sq.	Green	
61F2106	01-941421	¾" Rd.	White	
61F2062	01-941422	¾" Rd.	Red	
61F1921	01-941423	¾" Rd.	Green	

Snap-In Panel Mount Lighted Switches

LICON

SERIES 01-665 SNAP IN ONE LIGHT PUSHBUTTON SWITCHES

Snap-in panel mounting. Can be mounted individually or in various strip arrays. Basic switch mechanism is Butterfly double break snap action switch. Available in momentary or maintained action and indicator only. Standard terminals: .110 quick connect. Accepts standard T-1¾ flange base lamps. Replaceable from front panel. UL and CSA listed. 10 amps 125/250 VAC. Form C is SPST, Form Z is SPDT-DB.

MAINTAINED ACTION

Stk. No.	Type	Description	Housing*	Each
61F2076	01-665111	1 Pole Form C	1	7.45
61F2087	01-665112	1 Pole Form C	2	
61F2112	01-665114	1 Pole Form C	4	
61F2095	01-665116	1 Pole Form C	6	
61F2011	01-665131	1 Pole Form Z	1	7.40
61F2104	01-665132	1 Pole Form Z	2	
61F2104	01-665134	1 Pole Form Z	4	
61F2100	01-665136	1 Pole Form Z	6	
61F1888	01-665211	2 Pole Form C	1	8.65
61F1821	01-665212	2 Pole Form C	2	
61F1837	01-665214	2 Pole Form C	4	
61F1974	01-665216	2 Pole Form C	6	
61F2002	01-665231	2 Pole Form Z	1	8.55
61F2050	01-665232	2 Pole Form Z	2	
61F2081	01-665234	2 Pole Form Z	4	
61F2102	01-665236	2 Pole Form Z	6	

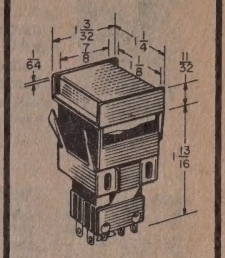
MOMENTARY ACTION

Stk. No.	Type	Description	Housing*	Each
61F1817	01-665511	1 Pole Form C	1	6.10
61F1833	01-665512	1 Pole Form C	2	
61F1846	01-665514	1 Pole Form C	4	
61F2072	01-665516	1 Pole Form C	6	
61F2085	01-665531	1 Pole Form Z	1	6.05
61F2079	01-665532	1 Pole Form Z	2	
61F2063	01-665534	1 Pole Form Z	4	
61F1886	01-665536	1 Pole Form Z	6	
61F1994	01-665611	2 Pole Form C	1	7.25
61F2090	01-665612	2 Pole Form C	2	
61F2098	01-665614	2 Pole Form C	4	
61F2069	01-665616	2 Pole Form C	6	
61F2092	01-665631	2 Pole Form Z	1	7.15
61F1978	01-665632	2 Pole Form Z	2	
61F1858	01-665634	2 Pole Form Z	4	
61F1870	01-665636	2 Pole Form Z	6	
61F1902	01-665001	Indicator	1	5.40
61F2055	01-665002	Indicator	2	
61F2114	01-665004	Indicator	4	
61F2083	01-665006	Indicator	6	

LENS CAP

Stk. No.	Type	Description	Each
61F2111	01-921411	Solid White	.70
61F2117	01-921412	Solid Red	
61F2040	01-921413	Solid Green	
61F2026	01-921421	Projected White	1.20
61F1855	01-921422	Projected Red	
61F1910	01-921423	Projected Green	

***NOTE:** Housing Styles. **1**—Vertical row mount with vert. barriers. **2**—Horizontal row mount with vert. barriers. **4**—Horizontal row mount with single vert. barrier. **6**—Horizontal row mount with bezel only.



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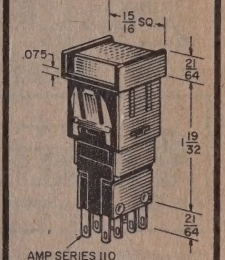


AMP SERIES 110 TERMINALS (TYP)

01-665

SERIES 01-865 RECTANGULAR SNAP-IN PUSHBUTTON SWITCHES

Snap-in panel mounting. Butterfly snap-action basic switch mechanism. Momentary maintained, and indicator only functional styles. Solder lug terminals. Accepts one T-1¾ flange base lamp. Available in one or two poles. Attractive rectangular bezel-barrier housing. UL and CSA listed. Rated 10 amps. 125/250 VAC.

1⅛ x ⅞" LENS CAPS

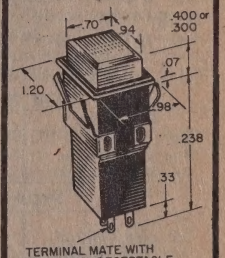
Color	Solid Color			Projected Color		
	Stk. No.	Type	Ea.	Stk. No.	Type	Ea.
White	61F1934	01-951911	.90	61F2078	01-951921	1.40
Red	61F2070	01-951912	.90	61F2065	01-951922	1.40
Green	61F2082	01-951913	.90	61F1943	01-951923	1.40

MOMENTARY ACTION

Stk. No.	Type	Description	Each
61F1949	01-865000	Indicator Only	2.90
61F2054	01-865510	1 Pole Form C	5.40
61F2094	01-865530	1 Pole Form Z	5.35
61F2089	01-865610	2 Pole Form C	7.75
61F1860	01-865630	2 Pole Form Z	7.60

MAINTAINED ACTION

Stk. No.	Type	Description	Each
61F2101	01-865110	1 Pole Form C	8.05
61F1924	01-865130	1 Pole Form Z	8.00
61F2123	01-865210	2 Pole Form C	10.50
61F2046	01-865230	2 Pole Form Z	10.30



TERMINAL MATE WITH .110 FASTON RECEPTACLE

01-669

SERIES 01-669 LIGHTED PUSHBUTTON SWITCHES

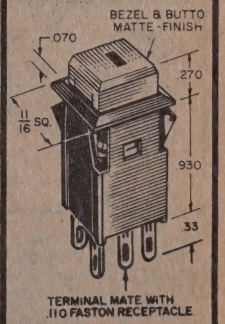
One piece construction. Front of panel re-lamping, mounting. Mounts in .885 x 1.095 panel cutout. Double break Butterfly switch. Momentary or alternate action. Solid fine silver contacts. Standard terminals mate with .110 Faston receptacles. T-1¾ flange base lamps. 10 amps (Form Z). 5 amps (Form C). 125/250 VAC.

FROST GLO LENS CAPS

Stock No.	Type	Description	Each
61F1969	01-969311	Solid White	1.15
61F2066	01-969312	Solid Red	1.15
61F2099	01-969313	Solid Green	1.15

SWITCHES

Stk. No.	Type	Description	Each
61F2121	01-669511	SPDT Form C Momentary	4.85
61F2107	01-669111	SPDT Form C Alternate	6.60
61F1848	01-669611	DPDT Form C Momentary	5.90
61F1961	01-669211	DPDT Form C Alternate	7.60
61F2097	01-669531	SPDT Form Z Momentary	4.75
61F1982	01-669131	SPDT Form Z Alternate	6.55
61F2032	01-669631	DPDT Form Z Momentary	5.75
61F2059	01-669231	DPDT Form Z Alternate	7.50



TERMINAL MATE WITH .110 FASTON RECEPTACLE

Series 05

SERIES 05 LIGHTED PUSHBUTTON SWITCHES

Momentary and maintained (†) action. Snap in bezel mounting. Front of panel relamping. Accepts T-1¾ wedge base lamp or LED (included). Bifurcated silver plated contacts. .110 quick connect terminals with faston receptacles. Rated at .25 amps, 125 VAC maximum. UL listed. PC board terminals (*) standard on LED units.

LIGHTED/NON-LIGHTED SWITCHES

Stk. No.	Type	Description	Each
61F1818	05-115	Lighted SPST N.O.	1.30
61F1847	05-125	Lighted DPST N.O.	2.50
61F2006	05-105	Lighted Indicator Only	.80
28F2506	05-135	Lighted SPDT	2.30
61F1834	05-215	Non-lighted SPST N.O.	1.05
61F1983	05-225	Non-lighted DPST N.O.	2.25
28F2507	05-1411†	Lighted SPDT Red	3.40
28F2508	05-1412†	Lighted SPDT Green	3.40
28F2509	05-1413†	Lighted SPDT Yellow	3.40
61F1962	05-46501	LED SPST N.O., red*	3.65
61F1887	05-46502	LED SPST N.O., green*	3.65
61F1889	05-46503	LED SPST N.O., yellow*	3.65
61F1973	05-47501	LED DPST N.O., red*	4.80
61F1991	05-47502	LED DPST N.O., green*	4.80
61F2001	05-47503	LED DPST N.O., yellow*	4.80

Stk. No.	Type	Description	Each
61F2019	05-45501	LED Indicator, red*	3.15
61F1981	05-45502	LED Indicator, green*	
61F1933	05-45503	LED Indicator, yellow*	
28F2510	05-48501	SPDT Red LED*	4.60
28F2511	05-49191†	SPDT Red LED*	5.65

STANDARD LENSES

Stk. No.	Type	Color	Stk. No.	Type	Color
61F1819	80-050007	White	61F2014	80-050011	Yellow
61F1835	80-050008	Red	61F1985	80-050012	Amber
61F1960	80-050009	Green	61F1968	80-050013	Orange
61F1997	80-050010	Blue	61F1914	80-050014	Clear

NET.....25

LED LENSES

Stk. No.	Type	Color	Stk. No.	Type	Color
61F2014	86-050011	White	61F1952	86-050015	Yellow
61F2085	86-050012	Red	61F1942	86-050016	Amber
61F1968	86-050013	Green	61F1869	86-050017	Black
61F1914	86-050014	Blue			

NET.....55

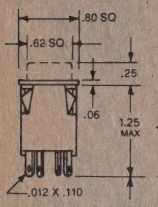
Lens for Series 05

8

LICON Lighted Pushbutton Switches

SERIES 05-6 LIGHTED PUSHBUTTON SWITCHES

Mount in .75" square cutout. Accept T-1¾ flange base bulbs (not included). Bulbs are replaceable from front panel. Switches all 125 VAC contacts with independently lit indicator bulbs. .110 quick connect terminals on back. Terminal clearance .18" to facilitate hand wiring. Panel thickness range .062-.125". Barriers prevent accidental switching.



LENS DISPLAYS

Stk. No.	Type	Color	1-49	50-99	100-499	500-999
28F2525	80-050602	White	.30	.27	.24	.21
28F2526	80-050603	Red				
28F2527	80-050604	Green				
28F2528	80-050605	Blue				
28F2529	80-050606	Yellow				
28F2530	80-050607	Amber				
28F2531	80-050608	Orange				
28F2532	80-050641	Black				

MOMENTARY SWITCHES

Stk. No.	Type	Contacts	Amps	1-49	50-99	100-499	500-999
28F2512	05-62125	1 Pole N.O.	1	1.90	1.71	1.54	1.33
28F2513	05-62225	2 Pole N.O.	1	3.25	2.93	2.63	2.28
28F2514	05-62325	SPDT	1	2.25	2.03	1.82	1.58
28F2515	05-62425	1 Pole N.O.	3	2.50	2.25	2.03	1.75
28F2516	05-62525	2 Pole N.O.	3	4.60	4.14	3.73	3.22
28F2517	05-62625	SPDT	3	3.60	3.24	2.92	2.52
28F2518	05-61025	Indicator	—	1.20	1.08	.97	.84

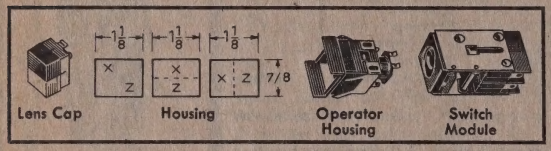
MAINTAINED SWITCHES

Stk. No.	Type	Contacts	Amps	1-49	50-99	100-499	500-999
28F2519	05-63125	1 Pole N.O.	1	3.60	3.24	2.92	2.52
28F2520	05-63225	2 Pole N.O.	1	4.00	3.60	3.24	2.80
28F2521	05-63325	SPDT	1	3.95	3.56	3.20	2.77
28F2522	05-63425	1 Pole N.O.	3	4.20	3.78	3.40	2.94
28F2523	05-63525	2 Pole N.O.	3	5.35	4.82	4.33	3.75
28F2524	05-63625	SPDT	3	5.20	4.68	4.21	3.64

BARRIERS

Stk. No.	Type	Description	1-49	50-99	100-499	500-999
28F2533	80-050634	End	.50	.45	.41	.35
28F2534	80-050635	Center	.50	.45	.41	.35

SERIES 02 RECTANGULAR SNAP-IN TWO LIGHTS PUSHBUTTON SWITCHES



UL and CSA listed at 10 amps 125/250 VAC. Silver or gold plated contacts and solder lug terminals standard. Accepts standard T-1¾ flange base lamps.

Note: to order a complete switch you must order lens cap, housing and switch module. Lens Caps. 1⅛" x ⅞" rectangular.

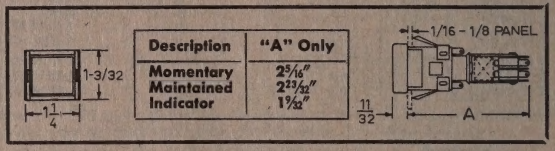
Ample room for legend indication. Snap in or out easily for front of panel relamping. For desired color replace XZ with 1) White 2) Red 3) Green 4) Blue 5) Yellow 6) Amber 7) Orange.

SOLID COLOR DISPLAY LENS CAPS

Description	Type	1-49	50-99	100-499	500-999
Full Screen	02-61XZ	1.15	1.04	.93	.81
Split Screen Vertical	02-62XZ	1.90	1.71	1.54	1.33
Split Screen Horizontal	02-66XZ	2.85	2.57	2.31	2.00

PROJECTED COLOR LENS CAPS

Full Screen	02-64XZ	1.90	1.71	1.54	1.33
Split Screen Vertical	02-65XZ	2.85	2.57	2.31	2.00
Split Screen Horizontal	02-63XZ	1.90	1.71	1.54	1.33



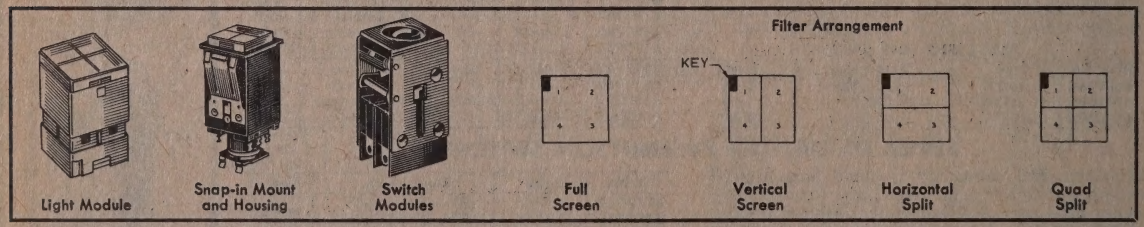
Housing. Bezel barrier housing. May be individually mounted or mounted in various strip arrays. Cut out size: 1.0 x 1.14.

Stock No.	Type	Description	1-49	50-99	100-499	500-999
61F1970	02-73	Operator Housing	3.30	2.97	2.67	2.31
61F2039	02-76	Indicator Only	2.95	2.66	2.39	2.07

Switch Module. Module snaps on to switch housing to complete lighted switch assembly. Contain one or more "Butterfly" double break basic switches in momentary or maintained action.

Stock No.	Type	Description	Each
61F1845	76-2751	1 Pole Form C Momentary	4.65
61F1936	76-2753	1 Pole Form Z Momentary	4.60
61F1995	76-2713	1 Pole Form Z Maintained	7.30
61F1987	76-2761	2 Pole Form C Momentary	6.00
61F2035	76-2721	2 Pole Form C Maintained	8.95
61F2010	76-2763	2 Pole Form Z Momentary	5.80
61F1885	76-2723	2 Pole Form Z Maintained	8.85

SERIES 04 4 LIGHT PUSHBUTTON SWITCHES



Complete unit consists of light module, housing and snap on switch module Accepts 4 standard T 1¾ flange base lamps. Relamping from front of panel. UL and CSA listed at 10 amps, 125/250 VAC. Solder lug terminals, silver contacts standard, Cut out size: .89 x 1.0

Stock No.	Type	Description	Action	Price Each
61F1845	76-2751	1 Pole Form C	Momentary	4.65
61F1936	76-2753	1 Pole Form Z	Momentary	4.60
61F1987	76-2761	2 Pole Form C	Momentary	6.00
61F2010	76-2763	2 Pole Form Z	Momentary	5.80
61F1922	76-2771	3 Pole Form C	Momentary	8.85
61F2012	76-2773	3 Pole Form Z	Momentary	8.60
61F2043	76-2781	4 Pole Form C	Momentary	14.50
61F2056	76-2783	4 Pole Form Z	Momentary	14.20
61F2031	76-2711	1 Pole Form C	Maintained	7.35
61F1995	76-2713	1 Pole Form Z	Maintained	7.30
61F2035	76-2721	2 Pole Form C	Maintained	8.95
61F1885	76-2723	2 Pole Form Z	Maintained	8.85
61F2004	76-2731	3 Pole Form C	Maintained	15.80
61F1901	76-2733	3 Pole Form Z	Maintained	15.60

Stock No.	Type	Description	Action	Price Each
61F1851	76-2741	4 Pole Form C	Maintained	17.30
61F1907	76-2743	4 Pole Form Z	Maintained	17.00

HOUSINGS

Stock No.	Type	Description	Each
61F1804	04-76	Black Bezel Operator	7.15
61F1929	04-26	Black Bezel Indicator	6.86
61F1826	04-78	Black Bezel Barrier Operator	7.15

LIGHT MODULE

Description	Solid Screen Operator	Solid Screen Indicator	1-49	50-99	100-499	500-999
Full Screen	04-601	04-631	4.60	4.14	3.73	3.22
Vert. Split	04-602	04-632	5.25	4.73	4.25	3.68
Horiz. Split	04-603	04-633	5.25	4.73	4.25	3.68
Quad Split	04-607	04-637	5.95	5.36	4.82	4.17

Note: State color filter arrangement by listing, in numerical order shown in artwork, appropriate letter symbol for each filter. W=white, R=red, G=green, Y=yellow, A=amber, B=blue, O=orange.

Switches

LICON

SERIES 06 LIGHTED PUSHBUTTON SWITCHES

ONE LIGHT FULL-SCREEN LENS CAPS

SOLID COLOR—(*) COLOR

Stk. No.	Type	C*	1-49	50-99	100-499
61F1816	06-61111	W			
61F1832	06-61122	R	1.55	1.40	1.26
61F1857	06-61133	Grn			

PROJECTED COLOR

61F2029	06-61211	W			
61F2122	06-61222	R	1.55	1.40	1.26
61F1950	06-61233	Grn			

PROJECTED COLOR, INSERTABLE LEGEND

61F2037	06-61411	W			
61F2061	06-61422	R	1.55	1.40	1.26
61F2025	06-61433	Grn			

HIDDEN DISPLAY

61F1923	06-61611	W			
61F2052	06-61622	R	1.55	1.40	1.26
61F2047	06-61633	Grn			

TWO LIGHT FULL-SCREEN LENS CAPS

SOLID COLOR

Stk. No.	Type	C*	1-49	50-99	100-499
61F1977	06-64111	W			
61F1913	06-64122	R	1.70	1.53	1.38
61F1873	06-64133	Grn			

PROJECTED COLOR

61F1989	06-64211	W			
61F2023	06-64222	R	1.70	1.53	1.38
61F1944	06-64233	Grn			

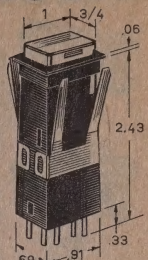
PROJECTED COLOR, INSERTABLE LEGEND

61F1899	06-64411	W			
61F2033	06-64422	R	1.70	1.53	1.38
61F2017	06-64433	Grn			

HIDDEN DISPLAY

61F1999	06-64611	W			
61F1954	06-64622	R	1.70	1.53	1.38
61F1871	06-64633	Grn			

Rated at 50,000 cycles at full rated load. Accepts standard T1-¾ flange base bulbs. Maximum wattage 2.4 watts. Relamping may be accomplished thru front of panel, no special tools required. Direct front panel installation in .700 x .920 panel cut-out in panels .062 to .140" thickness. Matte black snap-in bezel mount assures rigid retention and permanent alignment. 10 amps at 125/250 VAC silver contacts. UL Listed. CSA Approved.



SWITCHES

Stock No.	Type	Form	Description	1-49	50-99	100-499	500-999
61F1805	06-710001	C	1 Pole, mom.	4.60	4.14	3.73	3.22
61F1827	06-710002	C	1 Pole, mom.	6.05	5.45	4.90	4.24
61F1839	06-710003	C	1 Pole, alt.	5.55	5.00	4.50	3.89
61F1958	06-710004	C	2 Pole, alt.	6.65	5.99	5.39	4.66
61F1883	06-710005	Z	1 Pole, mom.	4.55	4.10	3.69	3.19
61F1966	06-710006	Z	2 Pole, mom.	5.95	5.36	4.82	4.17
61F1877	06-710007	Z	1 Pole, alt.	5.50	4.95	4.46	3.85
61F1940	06-710008	Z	2 Pole, alt.	6.55	5.90	5.31	4.59
61F1971	06-710018	Z	2 Pole, mom. gold	6.90	6.21	5.59	4.83
61F1863	06-710020	Z	2 Pole, alt. gold	7.50	6.75	6.08	5.25

ACTUATORS FOR SWITCHES ON NEXT PAGE

TYPE 11 ACTUATORS

Stock No.	Type	Kind	Oper. Force	RLS Force	Pre-travel	Over Trvl	Mov. Dif.	Price Each
23F168	71-1040	Roller	3.5 Max.	2 Min.	.093 Max.	.062 Min.	.030+.015	1.40
23F169	71-2010	O.T.	8+3	4 Min.	.050 Max.	.215 Min.	.020+.005	3.85

TYPE 16 ACTUATORS

Stock No.	Type	Kind	Oper. Force	RLS Force	Pre-travel	Over Trvl	Mov. Dif.	Price Each
23F188	76-1200	Roller	2.5 Max.	1 Min.	.125 Max.	.025 Min.	.047+.011	1.45
23F189	76-1210	Lever	2.5 Max.	1 Min.	.125 Max.	.025 Min.	.047+.013	.90
61F1895	76-1220	Roller	5+3	2 Min.	.050 Max.	.012 Min.	.020+.005	3.40
61F1864	76-2260	O.T.	5/32 Min.	.....	.....	.....	.....	3.40

TYPE 18 ACTUATORS

Stock No.	Type	Kind	Oper. Force	RLS Force	Pre-travel	Over Trvl	Mov. Dif.	Price Each
61F1856	78-3000	Lever	.....	.....	.....	.....	.....	.85
61F2027	78-3100	Roller	6+2	2 Min.	125 Max.	.030 Min.	.035+.015	2.00

TYPE 22 ACTUATORS

61F1875	72-1160	Roller	.....	.....	.....	.....	.....	1.90
61F1918	72-1150	Lever	10 Max.	1.5 Max.	.150 Max.	.035 Min.	.070+.015	.95
61F1849	72-2080	O.T.	17+5	4 Min.	.060 Max.	.215 Min.	.030+.007	2.60

TYPE 26/36 ACTUATORS

23F188	76-1200	Roller	12 Max.	1.5 Min.	.125 Max.	.025 Min.	.055+.022	1.45
23F189	76-1210	Lever	9 Max.	2 Min.	.155 Max.	.025 Min.	.065 Max.	.90
61F1895	76-1220	Short	12+4	5 Min.	.050 Max.	.012 Min.	.020+.005	3.40
61F1864	76-2260	O.T.	16+4	4 Min.	.050 Max.	.150 Min.	.020+.005	3.40

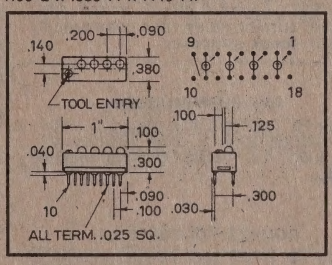
SERIES 43 PUSHBUTTON SWITCHES WITH LED INDICATORS

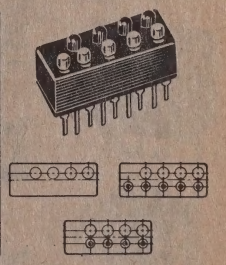
Combines SPST, NO momentary pushbutton switches with miniature T-1 size LED's. Mounts directly on PC card. Terminals standard D.I.P. .100 x 300" spacings. UL 94V-0 rated, polyester case material. Terminals chamfered on ends for easy PC card insertion. Tested to over 100,000 cycles.

LED, T-1 size, red diffused. Nominal current: 20 MA at 1.6 VDC. Max forward voltage: 2 VDC. Max. forward current: 50 MA. **Switch.** Max current: 100 MA, resistive @ 5 VDC; 50 MA, resistive @ 12 VDC. Initial switch resistance: 50 milliohms @ 1 VDC, 100 MA. Less than 10 milliohms resistance change over 100,000 life cycles.

Stock No.	Type No.	No. of Switches	No. of LED's	1-49	50-99	100-499	500-999
61F1882	43-013002	1	4	5.65	5.09	4.58	3.96
61F1905	43-053001	5	4	6.85	6.17	5.55	4.80
61F1861	43-043002	4	4	6.60	5.94	5.35	4.62
61F1909	43-009501	0	4	5.40	4.86	4.37	3.78

Combined switch/indicator package requires much less PC card area than separate switches and indicators or the conventional lighted PB switches often used to perform press-to-test functions. Compatability with soldering and PC card cleaning procedures. 1.00"L x .380"H x .440"H.

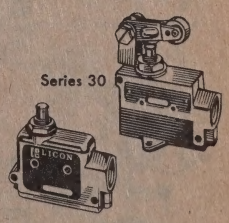




SERIES 30 DIECAST ENCLOSED SWITCHES

Stock No.	Type No.	Description	Housing	Mount	1-49
23F175	30-100	Overtravel plngr	Diecast	Side	10.80
23F172	30-200	Sealed OT plngr	Diecast	Side	13.00
23F176	30-300	Roller lever	Diecast	Side	17.70
23F173	30-400	Sealed roller	Diecast	Side	20.10
25F2105	30-420	Sealed roller	Diecast	Side	20.10
23F177	30-500	Roller plunger	Diecast	Side	17.70
23F174	30-600	Palm button	Diecast	Side	21.10
25F2108	30-700	Sealed roller	Diecast	Side	19.20
25F2114	30-200010	Sealed OT plngr	Diecast	Side	15.40
25F2115	30-220010	Sealed OT plngr	Diecast	Base	15.40
60F2060	30-340	Roller lever	Split	Side	17.70
25F2119	30-350	Roller lever	Split	Base	17.70
61F1810	30-40001	Roller lever	Split	Side	21.20
61F1825	30-42001	Roller lever	Split	Side	22.55
60F2071	30-540	Roller plunger	Split	Side	17.70

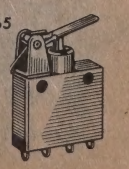
Accurate repeatability, long life and precise electrical control for heavy duty limit, safety and interlock operations. Durable switch protection, multiple mounting and actuating flexibility. Internal basic switch accessible for wiring or replacement by removing bottom plate. Available in a variety of infinitely adjustable actuators. Aluminum housing. Permits adequate wiring room. Has ½-14 internal tap conduit hub. Rated 15 amps, 125, 250 and 480 VAC; ½ amp 115 VDC. Size: 3 x1 x 2½".



SERIES 65 SUBMINIATURE SEALED SWITCHES

Dependable, environment-free snap action switching with ratings up to 10 amps, 30 VDC. SPDT 2-circuit configuration. Solder terminals. Quick disconnect, screw and potted leads available on special order. Size: .850" x .320", ½" mounting centers. UL listed.

Stock No.	Type	Description	1-49
25F2135	65-101	Rigid lever	13.95
25F2137	65-301	Roller lever	14.85
25F2138	65-401	OT Plunger	16.80



Snap Switches

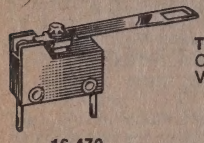
10-132

10-832

16-104

16-304

16-404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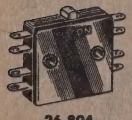
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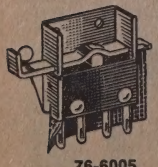
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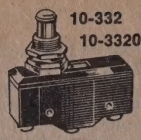
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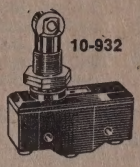
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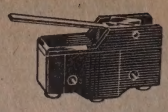
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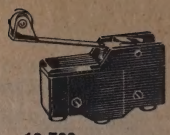
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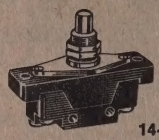

14-324

14-124

14-724

BASIC SWITCHES

Type 10. Highly sensitive "serpentine blade" snap action switch. UL rated for precision basic switch appl. 15 Amps (75-80%PF) 126, 250, 480 VAC. 0.5A, 128 VDC. #6 Screw Term and cup washer.

MINATURE SWITCH

Type 11. High capacity two circuit Double break mechanism with wiping action. UL/CSA listed. SPDT-DB. Form Z. ¾ Hp. 250 VAC. 10 Amp 125/250 VAC 75%-80% P.F.

HEAVY DUTY SWITCH

Type 14. Industrial limit switch. Uses double break mechanism for high electrical rating. UL listed. 20 Amps @ 125/250 480 VAC. 75-80%PF. SPDT-DB. Form Z.

SUBMINIATURE SWITCH

Type 16 Double break. 2 circuit. UL/CSA listed. 10 Amps @ 125/250 VAC.

SUBMINIATURE-INTEGRAL LEVER SNAP ACTION SWITCH

Type 16-470. Double break type. Rated 5 @ 125/250 VAC; ¼ HP @ 125 VAC. Allows 2 circuit control and higher current rating than comparable single break switches.

SUB SUBMINIATURE

Type 18. Double break. Rated: 7 amps @ 125/250 VAC; 3 amps inductive @ 28 VDC. UL listed. Diallylphthalate case.

DOUBLE POLE SWITCH

Type 22. DPDT high current interruption. Rated: 10 amperes @ 125/250 VAC, 75-80%PF. UL listed. 10 amps @ RES 30 VDC. Double bearing guide. Wiping action. Beryllium copper switch blades.

DOUBLE POLE SUBMINIATURE SWITCH

Type 26. Two Butterfly Double break mechanisms. Both poles operate simultaneously due to special linkage. Uses type 76 actuators. UL rated 8 amps @ 125/250 VAC, 75-80%PF. UL listed. DPDT-DB (Form ZZ). 10 amps res., 5 ind. @ 28 VDC.

TYPE 76

Type 76. Subminiature door interlock switch for electronic equipment. Manual set for servicing. Uses Type 26 or 36 double break switches.

TYPE 10

Stock No.	Type	Splash Proof Seal	Oper. Force (Oz.)	RLS Force (Oz.)	Pre Travel	Over Travel	Mov Diff.	Each
23F151	10-132	No	10± 3	4 Min.	.015 Max.	.005 Min.	.0004-.002	3.65
23F155	10-332	No	10± 3	4 Min.	.015 Max.	.219 Min.	.0004-.002	7.85
61F1814	10-332001	Yes	11± 4	4 Min.	.015 Max.	.219 Min.	.0004-.002	9.10
23F156	10-432	No	6 Max.	½ Min.	.156 Max.	.060 Min.	.050 Max.	3.95
23F157	10-532	No	6 Max.	½ Min.	.187 Max.	.060 Min.	.050 Max.	5.40
23F158	10-632	No	3.5 Mx.	½ Min.	.406 Max.	.156 Min.	.005-.045	4.60
23F159	10-732	No	3.5 Mx.	½ Min.	.312 Max.	.156 Min.	.045 Max.	5.70
23F160	10-832	No	10± 3	4 Min.	.015 Max.	.060 Min.	.0004-.002	4.70
23F181	10-932	No	10± 3	4 Min.	.015 Max.	.140 Min.	.0004-002	15.90

TYPE 11

Stock No.	Type	Terminals	Description	Each
23F161	11-104	End Solder	Basic Switch	2.75
23F162	11-204	#4 Screw	Basic Switch	3.00
23F163	11-304	Side Solder	Basic Switch	2.95
61F1830	11-504	Quick Disconnect, 250	Basic Switch	2.80
61F1844	11-114	End Solder	Reset Action	3.30
61F1935	11-314	Side Solder	Reset Action	3.35

TYPE 14

Stock No.	Type	Mntg.	Oper. Force	Release Force	Pre-Travel	Over Travel	Mov. Diff.	Each
61F2041	14-324	Stan.	12± 3	4 Min.	.074 Max.	.218 Min.	.020±.005	8.25
23F178	14-12403	Vert.	12± 3	4 Min.	.074 Max.	.218 Min.	.020+.005	5.70
61F1953	14-124	Stan.	12± 3	4 Min.	.074 Max.	.030 Min.	.020+.005	5.40
61F1872	14-12404	Vert.	12± 3	4 Min.	.074 Max.	.030 Min.	.020+.005	5.70
23F180	14-12804	Vert.	12± 3	4 Min.	.074 Max.	.030 Min.	.020+.005	6.15
61F1900	14-724	Stan.	5± 2	2 Min.	.56 Min.	.060 Max.	.046±.0121	7.30
61F2049	14-72403	Vert.	5± 2	2 Min.	.156 Min.	.060 Max.	.046+.012	7.65

TYPE 16

23F179	16-104	Stan.	3-8± 2	2 Min.	.050 Max.	.012 Min.	.020±.005	3.45
23F182	16-304	Stan.	3-8± 2	2 Min.	.050 Max	.012 Min.	.020±.005	3.45
23F183	16-404	Stan.	3-8± 2	2 Min.	.050 Max.	.012 Min.	.020±.005	3.45
61F2003	16-40421	Stan.	3-8± 2	2 Min.	.050 Max.	.012 Min.	.020±.005	4.70
61F2119	16-403	Stan.	3-8± 2	2 Min.	.050 Max.	.012 Min.	.020±.005	3.15
23F187	16-504	Stan.	3-8± 2	2 Min.	.050 Max.	.012 Min.	.020±.005	3.45
61F2045	16-503	Stan.	3-8±2	2 Min.	.050 Max.	.012 Min.	.020±.005	3.15

TYPE 16-470 SERIES

Stock No.	Type	Terminal	Circuit	Each
28F2538	16-470004	.110 lugs (2)	SPNO-DB	3.60
28F2539	16-470101	.110 lugs (4)	SPDT-DB	3.60
28F2540	16-470102	.110 lugs (4)	SPDT-DB	4.30
28F2541	16-470103	.110 lugs (4)	SPDT-DB	4.30
28F2542	16-470104	.110 lugs (4)	SPDT-DB	3.60
38F2543	16-470105	.110 lugs (4)	SPDT-DB	3.60

TYPE 18

Stock No.	Type	Terminal	Circuit	Each
60F1952	18-40421	Solder-Lug	DPDT-DB (Form Z)	6.65
60F1950	18-430080	P.C. Terminals	SPDT-DB (Form Z)	6.65

TYPE 22

61F1979	22-104	End Solder	DPDT-DB (Form ZZ)	8.70
23F185	22-304	Side Solder	DPDT-DB (Form ZZ)	8.70
61F1948	22-202	#4 Screw	DPST-DB (N.O.) (Form XX)	8.85
61F1802	22-504	½" Quick Disconnect	DPDT-DB (Form ZZ)	8.70

TYPE 26

60F1961	26-804	End Solder	DPDT-DB (Form ZZ)	9.50
60F1962	26-904	Side Solder	DPDT-DB (Form ZZ)	9.50

TYPE 76-6

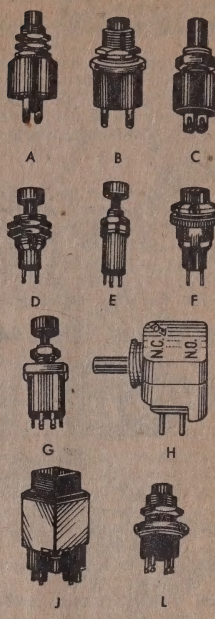
Stock No.	Type	Terminal	Circuit	Each
28F2535	76-6005	.125 lug	Single pole	4.50
28F2536	76-6009	.125 lug	Double pole	10.60
28F2537	76-6012	.125 lug	Triple pole	15.50

Switches and Hardware

PUSHBUTTON SWITCHES

Stock No.	Type	Fig.	Amps, 115 VAC Res.	Contacts	Features	Button	Dimensions, in. Mtg. Hole	Behind Panel	O.A. Ht.	Each 1-49	50-99	100-499	500-999
57F2615	10-9*	B	1	SPST-NO	Silent action	Blk	3/16	.965	1.500	1.65	1.40	1.16	.99
24F200	2201	A	10	SPST-NO	Snap action	Red	3/16	1.176	1.903	4.80	4.08	3.56	2.88
24F201	2202	A	10	SPST-NC	Snap action	Blk	3/16	1.176	1.903	4.40	3.74	3.08	2.64
24F204	23-1	B	¼	SPST-NO	Silent action	Red	21/64	.663	1.059	1.90	1.62	1.33	1.14
24F205	30-1*	B	1	SPST-NO	Silent action	Red	17/64	.592	.992	1.25	1.06	.88	.75
24F206	30-2*	B	1	SPST-NC	Silent action	Blk	17/64	.605	1.005	1.35	1.14	.95	.81
57F2616	30-3*	B	1	SPST-NO	Silent action	Blk	17/64	.592	.992	1.25	1.06	.88	.75
57F2617	30-15	B	1	SPST-NO	Overtravel	Red	17/64	.677	1.077	1.45	1.23	1.02	.87
57F2618	30-17R	D	1	SPST-NO	Positive feel	Red	3/16	.958	1.350	2.05	1.74	1.44	1.23
57F2623	30-01-03-500-0707(B)	J	1	SPST-NO	Overtravel	Blk	.610 sq.	1.142	1.490	3.20	2.72	2.24	1.92
57F2624	30-01-03-500-0303(R)	J	1	SPST-NO	Overtravel	Red	.610 sq.	1.142	1.490	3.20	2.72	2.24	1.92
57F2627	30-05-01-502-0707(B)	F	1	SPST-NO	.....	Blk	.510 sq.	.932	1.280	2.70	2.30	1.89	1.62
57F2628	30-05-01-502-0303(R)	F	1	SPST-NO	.....	Red	.510 sq.	.932	1.280	2.70	2.30	1.89	1.62
57F2632	30-05-03-502-0303(R)	F	1	SPST-NO	Overtravel	Red	.510 sq.	1.002	1.350	2.80	2.38	1.96	1.68
57F2634	30-05-04-502-0303(R)	F	1	SPST-NO	Pos. feel	Red	.510 sq.	1.132	1.480	3.55	3.02	2.49	2.13
24F207	35-1	L	½	DPST-NO	Momentary	Red	3/16	.977	1.274	2.55	2.17	1.79	1.53
24F209	39-1	C	½	SPST-NO	Silent	Red	1/16	.315	.615	1.70	1.45	1.19	1.02
24F236	39-2	C	¼	SPST-NO	Silent	Blk	1/16	.490	.780	2.50	2.13	1.75	1.50
57F2635	39-3	C	½	SPST-NO	Silent	Blk	1/16	.315	.615	1.70	1.45	1.19	1.02
24F202	4001*	B	1	SPST-NO	Silent	Red	3/16	.965	1.500	1.65	1.40	1.16	.99
24F203	4002	B	1	SPST-NC	Silent	Blk	3/16	.965	1.500	1.65	1.40	1.16	.99
23F895	46-101R	B	¼	SPDT-BBM	Momentary	Red	17/64	.890	1.327	1.90	1.62	1.33	1.14
23F894	46-101B	B	¼	SPDT-BBM	Momentary	Blk	17/64	.890	1.327	1.90	1.62	1.33	1.14
23F897	46-102R	E	¼	SPDT-BBM	Momentary	Red	17/64	.890	1.327	2.00	1.70	1.40	1.20
23F896	46-102B	E	¼	SPDT-BBM	Momentary	Blk	17/64	.890	1.327	2.00	1.70	1.40	1.20
23F918	46-110R	B	¼	SPDT-MBB	Momentary	Red	17/64	.890	1.327	2.05	1.74	1.44	1.23
23F919	46-110B	B	¼	SPDT-MBB	Momentary	Blk	17/64	.890	1.327	2.05	1.74	1.44	1.23
23F920	46-111R	E	¼	SPDT-MBB	Momentary	Red	17/64	.890	1.327	2.15	1.83	1.51	1.29
23F921	46-111B	E	¼	SPDT-MBB	Momentary	Blk	17/64	.890	1.327	2.15	1.83	1.51	1.29
23F899	46-200R	G	¼	DPDT-BBM	Momentary	Red	17/64	.921	1.56	4.05	3.44	2.84	2.43
23F898	46-200B	G	¼	DPDT-BBM	Momentary	Blk	17/64	.921	1.56	4.05	3.44	2.84	2.43
57F2641	46-01-08-500-0303(R)	J	¼	DPDT	Momentary	Red	.510 sq.	1.194	1.380	4.95	4.21	3.47	2.97
57F2644	46-05-05-502-0707(B)	F	¼	SPDT-BBM	Momentary	Blk	.510 sq.	1.179	1.527	3.00	2.55	2.10	1.80
57F2645	46-05-05-502-0303(R)	F	¼	SPDT-BBM	Momentary	Red	.510 sq.	1.179	1.527	3.00	2.55	2.10	1.80
57F2646	46-05-07-502-0707(B)	F	¼	SPDT-BBM	Alt. action	Blk	.510 sq.	1.428	1.776	4.60	3.91	3.22	2.76
57F2647	46-05-07-502-0303(R)	F	¼	SPDT-BBM	Alt. action	Red	.510 sq.	1.428	1.776	4.60	3.91	3.22	2.76
57F2648	46-05-08-502-0707(B)	F	¼	DPDT-BBM	Momentary	Blk	.510 sq.	1.188	1.536	4.10	3.49	2.87	2.46
57F2649	46-05-08-502-0303(R)	F	¼	DPDT-BBM	Momentary	Red	.510 sq.	1.188	1.536	4.10	3.49	2.87	2.46
57F3790	39-250†	H	¼	SPDT	Momentary	Red	.....	.....	.....	1.30	1.11	.91	.78
57F3791	39-250†	H	¼	SPDT	Momentary	Blk	.....	.....	.....	1.30	1.11	.91	.78
57F3792	39-251#	H	¼	SPDT	Momentary	Red	.....	.....	.....	1.10	.94	.77	.66
57F3793	39-251#	H	¼	SPDT	Momentary	Blk	.....	.....	.....	1.10	.94	.77	.66
57F3794	SHH1065 Protective cap only			.....	.....	Red	.....	.....	.....	.10	.09	.07	.06

(*) UL listed. (†) w. protective cap assem. (#) wo protective cap.

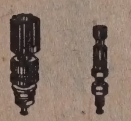


Type 10-9: Wiping contact, .800" dia. x .668". **2201 and 2202:** Snap action, momentary; .880" dia. x .796". **23-1:** .468" dia. x .476". **Types 30-1 thru 30-15:** .375" dia. with ¼-32 thread. **30-17:** Positive feel, 15/32-32 thd. **Series 30-01:** Front panel bezel mtg., square button; ½-32 thread. **30-05,** same but round button. **Type 35-1:** .800" dia. x .743". **Types 39-1, -2, -3:** Butt contact, .250" dia. **39-250.** Butt contact with protective cap. **39-251.** Butt contact without protective cap. **46-01:** front panel bezel mtg., square button; **46-05,** same but round button. **46-200:** .453 x .625 x .734".

8

BINDING POSTS

29-1: Standard posts rated 15 amps cont. at 120 VDC. **29-100:** Plunger type, extends only 3/8" above board, rated 20 amps at 120 VDC. Type **29-104** includes insulating washer.


29-1 29-100

Stock No.	Type	Feature	Color	Mtg. Hole	Each 1-99	100-199	1000-1999	2000-2999
28F567	29-1B	Screw type	Black	3/8"	1.25	.94	.88	.81
28F566	29-1R	Screw type	Red	3/8"	1.25	.94	.88	.81
28F418	29-100B	Spring load	Black	1 1/64"	.85	.64	.60	.55
28F417	29-100R	Spring load	Red	1 1/64"	.85	.64	.60	.55
57F2650	29-110	Spring load	No cap	1 1/64"	.80	.60	.56	.52
28F422	29-104B	Spring load	Black	2 3/64"	1.25	.94	.88	.81
28F421	29-104R	Spring load	Red	2 3/64"	1.25	.94	.88	.81

TEST CLIPS

For panel mounting on test equipment, to allow rapid connections without manual opening and closing of jaws. Hex nut for tension adjustment. Nickel plated brass metal parts, except steel threaded stud.

2-0 2-60 2-42

Stock No.	Type	Mounting	Overall Ht.	1-1999	2000-4999	5000-9999
28F550	2-0	Thrd. stud	1.59"	.55	.47	.41
28F414	2-20	Thrd. stud	1.16"	.55	.47	.41
57F2651	2-60	Tapped hole	1.14"	.45	.38	.34
28F624	2-41	Thrd. stud	.79"	.55	.47	.41
28F625	2-42	Double Clip	.79"	.60	.51	.45

ACCESSORY ITEMS

DECORATIVE MNTG. NUT
.77" dia. .75" across flats. .12" Thk.
57F1514. 7C1040-1. NET.....30

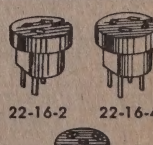
7C1040

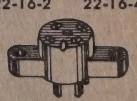
BUTTON GUARD
.29" dia. by .41" deep.
23F496. 10C1015-1. NET.....40

10C1015

TRANSISTOR AND BI-PIN LAMP SOCKETS

Leads fit 100 mil grid for printed circuits. Wraparound contacts, silver plated beryllium copper with gold plate. Type **22-16-2** has hole and term. at position 4 omitted; **22-16-3** has hole and term. at position 3 omitted.


22-16-2 22-16-4


22-11

Stock No.	Type	Transistor Outline	No. Pins	Each 1-499	500-999
57F2654	22-16-2	TO-5, 9, 11, 16, 26, 29, 31 and 39	3	.75	.60
28F632	22-11	TO-12 & 13	4	.75	.60
28F633	22-16-3	Same as 22-16-2	3	.75	.60
57F2655	22-16-4	TO-12 & 33	3	.80	.64
57F2656	22-3	Bi-Pin Lamp	2	.75	.60

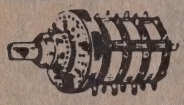
Rotary Switches

SELECTING GRAYHILL ROTARY SWITCH

Fixed stop rotary switches are not in inventory, but adjustable rotary switches that follow are in Newark's stock. They provide the exact electrical properties and basic mechanical characteristics you need. You can readily obtain the right number of positions per pole for your application by a simple adjustment of stop washers or stop pins.

Adjustable stop feature available in following rotary switches: **1) 1" dia., multi-deck:** Use series 44D for 30° angle throw, 42D for 36° angle throw, prototyping and where series 5000 or 24 will be used for production. **2) ½" dia., single deck:** Use series 50D for 36, 45, 60° angles; series 51D for 30° angles. **3) ½" dia., multi-deck:** Use series 71D for 30° and 36° angles and for prototypes where series 8 or 9 will be used in production.

SERIES 42D AND 44D ADJUSTABLE STOP



1-AMP ROTARY SWITCHES

- **Make/Break 1 Amp at 115 VAC**
- **Carry 10 Amps at 115 VAC**
- **10 or 12 Positions**
- **1 to 4 Decks, 1 to 4 Poles**

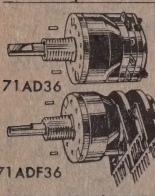
Fully enclosed switches, interchangeable with fixed stop 42A and 44A series. Electrical ratings: make or break 1 amp, carry 10 amps at 115 VAC, resistive. Insulation resistance: 50,000 megohms initially, 10,000 megohms minimum. Non-shorting contacts. Bushing, ⅜-32 NEF. Depth behind panel: 1-deck, 1.025"; 2-deck, 1.371"; 3-deck, 1.717"; 4-deck, 2.063".

SERIES 42D. 10-position switch with 36° indexing. Diameter, 1.000". Shpg. wt. 1½ oz.

SERIES 44D. 12-position switch with 30° indexing. Diameter, 1.162". Shpg. wt., 1½ oz.

Stock No.	Type No.	Poles	Decks	Positions	1-9	10-24	25-49	50-99
57F1541	42D36-01-1-AJN	1	1	10	15.40	14.17	12.94	9.70
57F1544	42D36-01-2-AJN	2	1	10	14.60	13.43	12.26	9.20
57F1542	42D36-02-1-AJN	1	2	10	17.90	16.47	15.04	11.28
43F812	42D36-02-2-AJN	2	2	10	19.50	17.94	16.38	12.29
57F1545	44D30-01-1-AJN	1	1	12	15.00	13.80	12.60	9.45
57F1548	44D30-01-2-AJN	2	1	12	15.80	14.54	13.27	9.95
57F1546	44D30-02-1-AJN	1	2	12	18.70	17.20	15.71	11.78
43F815	44D30-02-2-AJN	2	2	12	20.30	18.68	17.05	12.79
57F1547	44D30-03-1-AJN	1	3	12	22.40	20.61	18.82	14.11
43F817	44D30-03-2-AJN	2	3	12	24.80	22.82	20.83	15.62
43F819	44D30-04-1-AJN	1	4	12	26.10	24.01	21.92	16.44

SERIES 71 ADJUSTABLE STOP



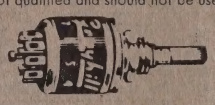
Behind panel distance approx. ¾" for one deck switch and 1" for two deck. Gold plated contact systems. Adj. stops provided. Adjust by relocating stop pins at front of switch. Stops held in place by mylar sticker. Provide form, fit and function equivalents to their fixed stop counterparts. 8th digit in type number represents the number of decks, 9th digit the number of poles.

Stock No.	Type No.	Shft. Dia.	Positions	1-9	10-24	25-49	50-99
57F3744	71AD36-01-1-AJN	⅛	10	7.95	7.31	6.68	5.01
57F3745	71AD36-01-2-AJN	⅛	5	8.35	7.68	7.01	5.26
57F3746	71AD36-02-1-AJN	⅛	10	10.95	10.07	9.20	6.90
57F3747	71AD36-02-2-AJN	⅛	5	11.75	10.81	9.87	7.40
57F3748	71AD30-01-1-AJN	⅛	12	7.95	7.31	6.68	5.01
57F3749	71AD30-01-2-AJN	⅛	6	8.35	7.68	7.01	5.26
57F3750	71AD30-02-1-AJN	⅛	12	10.95	10.07	9.20	6.90
57F3751	71AD30-02-2-AJN	⅛	6	11.75	10.81	9.87	7.40
57F3752	71BD36-01-1-AJN	¼	10	7.95	7.31	6.68	5.01
57F3753	71BD36-01-2-AJN	¼	5	8.35	7.68	7.01	5.26
57F3754	71BD36-02-1-AJN	¼	10	10.95	10.07	9.20	6.90
57F3755	71BD36-02-2-AJN	¼	5	11.75	10.81	9.87	7.40
57F3756	71BD30-01-1-AJN	¼	12	7.95	7.31	6.68	5.01
57F3757	71BD30-01-2-AJN	¼	6	8.35	7.68	7.01	5.26
57F3758	71BD30-02-1-AJN	¼	12	10.95	10.07	9.20	6.90
57F3759	71BD30-02-2-AJN	¼	6	11.75	10.81	9.87	7.40
PRINTED CIRCUIT TERMINALS							
				1-9	25-49	50-99	
57F3760	71ADF36-01-1-AJN	⅛	10	8.90	8.19	7.48	
57F3761	71ADF36-01-2-AJN	⅛	5	9.30	8.56	7.81	
57F3762	71ADF36-02-1-AJN	⅛	10	13.00	11.96	10.92	
57F3763	71ADF36-02-2-AJN	⅛	5	13.80	12.70	11.59	
57F3764	71ADF30-01-1-AJN	⅛	12	8.90	8.19	7.48	
57F3765	71ADF30-01-2-AJN	⅛	6	9.30	8.56	7.81	
57F3766	71ADF30-02-1-AJN	⅛	12	13.00	11.96	10.92	
57F3767	71ADF30-02-2-AJN	⅛	6	13.80	12.70	11.59	
57F3768	71BDF36-01-1-AJN	¼	10	8.90	8.19	7.48	
57F3769	71BDF36-01-2-AJN	¼	5	9.30	8.56	7.81	
57F3770	71BDF36-02-1-AJN	¼	10	13.00	11.96	10.92	
57F3771	71BDF36-02-2-AJN	¼	5	13.80	12.70	11.59	
57F3772	71BDF30-01-1-AJN	¼	12	8.90	8.19	7.48	
57F3773	71BDF30-01-2-AJN	¼	6	9.30	8.56	7.81	

Chart indicates rotary switch series (1st one or two numbers), style (letters), and angle of throw (last two numbers) of fixed-stop and adjustable-stop rotary switches.

Fixed Stop	Adj. Stop	Fixed Stop	Adj. Stop	Fixed Stop	Adj. Stop
8A36	71AD36	50MP36	50MPD36	51S30	51MD30
9A30	71AD30	50P36	50CDP36	51SP30	51MPD30
42A36	42D36	50S36	50MD36	71A30	71AD30
42M36	42D36	50SP36	50MPD36	71A36	71AD36
44A30	44D30	51A30	51CD30	71AF30	71ADF30
44M30	44D30	51C30	51CD30	71AF36	71ADF36
50A36	50CD36	51CP30	51CDP30	71B30	71BD30
50C36	50CD36	51M30	51MD30*	71B36	71BD36
50CP36	50CDP36	51MP30	51MPD30*	71BF30	71BDF30
50M36	50MD36	51P30	51CDP30	71BF36	71BDF36

(*)51MD/51MDP. Qualified to MIL-S-3786. Other than these, adjustable stop type not qualified and should not be used in equipment submitted for Military approval.



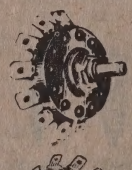
SERIES 50 AND 51 ADJUSTABLE STOP ROTARY TAP SWITCHES

SERIES 50. Single deck, 10-position switch with 36° indexing. "CD" commercial types have no seals, phenolic base. "MD" military types have integral shaft and panel seal, diallyl phthalate base, meet MIL-S-3786/SR20 requirements. Contact resistance, 10 milliohms initially, 50 milliohms max. Non-shorting. ½" dia.; .617" behind panel.

SERIES 51. Similar to above except 12-position (30° indexing). 9/16" diameter. "MD" types meet MIL-S-3786/SR35.

Stock No.	Type No.	Poles	Positions	1-9	10-24	25-49
57F1537	50CD36-01-1-AJN	1	10	11.15	10.26	9.37
57F1538	50CD36-01-2-AJN	2	10	14.35	13.20	12.05
57F1539	50MD36-01-1-AJN	1	10	13.30	12.24	11.17
57F1540	50MD36-01-2-AJN	2	10	16.45	15.13	13.82
43F820	51CD30-01-1-AJN	1	12	11.95	10.99	10.04
43F821	51CD30-01-2-AJN	2	12	15.15	13.94	12.73
57F1592	51MD30-01-1-AJN	1	12	14.20	13.06	11.93
43F822	51MD30-01-2-AJN	2	12	17.30	15.92	14.53
PRINTED CIRCUIT TERMINALS						
57F3736	50CDP36-01-1-AJN	1	10	11.15	10.26	9.37
57F3737	50CDP36-01-2-AJN	2	5	14.35	13.20	12.05
57F3738	50MDP36-01-1-AJN	1	10	13.30	12.24	11.17
57F3739	50MDP36-01-2-AJN	2	5	16.45	15.13	13.82
57F3740	51CDP30-01-1-AJN	1	12	11.95	10.99	10.04
57F3741	51CDP30-01-2-AJN	2	6	15.15	13.94	12.73
57F3742	51MDP30-01-1-AJN	1	12	14.20	13.06	11.93
57F3743	51MDP30-01-2-AJN	2	6	17.30	15.92	14.53

SERIES 19 POWER ROTARY SWITCHES



U.L. LISTED—15 AMPS

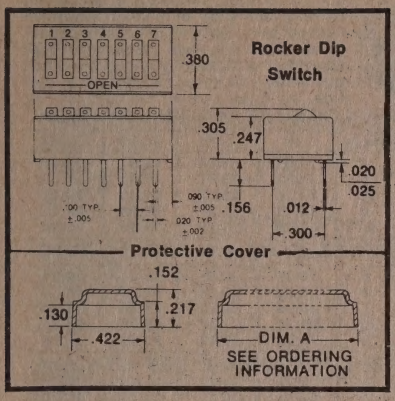
- **2 to 11 Positions—30° Indexing**
- **Life in Excess of 50,000 Cycles**
- **Solder or "Faston" Terminals**

Single pole, single deck rotary tap switches. Non-shorting contacts with 15 amp, 125 VAC resistive rating. Contact resistance, .010 ohm approx. for new switch, measured at 2 VDC and 100 mA. Insulation resistance, approx. 100,000 megohms. Breakdown between mutually insulated parts, 2500 VAC. Contact force, approx. 12 oz. Solder terminals with .125" wire hole, or "Faston" terminals with .080" wire hole. 2 to 11 positions. Wt., 1¾ oz.

Stock No.	Type No.	Taps	Terminals	1-9	10-24	25-49
43F800	19001-2UL	2	Solder	9.35	8.60	7.85
43F801	19001-3UL	3	Solder	9.60	8.83	8.06
43F802	19001-4UL	4	Solder	9.85	9.06	8.27
43F803	19001-5UL	5	Solder	10.10	9.29	8.48
43F804	19001-6UL	6	Solder	10.35	9.52	8.69
43F805	19001-7UL	7	Solder	10.60	9.75	8.90
43F806	19001-8UL	8	Solder	10.85	9.98	9.11
43F807	19001-9UL	9	Solder	11.10	10.21	9.32
43F808	19001-10UL	10	Solder	11.35	10.44	9.53
43F809	19001-11UL	11	Solder	11.60	10.67	9.74
57F1500	19101-2UL	2	Faston	9.35	8.60	7.85
57F1501	19101-3UL	3	Faston	9.60	8.83	8.06
57F1502	19101-4UL	4	Faston	9.85	9.06	8.27
57F1503	19101-5UL	5	Faston	10.10	9.29	8.48
57F1504	19101-6UL	6	Faston	10.35	9.52	8.69
57F1505	19101-7UL	7	Faston	10.60	9.75	8.90
57F1506	19101-8UL	8	Faston	10.85	9.98	9.11
57F1507	19101-9UL	9	Faston	11.10	10.21	9.32
57F1508	19101-10UL	10	Faston	11.35	10.44	9.53
57F1509	19101-11UL	11	Faston	11.60	10.67	9.74

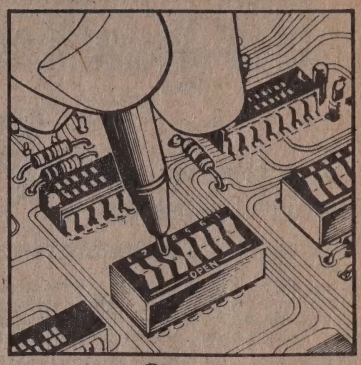
Switches

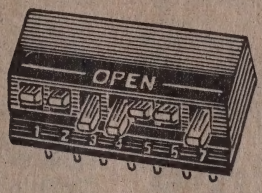
SERIES 76 ROCKER DIP SWITCHES

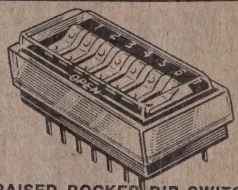


Spring loaded sliding ball contact system for positive positioning and high resistance to shock and vibration. Molded-in terminals protect against contact contamination. Tested to 50,000 mechanical operations. Easily mounted to PC board by direct-flow soldering or insertion into standard socket. Even switch independent. Current Rating: 35,000 oper. @50 MA 30VDC; 25,000 oper. @125 MA 30 VDC. Contact Resistance: 100 milliohms. Molded thermoplastic polyester cover, base and baseplate. Brass shorting bar with gold .00001" min over .00005" min. nickel plate.

Series 76SB. Features a thermoplastic base seal, will endure strenuous cleaning. Identified by SB in type number.







SPST PROTECTIVE COVERS

Stock No.	SPST Type	Lgth Inch	No. of Rockers	1-9	10-24	25-49	50-99
25F780	76P02	.322	2				
25F781	76P03	.422	3				
25F782	76P04	.522	4				
25F783	76P05	.622	5				
25F784	76P06	.722	6	.15	.14	.13	.12
25F785	76P07	.822	7				
25F786	76P08	.922	8				
25F787	76P09	1.022	9				
25F788	76P10	1.122	10				

DPDT Types 76C02 uses 76P03. 76C03 uses 76P05. 76C04 uses 76P07.

SPDT ROCKER DIP SWITCHES

A5F3774	76C02	.380	2	3.40	3.06	2.86	2.69
A5F3775	76C03	.580	3	3.65	3.36	3.07	2.89
A5F3776	76C04	.780	4	3.90	3.59	3.28	3.09

SPST PIANO DIP SIDE ACTUATED

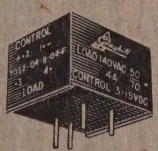
Stock No.	Type	Rck.	Lgth. (In.)	1-9	10-24	25-49	50-99
47F036	76PSB04	4	.48	4.65	4.28	3.91	3.67
47F037	76PSB05	5	.58	4.75	4.37	3.99	3.75
47F038	76PSB06	6	.68	4.85	4.46	4.07	3.83
47F039	76PSB07	7	.78	4.95	4.55	4.16	3.91
47F040	76PSB08	8	.88	5.05	4.65	4.24	3.99
47F041	76PSB09	9	.98	5.15	4.74	4.33	4.07
47F042	76PSB10	10	1.08	5.25	4.83	4.41	4.15

SPST RAISED ROCKER DIP SWITCHES

Stock No.	Type	Rck	Lgth. (In.)	1-9	10-24	25-49	50-99
28F1450	76SB02	2	.28	3.05	2.81	2.57	2.41
28F1451	76SB03	3	.38	3.10	2.86	2.61	2.45
28F1452	76SB04	4	.48	3.15	2.90	2.65	2.49
28F1453	76SB05	5	.58	3.20	2.95	2.69	2.53
28F1454	76SB06	6	.68	3.30	3.04	2.78	2.61
28F1455	76SB07	7	.78	3.35	3.09	2.82	2.65
28F1456	76SB08	8	.88	3.45	3.18	2.90	2.73
28F1457	76SB09	9	.98	3.55	3.27	2.99	2.81
28F1458	76SB10	10	1.08	3.60	3.32	3.03	2.85

MINI CUBE SOLID STATE RELAYS

- Optically Isolated
- Zero Voltage Turn-On

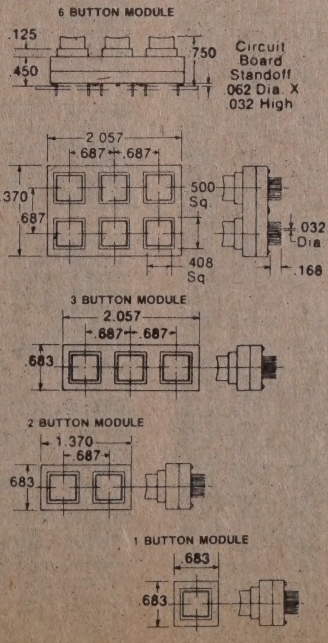


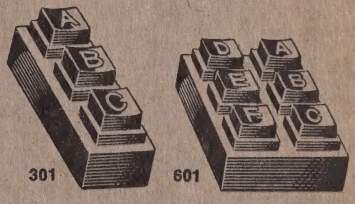
Switches from 0.1 to 4 amps. Rated at 25°C, no derating to actual operating temperature. Measure 1.0" x 1.2" x 0.85"—occupying only 1 cubic inch and ⅓ the board space of old-style relays. Can be used directly with TTL, DTL, CMOS and other logic circuits—no intermediate driver necessary. Control circuit takes less than 5 mA drain with typical 5 volt logic circuit. Optical isolation for coupling the control and power circuits. Theoretically infinite life span. Zero voltage turn on and zero current turn off prevent the 'feedback' of spurious pulses into logic circuit when relay is turned on or off. 3000 volt per microsecond transient protection. Designed for PC board mounting.

Stock No.	Type	Volt Range	1-9	10-24	25-49	50-99
57F3777	70S2-04-B-04-F	3-15	15.00	12.00	10.80	9.90
57F3778	70S2-05-B-04-F	14-30	15.00	12.00	10.80	9.90
57F3779	70S2-04-C-04-F	3-15†	16.45	13.16	11.84	10.86
57F3780	70S2-05-C-04-F	14-30†	16.45	13.16	11.84	10.86

50 to 140 VAC, except (†)100 to 240 VAC

PUSH BUTTON SWITCH MODULES





For prototype and small quantity usage. Clear protective cap slotted on one side to allow insertion of clear plastic tab imprinted with legend. Legend sheet has all normally required legends for both vertical and horizontal mounting. Rating @ 5 VDC: 100 milliamps. Contact Resistance: 25 milliohms or less. Voltage Breakdown: 250 VAC between mutually isolated parts. Insulation Resistance: 1,000 megohms min. Life expectancy: 1,500,000 operations.

Stock No.	Type	Buttons	Switch	1-49	50-99	100-499	500-999
57F3781	82-101-71	1	SPST	1.85	1.57	1.30	1.11
57F3782	82-101-74	1	4PST	2.20	1.87	1.54	1.32
57F3783	82-201-41	2	SPST	3.15	2.68	2.21	1.89
57F3784	82-201-44	2	4PST	3.80	3.23	2.66	2.28
57F3785	82-301-61	3	SPST	4.40	3.74	3.08	2.64
57F3786	82-301-64	3	4PST	5.40	4.59	3.78	3.24
57F3787	82-601-81	6	SPST	8.25	7.01	5.78	4.95
57F3788	82-601-84	6	4PST	10.25	8.71	7.18	6.15

LEGEND SHEET

Stk. No.	Type	1-49	50-99	100-499	500-999
A57F3789	82AC2017-1	1.10	.94	.77	.66

SWITCHCRAFT® INC.

65000

67000

SERIES 65000 AND 67000

FACTORY ASSEMBLED

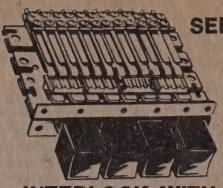
"DW" SERIES "MULTI-SWITCH"

Series 65000. Non-illuminated "Multi-Switch." With DPDT switch module per station. Double-wipe bifurcated silver plated brass contacts rated 3A AC, 0.5A DC; 125 V. non-inductive load. 1 1/16" depth behind panel. 3/4" length plus 5/8" for each station. 2 7/32" height.

Series 67000. Illuminated version of above. Front of panel lamp replacement. Accepts Ind. #327 and #328 lamps.

Stk. No.	Type	Function	Sta-tions	EACH 1-9	10-24	25-49	50-99
22F137	65021K-206	Interlock	2	2.72	2.04	1.87	1.70
22F090	65022-206	Non-Lock	2	2.72	2.04	1.87	1.70
22F143	65023-206	All-Lock	2	2.88	2.16	1.98	1.80
22F138	65041K-206	Interlock	4	4.40	3.30	3.03	2.75
22F091	65042-206	Non-Lock	4	4.40	3.30	3.03	2.75
22F144	65043-206	All-Lock	4	4.48	3.36	3.08	2.80
22F139	65061K-206	Interlock	6	6.32	4.74	4.35	3.95
22F092	65062-206	Non-Lock	6	6.32	4.74	4.35	3.95
22F145	65063-206	All-Lock	6	6.40	4.80	4.40	4.00
22F140	65081K-206	Interlock	8	8.24	6.18	5.67	5.15
22F093	65082-206	Non-Lock	8	8.24	6.18	5.67	5.15
22F146	65083-206	All-Lock	8	8.28	6.21	5.69	5.18
22F141	65101K-206	Interlock	10	10.20	7.65	7.01	6.38
22F094	65102-206	Non-Lock	10	10.20	7.65	7.01	6.38
22F147	65103-206	All-Lock	10	10.28	7.71	7.07	6.43
39F581	65121K-206	Interlock	12	12.16	9.12	8.36	7.60
39F582	65123-206	All-Lock	12	12.36	9.27	8.50	7.73
39F583	65041K-212	Interlock	4	5.96	4.47	4.10	3.73
39F584	65061K-212	Interlock	6	9.00	6.75	6.19	5.63
39F585	65081K-212	Interlock	8	11.72	8.79	8.06	7.33
39F586	65101K-212	Interlock	10	14.28	10.71	9.82	8.93
39F587	65121K-212	Interlock	12	17.20	12.90	11.83	10.75
39F588	65043-212	All-Lock	4	6.28	4.71	4.32	3.93
39F589	65063-212	All-Lock	6	9.08	6.81	6.24	5.68
39F590	65083-212	All-Lock	8	11.92	8.94	8.20	7.45
39F591	65103-212	All-Lock	10	14.48	10.86	9.96	9.05
39F592	65123-212	All-Lock	12	16.92	12.69	11.63	10.58
39F593	65047-206	Push-Lock	4	4.48	3.36	3.08	2.80
39F594	65067-206	Push-Lock	6	6.40	4.80	4.40	4.00
39F595	65087-206	Push-Lock	8	8.28	6.21	5.69	5.18
39F596	65107-206	Push-Lock	10	10.60	7.95	7.29	6.63
39F597	65127-206	Push-Lock	12	12.36	9.27	8.50	7.73
39F2300	67021K-506	Interlock	2	4.24	3.18	2.92	2.65
39F23Q1	67022-506	Non-Lock	2	4.24	3.18	2.92	2.65
39F2302	67023-506	All-Lock	2	4.36	3.27	3.00	2.73
39F2303	67041K-506	Interlock	4	7.04	5.28	4.84	4.40
39F2304	67042-506	Non-Lock	4	7.04	5.28	4.84	4.40
39F2305	67043-506	All-Lock	4	7.12	5.34	4.90	4.45
39F2306	67061K-506	Interlock	6	10.04	7.53	6.90	6.28
39F2307	67062-506	Non-Lock	6	10.04	7.53	6.90	6.28
39F2308	67063-506	All-Lock	6	10.12	7.59	6.96	6.33
39F2309	67081K-506	Interlock	8	13.36	10.02	9.19	8.35
39F2310	67082-506	Non-Lock	8	13.36	10.02	9.19	8.35
39F2311	67083-506	All-Lock	8	13.56	10.17	9.32	8.48
39F2312	67101K-506	Interlock	10	16.16	12.12	11.11	10.10
39F2313	67102-506	Non-Lock	10	16.16	12.12	11.11	10.10
39F2314	67103-506	All-Lock	10	16.40	12.30	11.28	10.25
39F598	67121K-506	Interlock	12	19.32	14.49	13.28	12.08
39F599	67123-506	All-Lock	12	19.52	14.64	13.42	12.20
39F600	67021K-512	Interlock	2	5.32	3.99	3.66	3.33
39F601	67041K-512	Interlock	4	9.20	6.90	6.33	5.75
39F602	67061K-512	Interlock	6	13.24	9.93	9.10	8.28
39F603	67081K-512	Interlock	8	17.64	13.23	12.13	11.03
39F604	67101K-512	Interlock	10	21.56	16.17	14.82	13.48
39F605	67121K-512	Interlock	12	25.76	19.32	17.71	16.10
39F606	67027-506	Push-Lock	2	4.36	3.27	3.00	2.73
39F607	67047-506	Push-Lock	4	7.12	5.34	4.90	4.45
39F608	67067-506	Push-Lock	6	10.12	7.59	6.96	6.33
39F609	67087-506	Push-Lock	8	13.56	10.17	9.32	8.48
39F610	67107-506	Push-Lock	10	16.40	12.30	11.28	10.25
39F611	67127-506	Push-Lock	12	19.52	14.64	13.42	12.20

Multi-Switches



SERIES 35000 NON-ILLUMINATED

Switches mount on panels up to 1/8" thick. Provides 6PDT switching in .6 sq. in. Narrow rectangular silhouette permits stacking in parallel rows on 3/4" centers. Only 2 5/16" depth behind panel. End brackets have four 6-32 tapped mounting holes. A square black pushbutton is furnished for each station.

INTERLOCK WITH LOCKOUT 2-C PER STATION

Stk. No.	Type	Stations	1-9	10-24	25-49	50-99
39F612	35041K-206	4	16.09	14.85	13.61	12.38
39F613	35061K-206	6	22.52	20.79	19.06	17.33
39F614	35081K-206	8	28.96	26.73	24.50	22.28
39F615	35101K-206	10	35.39	32.67	29.95	27.23
39F616	35121K-206	12	41.96	38.73	35.50	32.28

PUSH-LOCK/PUSH-RELEASE 2-C PER STATION

39F617	35047-206	4	16.09	14.85	13.61	12.38
39F618	35067-206	6	22.52	20.79	19.06	17.33
39F619	35087-206	8	28.96	26.73	24.50	22.28
39F620	35107-206	10	35.39	32.67	29.95	27.23
39F621	35127-206	12	41.96	38.73	35.50	32.28

INTERLOCK WITH LOCKOUT 4-C PER STATION

39F622	35041K-212	4	22.65	20.91	19.17	17.43
39F623	35061K-212	6	32.44	29.94	27.45	24.95
39F624	35081K-212	8	42.25	39.00	35.75	32.50
39F625	35101K-212	10	52.07	48.06	44.06	40.05
39F626	35121K-212	12	61.78	57.03	52.28	47.53

PUSH-LOCK/PUSH-RELEASE 4-C PER STATION

39F627	35047-212	4	22.65	20.91	19.17	17.43
39F628	35067-212	6	32.44	29.94	27.45	24.95
39F629	35087-212	8	42.25	39.00	35.75	32.50
39F630	35107-212	10	52.07	48.06	44.06	40.05
39F631	35127-212	12	61.78	57.03	52.28	47.53

SERIES 37000 SINGLE LAMP ILLUMINATED

Identical in switching functions and characteristics as Series 35000 but with added feature of illuminated pushbuttons.

INTERLOCK FUNCTION

Stock No.	Type	Sta-tions	EACH 1-9	10-24	25-49	50-99
39F2238	37021K-1206	2	15.86	14.64	13.42	12.20
39F2239	37041K-1206	4	28.18	26.01	23.84	21.68
39F2240	37061K-1206	6	40.46	37.35	34.24	31.13
39F2241	37081K-1206	8	53.14	49.05	44.96	40.88
39F2242	37101K-1206	10	65.49	60.45	55.41	50.38
39F2243	37121K-1206	12	77.94	71.94	65 95	59.95

NON-LOCK FUNCTION

39F2244	37022-1206	2	15.86	14.64	13.42	12.20
39F2245	37042-1206	4	28.18	26.01	23.84	21.68
39F2246	37062-1206	6	40.46	37.35	34.24	31.13
39F2247	37082-1206	8	53.14	49.05	44.96	40.88
39F2248	37102-1206	10	65.49	60.45	55.41	50.38
39F2249	37122-1206	12	77.94	71.94	65.95	59.95

ALL LOCK FUNCTION

39F2250	37023-1206	2	15.86	14.64	13.42	12.20
39F2551	37043-1206	4	28.18	26.01	23.84	21.68
39F2252	37063-1206	6	40.46	37.35	34.24	31.13
39F2253	37083-1206	8	53.14	49.05	44.96	40.88
39F2254	37103-1206	10	65.49	60.45	55.41	50.38
39F2255	37123-1206	12	77.94	71.94	65.95	59.95

PUSH-PUSH FUNCTION

39F2256	37027-1206	2	15.86	14.64	13.42	12.20
39F2257	37047-1206	4	28.18	26.01	23.84	21.68
39F2258	37067-1206	6	40.46	37.35	34.24	31.13
39F2259	37087-1206	8	53.14	49.05	44.96	40.88
39F2260	37107-1206	10	65.49	60.45	55.41	50.38
39F2261	37127-1206	12	77.94	71.94	65.95	59.95

SERIES 38000 TWIN LAMP ILLUMINATED

Same compact assembly and versatility as Series 37000, except features twin lamp illumination at each station.

INTERLOCK WITH LOCKOUT 2-C PER STATION

Stk. No.	Type	Stations	1-9	10-24	25-49	50-99
39F632	38041K-1206	4	36.34	33.54	30.75	27.95
39F633	38061K-1206	6	52.68	48.63	44.58	40.53
39F634	38081K-1206	8	69.49	64.14	58.80	53.45
39F635	38101K-1206	10	85.80	79.20	72.60	66.00
39F636	38121K-1206	12	102.25	94.38	86.52	78.65

PUSH-LOCK/PUSH-RELEASE 2-C PER STATION

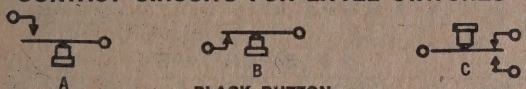
39F637	38047-1206	4	36.34	33.54	30.75	27.95
39F638	38067-1206	6	52.68	48.63	44.58	40.53
39F639	38087-1206	8	69.49	64.14	58.80	53.45
39F640	38107-1206	10	85.80	79.20	72.60	66.00
39F641	38127-1206	12	102.25	94.38	86.52	78.65

Switches

LITTEL SWITCHES

These are momentary contact switches, no bigger than a small phone jack. Available in three circuits with red or black, one-piece push-button (non-locking only). All contacts are thoroughly insulated from panel bushing with interlocking phenolic washers. Springs are special nickel-silver alloy. Integral contacts; recommended for low current circuits only. Plastic button and shaft need not be removed for mounting. Mounts in 3/8" dia. hole in panels up to 1/4". Complete with locknut and washer. Shpg. wt., 1 oz.

CONTACT CIRCUITS FOR LITTEL SWITCHES



BLACK BUTTON

Stock No.	Type	Circuit Figure	Switch Action	1-9	10-24	25-49	50-99
22F207	201	1-A	SPST NO	1.04	.78	.72	.65
22F208	202	1-B	SPST NC	1.04	.78	.72	.65
22F209	203	1-C	SPDT	1.28	.96	.88	.80

RED BUTTON

22F210	101	1-A	SPST NO	1.04	.78	.72	.65
22F211	102	1-B	SPST NC	1.04	.78	.72	.65
22F212	103	1-C	SPDT	1.28	.96	.88	.80

BUTTON SWITCHES

Non-locking, push button switch. Rated at 250 mils., non-inductive load, AC, 30 watts max. Size: 1/2" D x 1" L. Wt. 2 oz. *Numeral indicates No. of sets of contacts.

Stk. No.	Type	Description	Contact*	1-9	10-24	25-49	50-99
22F229	903	Red Button	1C	1.60	1.20	1.10	1.00
22F230	903D	Red Button	1D				
22F233	913	Black Button	1C				
22F234	913D	Black button	1D				
22F231	923	Red button	1C	1.68	1.26	1.16	1.05
22F232	923D	Red button	1D				
22F235	933	Black button	1C				

TINY SWITCHES

Subminiature design. Integral silver contacts for low level circuits where low contact resistance is not a factor. Size: 7/16" D x 1 1/16" L.

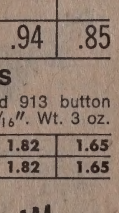
22F237	951	Red button	1A	1.08	.81	.75	.68
22F238	952	Red button	1B				
22F240	961	Black button	1A				
22F241	962	Black button	1B				
22F239	953	Red button	1C	1.36	1.02	.94	.85
22F242	963	Black button	1C				

CORD OR PENDANT SWITCHES

Nickel plated housing incorporates Series 903 and 913 button switches shown above. Dia. 1 1/16". Approx. length 2 3/16". Wt. 3 oz.

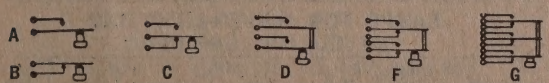
22F243	E903	Red button	1C	2.64	1.98	1.82	1.65
22F245	E913	Black button	1C	2.64	1.98	1.82	1.65

FLAT FRAME PUSH BUTTON SWITCHES



One piece, black plastic, push button, all common circuit model. Fine silver contacts used for minimum resistance. Rated at 3 amps, 300 watts, max. AC non-inductive load. Shaft and button need not be removed for mounting. Mounts in single 3/8" hole, panels up to 1/4" thick. Size: 1 29/32" L x 3/4" W. Shpg. wt., each 2 oz.

CONTACT CIRCUITS FOR FLAT FRAME SWITCHES



Stock No.	Type	Circuit Figure	Switch Action	1-9	10-24	25-49	50-99
22F200	1001	A	SPST NO	1.60	1.20	1.10	1.00
22F202	1003	C	SPDT	1.72	1.29	1.18	1.08
22F203	1004	D	DPST NO	1.84	1.38	1.27	1.15
22F205	1006	F	DPDT	2.20	1.65	1.51	1.38
22F206	1009	G	3PDT	3.16	2.37	2.17	1.98

SWITCHCRAFT® INC.

"UNISWITCH" SWITCH

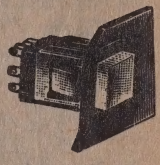
Low cost, compactly built, momentary action pushbutton, ideal for use on computers, data processing equipment, test & measurement devices, telephone apparatus. Illuminated, only 1 1/16" square, mount in a single panel, requiring only 1 3/64" to 1 17/64" max. Terminals extruded for use with #5-40 machine screws, contacts rated at 250 ma., 30 watts max., AC non-inductive load. SPST—NO circuit.

LUS SERIES

Stock No.	Type No.	Color	1-9	10-24	25-49	50-99
39F1613	LUS-01-1	Red	1.76	1.32	1.21	1.10
39F1614	LUS-04-1	Blue				
39F1615	LUS-03-1	Green				
39F1616	LUS-08-1	Yellow				
39F1617	LUS-05-1	White				

Stock No.	Type	Desc.	Amp.	10-90	100-490	500-Up
27F1030	CM7-7377	6V Bi-Pin Lamp	.075	.65	.57	.49

BOX SWITCH



A flush mounted, momentary action pushbutton switch. Offers broad switching capabilities in minimum panel space. For control panel application in computers, data processors, ground support equipment, machine and process controls, test equipment, and telephones. 1 1/16" square. 4 switching poles; 2 limited to single throw. Solder lug terms. Silver plated, brass integral contacts.

Stock No.	Type	Contact Assembly	Button Color	1-9	10-24	25-49	50-99
22F1000	BXR-01-1	1-A	Red	3.20	2.40	2.20	2.00
22F1001	BXR-01-3	1-C	Red	3.36	2.52	2.31	2.10
22F1004	BXR-02-1	1-A	Black	3.20	2.40	2.20	2.00
22F1005	BXR-02-3	1-C	Black	3.36	2.52	2.31	2.10
22F1006	BXR-02-6	2-C	Black	3.64	2.73	2.50	2.28
22F1007	BXR-02-10	2-C, 2-A	Black	4.20	3.15	2.89	2.63
22F1008	BXR-03-1	1-A	Green	3.20	2.40	2.20	2.00
22F1009	BXR-03-3	1-C	Green	3.36	2.52	2.31	2.10
22F1010	BXR-03-6	2-C	Green	3.64	2.73	2.50	2.28
22F1011	BXR-03-10	2-C, 2-A	Green	4.20	3.15	2.89	2.63
22F1012	BXR-05-1	1-A	White	3.20	2.40	2.20	2.00
22F1013	BXR-05-3	1-C	White	3.36	2.52	2.31	2.10
22F1014	BXR-05-6	2-C	White	3.64	2.73	2.50	2.28

ILLUMINATED "LITTEL-LITE" SWITCHES

Momentary contact. One piece, clear plastic button and shaft is illuminated by a single miniature lamp. Includes kit of 4-color chips (red, amber, green, and yellow). Recommended for low level circuits. Switches with suffix "S" have fine silver contacts rated at 3 amps, 300 watts, max., AC, non-inductive load. Mounts on 3/8" centers, panels to 1/4" thick.

Stock No.	Type	Circuit Figure	Switch Action	1-9	10-24	25-49	50-99
26F800	211	1-A	SPST NO	2.48	1.86	1.71	1.55
26F802	213	1-C	SPDT	3.08	2.31	2.12	1.93
26F803	211S	1-A	SPST NO	3.12	2.34	2.15	1.95
26F805	213S	1-C	SPDT	3.68	2.76	2.53	2.30
26F806	K106	...	Chip Kit	.40	.30	.28	.25

LAMPS FOR "LEVER-LITE" AND "LITTEL-LITE"

Stk. No.	Type	Volt.	Base	Current	10-99	100-Up
26F513	1768	6V	Screw	200 Ma	.98	.86
26F508	335	28V	Screw	40 Ma	.90	.79

SERIES DA SWITCH

Miniature momentary action pushbutton switch. Meets Human Factor Engineering considerations. Mounts on 17/32" centers. Available in six colors for control panel coding. Body of anodized aluminum protects the contacts. Terminals come straight out in back for easy wiring. Data Switches provide an A-B arrangement, which may be wired externally to provide 1-C switching. Hard-gold contacts rated 500 ma., 50 watts max. A.C., non-inductive load.

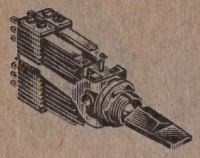
Stock No.	Type No.	Color	1-9	10-24	25-49	50-99
27F000	DA-01-3	Red	2.96	2.22	2.04	1.85
27F001	DA-02-3	Black				
27F002	DA-03-3	Green				
27F004	DA-05-3	White				
27F005	DA-08-3	Yellow				

8

SWITCHCRAFT®

Switches

"LT" SWITCH SERIES 41000



Telever telephone type lever switch. Features unique "U" shaped construction with a "Can't Cheat" detent guide which prevents accidental actuator bypass of a switching position. Welded cross bar palladium contacts rated at 3 amps., 200 watts max., A.C., non-inductive load are standard. Mounts on $2\frac{3}{32}$" centers, in a $1\frac{5}{32}$" dia. hole, in panels up to ¼". Insulation is paper base phenolic with plastic tubing through the stack assembly. Frame is steel, iridescent iridite finish over cadmium plating. With mtg. hdwe.

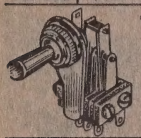
2-POSITION TYPE

Non-Lock.	Type	Locking	Type	Cont. Form	1-9	10-24	25-49	50-99
22F341	41203	22F345	41203L	1-C	4.92	3.69	3.38	3.08
22F342	41206	22F346	41206L	2-C	6.16	4.62	4.24	3.85
22F344	41212	22F348	41212L	4-C	8.36	6.27	5.75	5.23

3-POSITION TYPE

22F377	41306	22F381	41306L	1-C	6.16	4.62	4.24	3.85
22F379	41312	22F383	41312L	2-C	8.36	6.27	5.75	5.23
22F380	41324	22F384	41324L	4-C	12.28	9.21	8.44	7.68

"LEVER" SWITCH SERIES 12000



Intercom type have locking lever on one side of neutral and non-locking on other. Contacts rated 3 amps., 300 watts, max. AC. Requires a $1\frac{5}{32}$" dia. mtg. hole. Mounts in panels up to $\frac{3}{32}$" thick. "L" is locking types.

TWO POSITION TYPES

Stk. No.	Type	Schematic Circuit	Stack Height Max.	1-9	10-24	25-49	50-99
39F3660	12003	N	¾"	2.80	2.10	1.93	1.75
39F3661	12003L	N	¾"	2.80	2.10	1.93	1.75
39F3662	12006	N	1"	3.52	2.64	2.42	2.20
39F3663	12006L	N	1"	3.52	2.64	2.42	2.20

THREE POSITION TYPES

39F3664	12034	N	$1\frac{3}{16}$"	3.36	2.52	2.31	2.10
39F3665	12034L	N	$1\frac{3}{16}$"	3.36	2.52	2.31	2.10
39F3666	12036	N	⅞"	3.72	2.79	2.56	2.33
39F3667	12036L	N	⅞"	3.72	2.79	2.56	2.33

INTERCOM SWITCHES

39F3668	12033T	N	$\frac{23}{32}$"	3.16	2.37	2.17	1.98
39F3669	12037T	N	⅞"	3.88	2.91	2.67	2.43

"LEVER LITE" SWITCH SERIES 27000

Same as 25000 Series except lever and filters. Mounts on ¾" centers, panels to $\frac{3}{32}$" thk., depth $2\frac{3}{16}$". On 2 pos. AMBER in "Neutral"; GREEN in "Down." On 3 pos., RED in "Up"; AMBER in "Neutral"; GREEN in "Down." W/6V lamp. 2 oz.

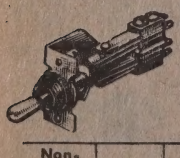
2 POSITION TYPE

Non-Lock.	Type	Locking	Type	Cont. Form	1-9	10-24	25-49	50-99
26F832	27206	26F834	27206L	2-C	8.80	6.60	6.05	5.50
26F833	27212	26F835	27212L	4-C	10.76	8.07	7.40	6.73

3 POSITION TYPE (+ Each Section)

26F836	27306	26F839	27306L	+1-C	8.80	6.60	6.05	5.50
26F837	27307	26F840	27307L	+1-C	8.96	6.72	6.16	5.60
26F838	27312	26F841	27312L	+2-C	10.76	8.07	7.40	6.73
26F842	532	Escutcheon Plate			.36	.27	.25	.23
26F879	P1864	Light Shield for 532			.20	.15	.14	.13

SERIES 29000 FEATHER-LEVER SWITCH



Steel frame, nylon roller, silver contacts at 2 amps., 200 W. max., A.C., non-inductive load. Bushing mount in $\frac{1}{16}$: O.D., hole in panels to ⅛" thk. Depth behind panel, $1\frac{9}{32}$", + n. o. cir. position off. ‡ InterCom "Talk-Listen" switch leverlock on one side of neutral and on-locking on other. 3 oz.

2 POSITION TYPE

Non-Lock.	Type	Locking	Type	Cont. Form	1-9	10-24	25-49	50-99
26F844	29203	26F848	29203L	1-C	2.96	2.22	2.04	1.85
26F846	29206	26F850	29206L	2-C	3.52	2.64	2.42	2.20

3 POSITION TYPE (+ Each Section)

26F853	29306	26F858	29306L	1-C	3.80	2.85	2.61	2.38
26F855	29312	26F860	29312L	2-C	4.92	3.69	3.38	3.08

INTERCOM SWITCHES‡

26F861	29303T	...	...	1-C	3.24	2.43	2.23	2.03
26F862	29307T	...	...	2-C	3.88	2.91	2.67	2.43
26F842	532	Escutcheon Plate			.36	.27	.25	.23

LEV-R SWITCHES SERIES 3000 and 13000

Fine silver contacts rated at 3 amps., 300 watts max. AC non-inductive load. Non-locking types have spring return. Series 3000 mounts in panels up to $\frac{3}{32}$" thick; series 13000 mounts in panels up to ¼" thick. Both series are ⅝" wide; requires $2\frac{1}{4}$" behind panel; mounts in single, ½"dia. hole. N.O. circuit center position off. ‡ "Talk-Listen" switches, lever locks on one side of neutral and non-locking on other side. 3 position switches have same contact for both sections on each side except 3033 and 13033 and have one form C only. Supplied with lock nut and screw-on black knob. Wt.: 3 oz.

2 POSITION TYPE

Non-Lock.	Type	Locking	Type	Cont. Form	1-9	10-24	25-49	50-99
22F300	3001	22F311	3001L	1-A	2.64	1.98	1.82	1.65
22F302	3003	22F313	3003L	1-C	3.20	2.40	2.20	2.00
22F305	3006	22F316	3006L	2-C	3.80	2.85	2.61	2.38
27F043	13001	27F051	13001L	1-A	2.88	2.16	1.98	1.80
27F044	13003	27F052	13003L	1-C	3.32	2.49	2.28	2.08
27F045	13006	27F053	13006L	2-C	4.04	3.03	2.78	2.53
27F046	13009	27F054	13009L	3-C	5.28	3.96	3.63	3.30

3 POSITION TYPE (+ Each Section)

22F306	3033	22F317	3033L	1-C‡	3.44	2.58	2.37	2.15
22F307	3034	22F318	3034L	+1-A	3.56	2.67	2.45	2.23
22F309	3036	22F320	3036L	+1-C	4.04	3.03	2.78	2.53
22F310	3037	22F321	3037L	+1-C‡	4.12	3.09	2.83	2.58
27F047	13033	27F055	13033L	1-C‡	3.68	2.76	2.53	2.30
27F048	13034	27F056	13034L	+1-A	3.76	2.82	2.59	2.35
27F049	13036	27F057	13036L	+1-C	4.40	3.30	3.03	2.75
27F050	13037	27F058	13037L	+1-C‡	4.40	3.30	3.03	2.75

SERIES 6000 TELEVER SWITCHES

Featuring "T-Beam" construction with Iridites finished steel frame. Palladium contacts rated at 3 A., 120 volts, non-inductive load. Size, $4\frac{9}{32}$x$1\frac{5}{8}$x⅞". Wt. 3 oz.

2-POSITION TYPE

Non-Lock.	Type	Locking	Type	Cont. Form	1-9	10-24	25-49	50-99
22F322	6006	22F331	6006L	2-C	6.16	4.62	4.24	3.85
22F325	60012	22F334	60012L	4-C	8.24	6.18	5.67	5.15

3 POSITION TYPE (+ Each Section)

22F327	6036	22F336	6036L	+1-C	6.16	4.62	4.24	3.85
22F330	60324	22F339	60324L	+4-C	12.56	9.42	8.64	7.85
22F340	530	Escutcheon Plate			1.00	.75	.69	.63
22F399	M-1178-2	Knob			.40	.30	.28	.25

SERIES 16000 TELEVER SWITCHES

Similar to the 6000 Series. Single hole mounting; mounts in ½" dia. hole for panels up to ¼" thick. Size: $4\frac{7}{16}$ x $1\frac{7}{8}$ x ⅞". Shpg. wt., 3 oz. **May be converted to "locking" by removing stop plate.**

2-POSITION TYPE

Stk. No.	Non-locking Type	Contact Form	1-9	10-24	25-49	50-99
22F215	16006	2-C	6.44	4.83	4.43	4.03
22F217	16008	4-AN.O.	7.24	5.43	4.98	4.53
22F218	16009	3-C	7.72	5.79	5.31	4.83
22F219	160012	4-C	8.76	6.57	6.02	5.48
22F221	160024	8-C	12.84	9.63	8.83	8.03

3-POSITION TYPE (+ Each Section)

22F222	16036	+1-C	6.44	4.83	4.43	4.03
22F224	16038	+2-AN.O.	7.24	5.43	4.98	4.53
22F225	160312	+2-C	8.76	6.57	6.02	5.48
22F226	160312D	+2-D	9.64	7.23	6.63	6.03
22F227	160316	+4-A	11.32	8.49	7.78	7.08
22F228	160324	+4-C	12.84	9.63	8.83	8.03

LAMPS FOR "LEVER-LITE" AND "LITTEL-LITE" SWITCHES

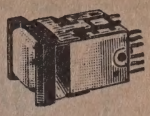
Stk. No.	Ind. Type	Volt.	Base	Current	10-99	100-499
26F513	1768	6V	Screw	200 Ma	.98	.86
26F508	335	28V	Screw	40 Ma	.90	.79

For Larger Quantities
Contact Your Nearest NEWARK Facility

8

SWITCHCRAFT® INC.

SERIES PL-PUSHLIGHT SWITCH



Enclosed, lighted pushbutton switch. Reliable leafspring switching. Available in momentary or PLPR functions; single or twin lamps; with or without barriers; full or split-faced display: 1-C to 4-C switching; black switch housing; white pushbutton. Contacts: molded crossbar palladium; rated at 2 amps, 200 watts, max; AC non-inductive load. Mounts with clamp-type brackets. Flange mounting requires 1″ x .875″ panel cutout. Barrier mounting requires $1\frac{3}{16}$″ x .875″ panel cutout. Can be mounted in vertical or horizontal rows or in matrices. Depth behind panel $1\frac{3}{4}$″. Accepts std. T-$1\frac{3}{4}$″ flange base lamps, 6 or 28 volt (not included). Designed for splitface lighting indication.

MOMENTARY ACTION-SINGLE LAMP

Stock No.	Type	Contacts	EACH 1-9	10-24	25-49	50-99
39F2202	PL-1032-05	1-C	9.00	6.75	6.19	5.63
39F2203	PL-1062-05	2-C	9.20	6.90	6.33	5.75
39F2204	PL-1122-05	4-C	9.96	7.47	6.85	6.23

MOMENTARY ACTION-TWIN LAMP

39F2205	PL-2032-05	1-C	9.20	6.90	6.33	5.75
39F2206	PL-2062-05	2-C	9.48	7.11	6.52	5.93
39F2207	PL-2122-05	4-C	10.16	7.62	6.99	6.35

PUSH-LOCK/PUSH-RELEASE-SINGLE LAMP

39F2208	PL-1037-05	1-C	9.48	7.11	6.52	5.93
39F2209	PL-1067-05	2-C	9.68	7.26	6.66	6.05
39F2210	PL-1127-05	4-C	10.44	7.83	7.18	6.53

PUSH-LOCK/PUSH-RELEASE-TWIN LAMP

39F2211	PL-2037-05	1-C	10.44	7.83	7.18	6.53
39F2212	PL-2067-05	2-C	10.68	8.01	7.34	6.68
39F2213	PL-2127-05	4-C	11.44	8.58	7.87	7.15

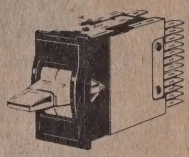
MOUNTING BARRIERS (BLACK)

Stock No.	Type	Description	Each 1-9	10-24	25-49	50-99
39F2200	PL-102	End Barrier	.12	.09	.09	.08
39F2201	PL-202	Center Barrier	.12	.09	.09	.08

LIGHT DIVIDER

39F2214	PL-551		.08	.06	.06	.05

"LEVER-LITE" 111 SWITCHES SERIES 84000



2 and 3 position types: locking, non-locking, talk-listen functions. Contacts: welded crossbar palladium rated at 2 amps., 200 watts max. AC, non-inductive load. Lever illumination is multicolor. Uses one T-$1\frac{3}{4}$ flange base lamp (not supplied). Mounted, relamped, terminated and removed from front of panel. Solder lug term. $\frac{7}{8}$″ x 1½″ mounting hole. Size: $1\frac{3}{8}$″H x ¾″W x $1\frac{13}{16}$″D. 2C schematic circuit.

SERIES 84000 NON-LOCKING

Stock No.	Type	No. Pos.	1-9	10-24	25-49	50-99
27F006	84206	2	8.64	6.48	5.94	5.40
27F007	84312	3	10.68	8.01	7.34	6.68

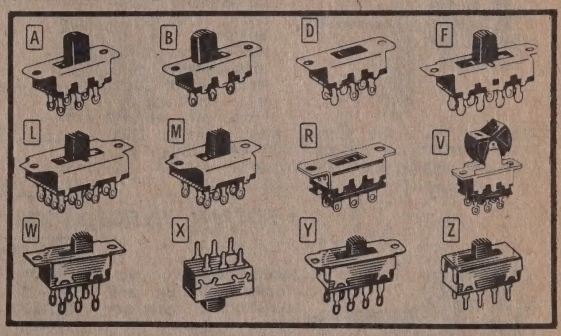
SERIES 84000 LOCKING

27F008	84206L	2	8.64	6.48	5.94	5.40
27F009	84312L	3	10.68	8.01	7.34	6.68

8

GENERAL PURPOSE SWITCHES

Series 46000, 49000 and 50000 are low-cost, precision "double wipe" slide switches with special U-shaped, bifurcated sliders to assure continuous wiping action. Contacts are rated at 0.5 ampere DC, 3 amperes AC, 125 volts, non-inductive load. Standard solder lug terminals have a $\frac{5}{64}$″ diameter center hole and wrap-around notch for wiring ease. Black $1\frac{1}{32}$″ knob and .140″ diameter mounting holes. **Series 51000R** are rocker switches that feature the same high-reliability as the slide switches. Standard knob color is black. Terminal holes accept wires as large as #14 AWG. Unless otherwise noted, all switches are UL recognized.



2 AND 3 POSITION GENERAL PURPOSE TYPE

Series 46000R rated at 3 amps. A.C., 0.5 amp. D.C., 125 volts, non-inductive load. **Nos. 46206LFR and 46256LFR** feature a flush screwdriver slotted knob. All **Series 46000R** U.L. listed. **Series 46000E,** 2-position types with locking or momentary functions. U.L. and C.S.A. listed. Rated at 0.5 amp. D.C., 3 amps. A.C., 125 volts, non-inductive load. Unless otherwise indicated, switches have non-shorting contacts and black nylon knob with serrated crown. **Nos. 46256LFE** have flush actuators. Three position, positive center detent action. Shutter type dust cover. **Series 46300LDR** type — locking in all positions(*).

Stock No.	Type	Action	Fig.	1-9	10-24	25-49	50-99
26F902	46202LR	S.P.S.T. Locking	A	.60	.45	.42	.38
26F903	46203LR	S.P.D.T. Locking	A	.64	.48	.44	.40
26F906	46206LFR	D.P.D.T. Locking	D	.88	.66	.61	.55
26F905	46206LR	D.P.D.T. Locking	A	.72	.54	.50	.45
26F907	46206MR	D.P.D.T. Momentary	B	1.00	.75	.69	.63
26F908	46256LFE	D.P.D.T. Locking	R	1.00	.75	.69	.63
26F909	46256LFR	D.P.D.T. Locking	D	.92	.69	.64	.58

Stock No.	Type	Circuitry	Fig.	1-9	10-24	25-49	50-99
26F910	46311LDR*	S.P.T.T.	F	.88	.66	.61	.55
26F911	46313LDR*	D.P.T.T.	F	.92	.69	.64	.58

3 POSITION GENERAL PURPOSE TYPE

Series 49000L. Heavy duty 3 and 4 pole slide switches. Knob height ½″. Mtg. holes $\frac{9}{64}$″. Non-shorting. U.L. listed as approved.

Stock No.	Type	Action	Fig.	1-9	10-24	25-49	50-99
27F010	49309L	3 P.D.T. Locking	L	1.96	1.47	1.35	1.23
27F011	49312L	4 P.D.T. Locking	L	2.04	1.53	1.40	1.28

2 POSITION GENERAL PURPOSE TYPE

Series 50000L, non-shorting contacts. U.L. listed.

Stock No.	Type	Action	Fig.	1-9	10-24	25-49	50-99
26F851	50209L	3 P.D.T. Locking	M	1.28	.96	.88	.80
26F854	50212L	3 P.D.T. Momentary	M	1.32	.99	.91	.83

2 POSITION ROCKER SWITCHES

Series 51000R. Compact rocker switches offer same quality and dependability as standard slide switches. Black rocker knobs. Has rugged rocker bracket, precision welded to standard flush switch housing. U.L. listed. Black nylon rocker knobs have legend areas and serrations on operating faces. U.L. and C.S.A. listed.

27F012	51202LR	S.P.S.T. Locking	V	1.12	.84	.77	.70
27F013	51204LR	D.P.S.T. Locking	V	1.20	.90	.83	.75
26F856	51206LR	D.P.D.T. Locking	V	1.24	.93	.86	.78

"TINI" SLIDE SWITCHES

206 Type—Switching: 2-C. **313 Type—Switching:** DPTT. **Both-Contacts:** .5 amps, 125 VAC or DC. **Loaded switch life:** 6000 cycles. **"C"** types are for PC mount, others are combination solder and wire wrap. **L1** has long leads. **L2** has short leads.

Stock No.	Type	Action	Fig.	1-9	10-24	25-49	50-99
39F3670	56206L1	2-C	W				
39F3671	56206L2	2-C	n/s	1.04	.78	.72	.65
39F3672	C56206L1	2-C	n/s				
39F3673	C56206L2	2-C	X				
39F3674	56313L1	DPTT	Y				
39F3675	56313L2	DPTT	n/s	1.48	1.11	1.02	.93
39F3676	C56313L1	DPTT	n/s				
39F3677	C56313L2	DPTT	Z				

CENTRALAB
Electronics Division
GLOBE-UNION INC.

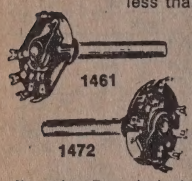
Centralab Switches

PSA SUB-MINIATURE ROTARY SWITCHES

Bushing: ⅜". Index angle: positive 30°. Index stop strength: 10 inch pounds. Section spacing: 9/32" between front plate and clip surface of first section, 5/32" spacing between sections. Insulation: Diallyl Phthalate with high quality molded thermosetting plastic type SDG per MIL-M-14F. Current carrying capacity: 7 amp. Dielectric strength 750 VAC. Resistive load: 0.550 amps at 28 volts VDC; 170 ma. at 115 VAC. Weight of each switch is less than one ounce. Uses P-120 knob.

Shorting		Non-Short							
Stk. No.	Type	Stk. No.	Type	Poles	Pos.	1-24	25-49	50-99	100-Up
22F700	PSA-200	22F712	PSA-201	1	2-12	5.61	5.22	4.86	3.78
22F701	PSA-202	22F713	PSA-203	2	2-6	6.09	5.63	5.23	4.07
....	....	22F714	PSA-205	2	2-12	8.12	7.49	6.96	5.42
22F703	PSA-206	22F715	PSA-207	3	2-5	6.75	6.23	5.78	4.50
....	....	22F716	PSA-209	3	2-12	11.75	10.81	10.10	7.87
22F705	PSA-210	22F717	PSA-211	4	2-6	8.65	7.98	7.43	5.77
....	....	22F718	PSA-215	5	2-3	7.87	7.26	6.74	5.24
....	....	22F719	PSA-221	6	2-5	9.79	9.04	8.39	6.53
....	....	22F720	PSA-223	6	2-6	12.19	11.21	10.48	8.17
....	....	22F721	PSA-229	9	2-5	13.24	12.18	11.39	8.87
....	....	22F722	PSA-231	10	2-3	11.59	10.69	9.94	7.72
....	....	22F723	PSA-239	15	2-3	16.59	15.26	14.26	11.11

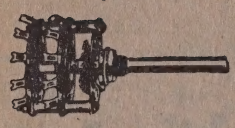
GENERAL PURPOSE SWITCHES



Die-cast, one piece frame except 1463, 1464, 1465, stamped steel frames. Make and break resistive load; 230 mA @ 115 VAC-RMS; 1.5 amps @ 28 VDC. Current carrying capacity: 9 amp. Index stop strength 10 in. lb. min. Pos. indexing exc. 1463 and 1464. Spring return. 1463, 1464 and 1473 non-shorting type, others shorting. Shpg. wt., 5 oz. Uses P-120 knob.

Stk. No.	Type	Poles	Pos.	1-24	25-49	50-99	100-Up
22F574	1460	1	2	1.37	1.26	1.18	.92
22F575	1461	1	3	1.45	1.33	1.25	.97
22F576	1462	2	2	1.94	1.78	1.67	1.30
22F577	1463	1	2	1.95	1.79	1.68	1.29
22F578	1464	2	2	2.22	2.04	1.91	1.49
22F585	1472	2	3	1.77	1.63	1.52	1.19
22F586	1473	2	3	1.64	1.51	1.41	1.10
22F588	1484	1	3	1.49	1.37	1.28	1.00

ROTARY SELECTOR SWITCHES—PHENOLIC INSULATION



Series 1400 offers compact design and quality construction. Laminated phenolic insulation. Mounting bushings ⅜ - 32, NEF-2A thread, ⅜" long. Shafts 1⅞" from end of bushing. Positive 30° index with adjustable stop. Size and current rating same as 2500 series. Breakdown voltage 1000 VAC. Shpg. wt., 4 oz. per section. Uses P-120 knob.

(*) fixed stop

Shorting		Non-Short		Tot.	Tot.	No.				
Stk. No.	Type	Stk. No.	Type	Pls.	Sec.	Pos.	1-24	25-49	50-99	100-Up
22F422	1400	22F438	1401	1	1	2-6	2.92	2.69	2.51	1.96
22F423	1402	22F439	1403	1	1	2-11	3.06	2.82	2.63	2.05
22F424	1404	22F440	1405	2	1	2-5	3.20	2.94	2.75	2.14
....	....	22F441	1407	3	1	2-3	3.26	3.00	2.80	2.18
....	....	22F442	1409	4	1	2*	3.53	3.25	3.04	2.37
....	....	22F443	1411	2	2	2-6	3.88	3.57	3.34	2.60
....	....	22F444	1413	2	2	2-11	4.73	4.35	4.07	3.17
....	....	22F445	1415	4	2	2-5	4.86	4.47	4.18	3.26
....	....	22F446	1417	6	2	2-3	5.12	4.71	4.40	3.43
....	....	22F447	1419	8	2	2*	5.16	4.75	4.44	3.46
....	....	22F448	1421	3	3	2-6	5.42	4.99	4.66	3.63
....	....	22F449	1423	3	3	2-11	5.98	5.50	5.14	4.01
....	....	22F450	1425	6	3	2-5	8.05	7.40	6.92	5.39
....	....	22F451	1427	4	4	2-6	8.42	7.75	7.24	5.64
....	....	22F452	1429	4	4	2-11	8.97	8.09	7.56	5.89
....	....	22F453	1431	8	4	2-5	9.38	8.63	8.07	6.29

ROTARY SELECTOR SWITCHES—CERAMIC INSULATION

Series 2500. Compact, efficient, shorting and non-shorting rotary selector switches. Low loss ceramic wafers. Positive 30° index. Adjustable stop. Bushing ⅜"-32thd. ⅜" lg. Shaft ¼" full round, 1⅞" from bushing. Dia. 1.875", MIL-1-10A. Current carrying capacity: 9 amp. Stop strength 25 in. lb. min. Rated 2.75 amps at 15 VDC, 350 ma. at 115 VAC. Breakdown voltage 1500 VAC. Shpg. wt., 4 oz. per section. Uses P-120 knob.

Shorting		Non-Short		Tot.	Tot.	No.				
Stk. No.	Type	Stk. No.	Type	Pls.	Sec.	Pos.	1-24	25-49	50-99	100-Up
22F400	2500	22F411	2501	1	1	2-6	3.95	3.63	3.40	2.65
22F401	2502	22F412	2503	1	1	2-11	4.24	3.90	3.65	2.84
22F402	2504	22F413	2505	2	1	2-5	4.69	4.31	4.03	3.14
....	....	22F414	2507	3	1	2-3	4.85	4.46	4.17	3.25
22F404	2510	22F415	2511	2	2	2-6	6.16	5.67	5.30	4.13
22F405	2512	22F416	2513	2	2	2-11	6.71	6.17	5.77	4.50
22F406	2514	22F417	2515	4	2	2-5	7.34	6.75	6.31	4.92
....	....	22F418	2517	6	2	2-3	7.54	6.94	6.48	5.05
22F408	2520	22F419	2521	3	3	2-6	8.07	7.42	6.94	5.41
....	....	22F420	2523	3	3	2-11	10.10	9.29	8.69	6.77
....	....	22F421	2525	6	3	2-5	10.40	9.57	8.94	6.97

SEPARATE CERAMIC SECTIONS

Separate sections. Use with index assemblies P-270, P-271 and P-272, below to assemble switches with special characteristics. Special section PISD, one off position, nine progressively shorting positions. Special sections GGD and FFD, 1 pole, 2-11 pos., all unused-contacts connected and shorted. Wt., 4 oz.

		Shorting					Non-Shorting				
Poles	Pos.	Stk. No.	Type	1-24	25-49	50-99	Stk. No.	Type	1-24	25-49	50-99
1	2-6	22F482	TD	1.93	1.78	1.66	22F488	XD	1.93	1.78	1.66
1	2-11	22F483	UD	2.25	2.07	1.99	22F489	YD	2.25	2.07	1.94
2	2-5	22F484	RD	2.40	2.21	2.06	22F490	RRD	2.40	2.21	2.06
3	2-3	....	....	...	...	...	22F491	SSD	2.72	2.50	2.34
4	2	....	....	...	...	...	22F492	ZD	3.21	2.95	2.76
See Text	....	22F495	PISD	2.17	2.00	1.87	....	....	....	....	....
See Text	....	22F487	GGD	2.67	2.46	2.30	22F538	FFD	2.67	2.46	2.30

INDEX ASSEMBLIES

Use with above sections. Pos. 30- Index, adjustable stop includes all hardware. Shipping Weight, 3 oz.

Stk. No.	Type	No. Sec.	1-24	25-49	50-99
22F540	P-270	1-3	2.34	2.15	2.01
22F541	P-271	3-5	2.75	2.53	2.37
22F542	P-272	5-10	4.15	3.82	3.57

MODEL P-120 KNOB

Knob has pointer and one set-screw. Black. For ¼" diameter shafts.

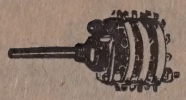
Stk. No.	Type	Description	1-24	25-49	50-99
22F646	P-120	Pointer knob with one set screw	.22	.20	.19

Centralab Switches

CENTRALAB
Electronics Division
GLOBE-UNION INC.

SUB-MINIATURE CERAMIC SWITCHES

Shorting		Non-Short			Total	No.		25-	50-	100-
Stk. No.	Type	Stk. No.	Type	Sec.	Poles	Pos.	1-24	49	99	Up
22F761	PS-100	22F773	PS-101	1	1	11	6.23	5.73	5.36	4.17
.....	.....	22F774	PS-103	2	2	11	9.53	8.77	8.20	6.39
.....	.....	22F775	PS-105	1	2	5	6.66	6.13	5.73	4.46
.....	.....	22F776	PS-107	3	3	11	12.59	11.58	10.83	8.44
22F765	PS-108	22F777	PS-109	1	3	3	6.81	6.27	5.86	4.56
22F766	PS-110	22F778	PS-111	2	4	5	10.08	9.27	8.67	6.75
.....	.....	22F779	PS-113	1	4	2	7.25	6.57	6.24	4.86
22F768	PS-114	22F780	PS-115	3	6	5	13.71	12.12	11.33	8.82
22F769	PS-116	22F781	PS-117	2	6	3	10.43	9.60	8.97	6.99
		22F782	PS-119	2	8	2	11.18	10.29	9.61	7.49
		22F783	PS-121	3	9	3	14.31	13.17	12.31	9.59



Ultra-small ceramic rotary switches ideal for use in transistor circuits, aircraft instruments, etc. Bolt construction with single hole bushing mount; locating lug on 3/8" radius; 1/8" D. shaft, cadmium plated steel, 1 1/4" long from mounting surface. Index angle positive 30° with index stop strength of 10 in-pounds. 5/32" spacing between front plate and first section. Make, break, resistive load; .550 amps @ 28 VDC; 170 ma at 115 VAC (based on 10,000 cycles). Avg. initial resistance 5 milliohms. Uses P-106 Knob opposite. Wt., 2 oz. per section.

Stock No.	Type	Description	1-24	25-49	50-99
22F648	P-106	Pointer knob with one set screw	.32	.30	.27

SEPARATE ASSEMBLY SECTIONS FOR SUB-MINIATURE SWITCHES

Shorting		Non-Short		Tot. No.				
Stk. No.	Type	Stk. No.	Type	Pls.	Pos.	1-24	25-49	50-99
22F785	PS-20	22F789	PS-21	1	2-11	3.02	2.78	2.60
22F786	PS-22	22F790	PS-23	2	2-5	3.35	3.08	2.88
22F787	PS-24	22F791	PS-25	3	2-3	3.50	3.22	3.01

These separate sub-miniature assembly sections are for use with shaft and index assemblies listed below—P-501 thru P-511, for fixed stop indexing and switching. Carry the same ratings as above switches. Shpg. wt. 2 oz.

SHAFT AND INDEX ASSEMBLIES

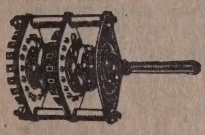
Stock No.	Type	Ind.	Pos.	1-24	25-49	50-99
22F681	P-501	30°	2			
22F682	P-502	30°	3			
22F684	P-504	30°	5			
22F685	P-505	30°	6	2.81	2.58	2.41
22F686	P-506	30°	7			
22F690	P-510	30°	11			

INCLUDES INDEX, SHAFT ASSEMBLY AND HARDWARE

Hardware for sub-miniature switches. All index assemblies listed are designed for a maximum 3 section and contain one index and shaft assembly, instructions and hardware. Shipping weight 2 oz.

HEAVY DUTY ROTARY POWER SWITCHES

Shorting		Non-Short		Tel.	No.			25-	50-	100-
Stk. No.	Type	Stk. No.	Type	Pol.	Sec.	Pos.	1-24	49	99	Up
22F731	JV9000	22F746	JV9001	1	1	2-17	14.85	13.66	12.77	9.95
22F732	JV9032	22F747	JV9033	2	1	2-8	16.13	15.00	14.01	10.92
22F733	JV9004	22F748	JV9005	2	2	2-17	24.75	22.77	21.28	16.58
.....	.....	22F749	JV9003	3	1	2-5	16.59	15.26	14.26	11.11
.....	.....	22F750	JV9009	3	3	2-17	33.95	31.23	29.20	22.75
22F736	JV9034	22F751	JV9035	4	2	2-8	27.19	25.01	23.38	18.22
.....	.....	22F752	JV9013	4	4	2-17	46.24	42.54	39.77	30.98
.....	.....	22F754	JV9007	6	2	2-5	28.37	26.10	24.40	19.01
.....	.....	22F755	JV9037	6	3	2-8	38.59	35.50	33.19	25.86
.....	.....	22F756	JV9021	6	6	2-17	63.90	58.79	54.95	42.81
.....	.....	22F758	JV9011	9	3	2-5	39.20	36.05	33.71	26.26
.....	.....	22F759	JV9015	12	4	2-5	50.98	46.90	43.84	34.16
.....	.....	22F760	JV9019	15	5	2-5	62.95	57.91	54.14	42.17



Ceramic insulation; 3/8" bushing mounted; 1/4" D shaft, double flat steel. 2 1/4" L. from mounting surface. Index angle is 20° with 2 adjustable stops. 1" spacing between front plate and first section. Make and break res. load; 9 amps @ 110 VAC-RMS; 15mA @ 2500 VAC-RMS; 30 amps @ 5 VDC, 20 amps @ 12 VDC; 11 amps @ 28 VDC. Contact resistance 7 milliohms with rotational life 25,000 hz. min. Comes with adjustable stop pin and nut and instruction sheet. Uses P-168 Knob. Shpg. wt., 6 oz.

Stock No.	Type	Description	1-24	25-49	50-99
22F649	P-168	Pointed knob w/brass insert and 2 set screws	.82	.76	.70

PA-3000 SERIES 18 POSITION SWITCH

Shorting		Non-Short						25-	50-	100-
Stk. No.	Type	Stk. No.	Type	Pol.	Pos.	Sec.	1-24	49	99	Up
57F922	PA-3000	57F923	PA-3001	1	2-17	1	4.80	4.42	4.13	3.22
57F924	PA-3002	57F925	PA-3003	2	2-17	2	7.80	7.18	6.71	5.23
.....	.....	57F927	PA-3005	3	2-17	3	10.72	9.86	9.22	7.18
57F928	PA-3006	57F929	PA-3007	4	2-17	4	13.70	12.60	11.78	9.18

Phenolic insulation per MIL-P-3115B. Voltage breakdown between parts 1000 VAC. Sections 2 5/16" high x 2 11/64" wide, 1/16" thick. Rated 2.25 amps @ 28 VDC; .350 amps @ 115 VAC. Adjustable stop or continuous rotation. Uses P-120 Knob. Wt., 4 oz. per sect.

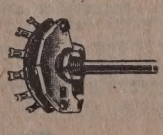
PA-4000 SERIES 24-POSITION PHENOLIC SWITCH

Shorting		Non-Short						25-	50-	100-
Stk. No.	Type	Stk. No.	Type	Pol.	Pos.	Sec.	1-24	49	99	Up
57F930	PA-4000	57F931	PA-4001	1	2-23	1	4.55	4.19	3.91	3.05
57F932	PA-4002	57F933	PA-4003	2	2-23	2	7.24	6.66	6.23	4.85
.....	.....	57F935	PA-4005	3	2-23	3	9.30	8.56	8.00	6.23
57F936	PA-4006	57F937	PA-4007	4	2-23	4	11.78	10.84	10.13	7.89

High quality laminated phenolic insulation, meets MIL-P-3115B. Sections: 2 5/16" H, 1 31/32" W, 1/16" thick. Rated 5.5 amps @ 6 VDC; 2.75 amps @ 15 VDC; .230 amps @ 115 VAC. Uses P-120 Knob. Shpg. wt., 4 oz. per section.

ROTARY SPRING RETURN SWITCHES

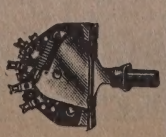
Stock No.	Type	Poles	Pos.	Index	1-24	25-49	50-99	100-Up
22F571	1451	4	2	Spring Return	3.93	3.62	3.37	2.63
57F991	1488	6	3	Spring Return	5.23	4.81	4.50	3.50
57F992	1489	6	3	Positive and Spring Return	5.82	5.35	5.00	3.90



Rated 1.5 amps at 28 VDC 230 mA at 115 VAC. Phenolic insulation. Bushing 3/8-32, 3/8" L. Shaft 1 7/8 lg. from bushing. Includes hardware. 4 oz.

LEVER SWITCHES

Shorting		Non-Short								100-
No.	Type	No.	Type	Poles	Pos.	Index	1-24	25-49	50-99	Up
22F550	1452	22F555	1454	2	3	Pos.	2.42	2.23	2.08	1.62
.....	....	22F556	1455	2	3	S.R.	2.42	2.23	2.08	1.62
.....	....	22F557	1457	4	2	S.R.	2.80	2.58	2.41	1.88
22F553	1459	22F558	1458	4	2	Pos.	2.80	2.58	2.41	1.88
22F554	1466	22F559	1467	2	3	P&S.R.	2.42	2.23	2.08	1.62

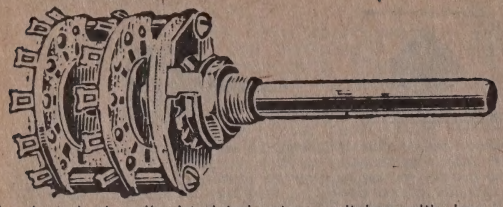


Coil spring index design. Phenolic insulation Single switch. 1 7/8 H x 9/16 W x 1 1/2" D behind panel. 1.5 amps @ 28 VDC. 230 mA @ 115 volts AC. 3 oz. uses P-193 knob.

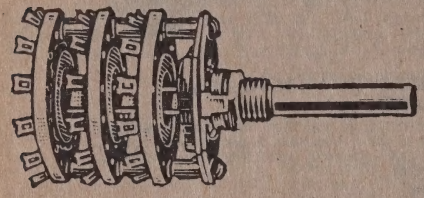
Stock No.	Type	Description	1-24	25-49	50-99
22F647	P-193	Oval Knob (push on)	.22	.20	.19

Centralab Switches

CENTRALAB
Electronics Division
GLOBE-UNION INC.



Laminated phenolic insulated rotary switches with low intercircuit capacitance. Bushing ⅜″ L.; Shaft ¼″ D. full round — cadmium-plated steel, 2¼″ L. from mtg. surface. Index angle pos. 30°. ⅜″ spacing between front plate and section; ½″ space between sections. Brass silver-plated clips and rotor contacts; other metal parts cadmium-plated steel. Make and break res. load; 5.5 amp. @ 6 VDC- 2.75 amp. 15 VDC, 230 mA @ 115 VAC; based on 10,000 cycles. Avg. initial res. 3.5 milliohms. Includes mtg. nut, lock-washer. 3 oz. per section. Uses P-120 knob.



Offers maximum voltage flash-over with high-Q-Low loss steatite body. Bolted construction with single hole bushing mount. Bushing is ⅜″ L. cad-plated steel and locating lug on 7/16″ R. ¼″ D. shaft 2¼″ L. from mounting surface. Index angle is 30° adjustable stop or continuous rotation. ⅜″ spacing between front plate and first section; ½″ spacing between sections. Voltage breakdown: 1500 VAC-RMS. Clips and rotor contacts are brass, silver plated. Make and break res. load; 5.5 amp @ 6 VDC; 2.75 A @ 15 VDC; 1.5 amp. 28 VDC; 230 mA @ 115 VAC; based on 10,000 cycles life test. Avg. initial res. 3.5 milliohms. Rotational life 25,000 cycles minimum. Includes mtg. nut, lock-washer. 3 oz. per section. Uses P-120 knob below.

8

MINIATURE INDEX ASSEMBLIES

Use with PA sections. Includes all hardware.

30° INDEXING

Stock No.	Type	For Switches	Rear Shaft	1-24	25-49	50-99
22F650	PA-300	1 to 3 sec.	2″	1.75	1.61	1.51
22F651	PA-301	4 to 6 sec.	4″	2.56	2.36	2.20
22F652	PA-302	7 to 9 sec.	6″	3.60	3.32	3.10

60° INDEXING

Stock No.	Type	For Switches	Rear Shaft	1-24	25-49	50-99
22F654	PA-304	1 to 3 sec.	2″	1.75	1.61	1.51
22F655	PA-305	4 to 6 sec.	4″	2.56	2.36	2.20

Intersection shield

22F680	P-320	....		.32	.30	.27

MODEL P-120 KNOB

Pointer knob. Has one setscrew. For ¼″ diameter shafts.

Stk. No.	Type	1-24	25-49	50-99
22F646	P-120	.22	.20	.19

MINIATURE PHENOLIC SWITCHES

Shorting Stk. No.	Shorting PA-	Non-Short. Stk. No.	Non-Short. PA-	Tot. Pol.	Tot. Sec.	No. Pos.	1-24	25-49	50-99	100-Up
22F800	1000	22F801	1001	1	1	2-11	2.72	2.50	2.34	1.82
22F802	1002	22F803	1003	2	1	2-5	2.79	2.57	2.40	1.87
22F804	1004	22F805	1005	2	2	2-11	3.91	3.60	3.36	2.62
22F806	1006	22F807	1007	3	1	2-3	2.88	2.65	2.48	1.93
22F808	1008	22F809	1009	3	3	2-11	5.10	4.69	4.39	3.42
...	...	22F811	1011	4	1	2*	2.84	2.61	2.44	1.90
22F812	1012	22F813	1013	4	2	2-5	3.94	3.62	3.39	2.64
22F814	1014	22F815	1015	4	4	2-11	6.25	5.75	5.38	4.19
22F816	1016	22F817	1017	5	5	2-11	7.40	6.81	6.36	4.96
22F818	1018	22F819	1019	6	2	2-3	3.98	3.66	3.42	2.67
22F820	1020	22F821	1021	6	3	2-5	5.14	4.73	4.42	3.44
...	...	22F823	1023	6	6	2-11	9.35	8.60	8.04	6.26
...	...	22F825	1025	8	2	2*	3.90	3.59	3.35	2.61
22F826	1026	22F827	1027	8	4	2-5	6.43	5.93	5.55	4.32
...	...	22F829	1029	12	3	2*	5.46	5.02	4.70	3.66
...	...	22F831	1031	10	5	2-5	7.54	6.94	6.48	5.05
...	...	22F833	1033	12	6	2-5	9.75	8.97	8.39	6.53
...	...	22F835	1035	1	1	2-6	2.50	2.30	2.15	1.68
...	...	22F837	1037	2	2	2-6	3.68	3.39	3.16	2.47

MINIATURE CERAMIC ROTARY SWITCHES

Shorting Stk. No.	Shorting Type	Non-Short. Stk. No.	Non-Short. Type	Tot. Pol.	Tot. Sec.	No. Pos.	1-24	25-49	50-99	100-Up
22F600	PA2000	22F601	PA2001	1	1	2-12	3.44	3.16	2.96	2.30
22F602	PA2002	22F603	PA2003	2	1	2-6	3.66	3.37	3.15	2.45
22F604	PA2004	22F605	PA2005	2	2	2-12	5.55	5.11	4.77	3.72
22F606	PA2006	22F607	PA2007	3	1	2-5	3.90	3.59	3.35	2.61
22F608	PA2008	22F609	PA2009	3	3	2-12	7.21	6.63	6.20	4.83
22F610	PA2010	22F611	PA2011	4	2	2-6	5.81	5.35	5.00	3.89
22F612	PA2012	22F613	PA2013	4	4	2-12	9.09	8.36	7.82	6.09
...	...	22F615	PA2015	5	1	2-3	4.07	3.74	3.50	2.73
22F616	PA2016	22F617	PA2017	5	5	2-12	11.00	10.12	9.46	7.37
...	...	22F619	PA2019	6	1	2†	3.96	3.64	3.41	2.65
22F620	PA2020	22F621	PA2021	6	2	2-5	6.15	5.66	5.29	4.12
22F622	PA2022	22F623	PA2023	6	3	2-6	7.80	7.18	6.71	5.23
22F624	PA2024	22F625	PA2025	6	6	2-12	12.83	11.80	11.03	8.60
22F626	PA2026	22F627	PA2027	8	4	2-6	10.80	9.94	9.29	7.24
...	...	22F629	PA2029	9	3	2-5	8.52	7.84	7.33	5.71
22F630	PA2030	22F631	PA2031	10	2	2-3	6.45	5.93	5.55	4.32
...	...	22F633	PA2033	10	5	2-6	12.25	11.27	10.54	8.21
...	...	22F635	PA2035	12	2	2†	6.70	6.16	5.76	4.49
...	...	22F637	PA2037	12	6	2-6	15.32	14.09	13.18	10.26
...	...	22F639	PA2039	15	3	2-3	9.92	9.13	8.53	6.65
22F640	PA2040	22F641	PA2041	18	3	2†	10.78	9.92	9.27	7.22
22F642	PA2042	...	...	1	1	2-10	3.75	3.45	3.23	2.51
...	...	22F643	PA2043	1	1	2-6	3.10	2.85	2.67	2.08
...	...	22F645	PA2045	2	2	2-6	4.95	4.55	4.26	3.32

*Fixed Tab †Fixed Stop ‡Special Circuit

SEPARATE MINIATURE CERAMIC SECTIONS

For use with index assemblies PA-300, PA-301, PA-302 for assembly of special units of your own design. Sections are .100″ thick ceramic (steatite). *Unused contacts one side of common connected and shorted out. (†)All unused contacts connected and shorted out. (‡)Progressively shorting with clockwise rotation. (**) Progressively shorting with counter-clockwise rotation. ††60 indexing, use with PA-304 and 305 indexes. Shpg. wt. 3 oz.

Shorting Stk. No.	Shorting Type	Non-Short Stk. No.	Non-Short Type	Pls.	Pos.	1-24	25-49	50-99
22F660	PA-0	22F661	PA-1	1	2-12	2.02	1.86	1.74
22F662	PA-2	22F663	PA-3	2	2-6	2.32	2.13	2.00
22F664	PA-4	22F665	PA-5	3	2-5	2.56	2.36	2.20
22F666	PA-6	22F667	PA-7	5	2-3	2.90	2.67	2.49
...	...	22F669	PA-9	6	2	3.00	2.76	2.58
22F670*	PA-10	...	...	1	2-5	1.58	1.45	1.36
...	...	22F679*	PA-19	1	2-5	1.58	1.45	1.36
22F671†	PA-11	22F678†	PA-18	2	2-11	2.78	2.56	2.39
22F672‡	PA-12	...	...	1	2-10	2.06	1.90	1.77
22F673**	PA-13	...	...	1	2-10	2.06	1.90	1.77
22F674‡	PA-20	22F677††	PA-17	1	2-6	1.55	1.43	1.33

SEPARATE MINIATURE PHENOLIC SECTIONS

For use with index assemblies PA-300, PA-301, PA-302 for assembly of special switches to meet your requirements. Meet rigorous commercial or military applications. Sections are of 1/16″ thick phenolic. (*)All unused contacts one side of common connected and shorted out. (#)Active contacts all shorted to common contact in full CCW progressively opened and dropped with CW rotation. PA-45 is 60° indexing section, use with PA-304, 305 indexes. Shpg. wt., 2 oz.

Shorting Stk. No.	Shorting Type	Non-Short Stk. No.	Non-Short Type	Tot. Pol.	Indes	Positions	1-24	25-49	50-99
22F840	PA-30	22F841	PA-31	1	30°	2-11	1.26	1.16	1.08
22F842	PA-32	22F843	PA-33	2	30°	2-5	1.30	1.20	1.12
22F844	PA-34	22F845	PA-35	3	30°	2-3	1.31	1.21	1.13
22F846	PA-36	22F847	PA-37	4	30°	2	1.33	1.22	1.14
...	...	22F849	PA-39*	1	30°	2-5	1.05	.97	.90
...	...	22F851	PA-41#	2	30°	2-11	2.15	1.98	1.85
...	...	22F853	PA-45	1	60°	2-6	1.02	.94	.88

LINEMASTER FOOT SWITCHES

JUNIOR. Momentary contact switch for lightest pressure contact. Use as Single Pole, normally open or closed. Rated 20 amps at 125-250 VAC. Size, 5½x3¼x1¼". Shpg. wt. 1 lb.

Stk. No.	Type	1-9	10-19	20-49
24F161	121-S	11.25	10.12	9.00

EXECUTIVE. Two switches in one using the teeter-totter principle to operate only one circuit at a time. SPDT. 15 A at 125-250 VAC. 4x4⅝x1⅛". 1¼ lbs.

Stk. No.	Type	1-9	10-19	20-49
24F169	72	10.25	9.22	8.20

DUPLEX. Two SPDT switches in double-pressure housing. Light spring for seated operation. May be wired as Single Pole, normally open or closed. Size, 8½x3½x2". Shpg. wt. 1¾ lbs.

Stk. No.	Type	1-9	10-19	20-49
24F166	476S	17.50	15.75	14.00

LEKTRO-LOK. Has mechanical interlock that prevents both circuits from being operative at the same time. SPDT. Can be wired normally open or normally closed. 15 A at 125-250 VAC. 5x2¼x1⅛". 10 oz.

Stk. No.	Type	1-9	10-19	20-49
24F168	L-2-S	7.65	6.88	6.12

CLIPPER. Designed for operation under heavy loads. Rated 20 amps at 125-250 VAC. SPDT. 4½x3½x1½". Type 632-S has momentary contact, type 632-D has maintained contact. Shpg. wt. 2¼ lbs.

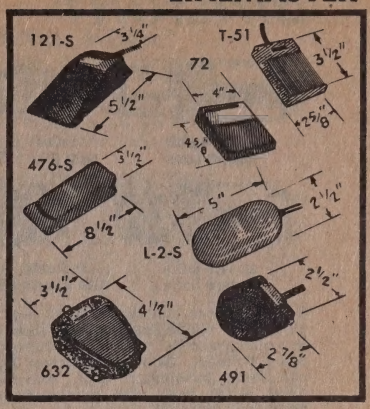
CLIPPER (cont.)

Stk. No.	Type	1-9	10-19	20-49
24F170	632-S	10.50	9.45	8.40
24F171	632D	14.10	12.69	11.28

TREADLITE. A small yet versatile and rugged foot switch designed to give instantaneous and accurate control at low amperage loads. Less cord and plug set. Rated 7 Amps at 125-250 VAC. 3½x2⅝x1". Shpg. wt. 8 oz.
Model T-51-S. Single pole, double throw, momentary contact only. Can be used normally open or closed as desired.
Model T-51-SC. As above but SP-NO with 2-prong series plug and 6 cord set.
Model T-51-SC3. As above but SP-NO with 3-prong series plug and 6′ cord set.
Model T-51-SC36. As above but SP-NO with 6′ 18/3 SJ cord. No plug. Green lead grounded.
Model T-51-S1. Replacement interior for T-51-S.
Model T-52-S. Interior constructed so that a partial downward stroke of treadle actuates one interior and either opens or closes a circut. Continued heavier pressure will open or close a second circuit. Both are SPDT.

Stk. No.	Type	1-9	10-19	20-49
24F163	T-51-S	3.85	3.46	3.08
24F155	T-51-SC	5.90	5.31	4.72
24F156	T-51-SC3	7.60	6.84	6.08
24F180	T-51-SC36	6.40	5.76	5.12
24F175	T-51-S1	1.45	1.31	1.16
24F167	T-52-S	5.95	5.35	4.76

COMPACT. Lightweight SPDT switch, precision made for accurate operation and long life.



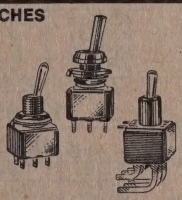
Steel housing. Skidproof rubber base pad. Rated 10 amps at 125-250 VAC. Wt. 7 oz.
Model 491-S. Less cord and plug.
Model 491-SC. As above but with 2-prong series plug and 6′ cord.
Model 491-S1. Replacement interior for above.
Model 491-SC3. As above but with 3-prong series plug and 8′ cord.
Model 491-SC36. As above with 6-ft. 18/3 SJ cord. No plug. Green lead grounded.

Stk. No.	Type	1-9	10-19	20-49
24F165	491-S	4.75	4.27	3.80
24F162	491-SC	7.50	6.75	6.00
24F174	491-S1	3.15	2.83	2.52
24F154	491-SC3	9.10	8.19	7.28
24F181	491-SC36	7.90	7.11	6.32

8

MINIATURE TOGGLE SWITCHES

Life cycle of 100,000 on-off cycles at rated current (40,000 cycles for momentary types). Case made of black, phenolic resin. Coin silver contacts handle 5 A resistive loads at 120 VAC or 28 VDC, or 2 A at 250 VAC. Brass contacts with gold over nickel plate, 0.4 A at 25 V max. (AC or DC). PC terminal and Right Angle PC terminal types have brass contacts with gold over nickel plate, all other types have coin silver contacts.



MINIATURE TOGGLE SWITCHES (BAT HANDLE)

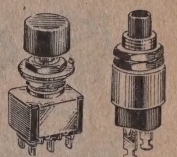
Stk. No.	Type	Action (Momentary)	1-24	25-999	500-999	1000-2499
25F1048	105D	SPDT, On-None-On	1.75	.93	.84	.76
25F1049	105E	SPDT, On-Off-On	2.05	1.08	.97	.87
25F1050	105F	SPDT, None-On-(On)	2.05	1.08	.97	.87
25F1051	105G	SPDT, (On)-Off-(On)	2.05	1.08	.97	.87
25F1052	105H	SPDT, On-Off-(On)	2.05	1.08	.97	.87
25F1053	205N	DPDT, On-None-On	2.35	1.28	1.15	1.03
25F1054	205P	DPDT, On-Off-On	2.75	1.48	1.33	1.20
25F1055	205PA	DP3T, On-On-On	3.05	1.63	1.47	1.32
25F1056	205R	DPDT, None-On-(On)	2.75	1.48	1.33	1.20
25F1057	205S	DPDT, (On)-Off-(On)	2.75	1.48	1.33	1.20
25F1058	205T	DPDT, On-Off-(On)	2.75	1.48	1.33	1.20
25F1059	305D	3PDT, On-None-On	4.05	2.18	1.96	1.76
25F1060	305E	3PDT, On-Off-On	4.05	2.18	1.96	1.76
25F1061	405N	4PDT, On-None-On	5.20	2.80	2.52	2.27
25F1062	405P	4PDT, On-Off-On	5.60	3.00	2.70	2.43
FLATTED TOGGLE SWITCHES						
25F1063	105D49	SPDT, On-None-On	2.25	1.43	1.29	1.16
25F1064	105E49	SPDT, On-Off-On	2.55	1.58	1.42	1.28
25F1065	105G49	SPDT, (On)-Off-(On)	2.55	1.58	1.42	1.28
25F1066	205N49	DPDT, On-None-On	2.85	1.78	1.60	1.44
25F1067	205P49	DPDT, On-Off-On	3.25	1.98	1.78	1.60
PC TERMINALS						
25F1068	105D2	SPDT, On-None-On	1.90	1.08	.97	.87
25F1069	105E2	SPDT, On-Off-On	2.20	1.25	1.12	1.01
25F1070	205N2	DPDT, On-None-On	2.65	1.58	1.42	1.28
25F1071	205P2	DPDT, On-Off-On	3.05	1.78	1.60	1.44
25F1072	305D2	3PDT, On-None-On	4.50	2.63	2.37	2.13
25F1073	405N2	4PDT, On-None-On	5.80	3.40	3.06	2.75
RIGHT ANGLE, PC TERMINALS						
25F1074	105DPC	SPDT, On-None-On	2.00	1.18	1.06	.95
25F1075	105E3	SPDT, On-Off-On	2.30	1.33	1.20	1.08
25F1076	105F3	SPDT, None-On-(On)	2.30	1.33	1.20	1.08
25F1077	205NPC	DPDT, On-None-On	2.85	1.78	1.60	1.44
25F1078	205P3	DPDT, On-Off-On	3.00	1.73	1.56	1.40

RAYTHEON MULTI-APPLICATION SWITCHES

RAYTHEON

PUSHBUTTON SWITCHES

Momentary contact, miniature pushbutton switches in both snap action and butt contact construction. Contacts on snap action type are gold on brass. Butt switch contacts are coin silver. Snap action switch terminals are epoxy sealed. Contact rating: 1 A at 120 VAC or 28 VDC.



Stk. No.	Type	Cap Color	Description	1-24	25-499	500-999	1000-2499
25F1044	MP1F1	Red	SPST, Butt Contact, N.O.	1.09	.60	.56	.52
25F1045	MP1E1	Black	SPST, Butt Contact, N.C.	1.09	.60	.56	.52
25F1046	P1F1	White	SPDT, Snap Action	3.31	1.67	1.50	1.35
25F1047	P2F1	White	DPDT, Snap Action	4.62	2.34	2.11	1.90

ROCKER AND LEVER SWITCHES

Snap in mounting in panels of .062" to .125" thickness. Current rating: 5 A at 120 VAC or 28 VDC. Switches with type nos. beginning with LE are lever actuated, those beginning with R are rocker actuated.

Stk. No.	Type	Action	1-24	25-499	500-999	1000-2499
25F1079	LE1A1	SPST, On-None-On	2.10	1.28	1.15	1.03
25F1080	LE2A1	DPDT, On-None-On	2.70	1.63	1.47	1.32
25F1081	R1A1	SPST, On-None-On	2.10	1.28	1.15	1.03
25F1082	R2A1	DPDT, On-None-On	2.70	1.63	1.47	1.32

COLOR CODED CAPS AND BEZELS

Stk. No.	Type	Description	Each
25F1083	C7	Black caps for P type pushbuttons, .200"	.05
25F1084	C8	Black caps for P type pushbuttons, .375"	.05
25F1085	C9	Black, vinyl-dipped for standard tottle	.03
25F1086	B1	Black bezel for rocker and lever switches	.05

MOUNTING HARDWARE

25F1088	N1	¼ x 40 Knurled nut	.04
25F1089	N1A	¼ x 40 Knurled panel dress nut	.04
25F1090	N2	¼ x 40 Hex nut	.04
25F1091	N3	¼ x 40 Hex panel dress nut	.04

DIALIGHT

Lighted Pushbutton Switches

TYPE 513 PANEL MOUNT

(U.L. LISTED)

Switch with Round Lens

Indicator light with Fixed Flange

Switch with Square Lens

Indicator light with Knurled Flange

Switches and matching lights are designed for single hole (keyed) mounting in panels up to 3/16" thick. 1250 VAC breakdown voltage. Matching indicator lights use same pushbutton caps. Accommodates T-1¾ bulb with midget flanged base, incandescent.

LOW LEVEL SWITCHES

Stock No.	Type	Contact	Action	Low Level Contact Ratings (mA.) 3-12 VDC Resistive	1-9	10-24	25-99
60F1003	513-0401-604	SPST N.O.	Mom. Non-snap	5-100	6.02	4.91	4.41
60F1004	513-0501-604	SPST N.C.	Mom. Non-snap	5-100	6.02	4.91	4.41
60F1005	513-0601-604	2-Circuit	Mom. Non-snap	5-100	6.56	5.39	4.85

STANDARD SWITCHES

Stock No.	Type	Contact	Action	Contact Rating (Amps) 125VAC Res.	125VAC Ind.	30VAC Res.	30VAC Ind.	1-9	10-24	25-99
60F1000	513-0101-604	SPST N.O.	Mom. Non-snap	3	—	3	—	5.45	4.45	4.03
60F1001	513-0201-604	SPST N.C.	Mom. Non-snap	3	—	3	—	5.45	4.45	4.03
60F1002	513-0301-604	2-Circuit	Mom. Non-snap	3	—	3	—	6.02	4.91	4.41
57F3702	513-1401-604	SPDT	Alternate	5	2	5	2	8.94	7.29	6.55
57F3701	513-1501-604	2-Circuit	Alternate	5	2	5	2	8.94	7.29	6.55
45F494	513-1601-604	SPDT	Mom. Snap	5	2	5	2	6.92	5.67	5.11

MATCHING INDICATOR LIGHTS

Companion series designed to match pushbutton switches. Incorporates unique anti-rotation (locked) feature for secure locking of socket terminal assembly in the mounting bushing and of the center terminal to the insulating disc. Insulation 1250 VAC breakdown. Base with fixed flange for front mounting in 15/32" clearance hole.

Stock No.	Type 183	1-9	10-24	25-99
60F1006	9730-14-602	1.94	1.58	1.41

Base with movable knurled flange nut for front or rear mounting in ½" clearance hole.

60F1007	9830-14-604	1.94	1.58	1.41

LENS CAP ½" ROUND ROTATABLE

Stk. No.	Type	Color	1-9	10-24	25-99
60F1047	183-1471	Red	.99	.86	.76
60F1048	183-1472	Green			
60F1051	183-1475	White			
60F1049	183-1473	Amber			

LENS CAP ½" SQUARE NON-ROTATABLE

Stk. No.	Type	Color	1-9	10-24	25-99
60F1068	184-1871	Red	.99	.86	.76
60F1069	184-1872	Green			
60F1072	184-1875	White			
60F1070	184-1873	Amber			

LENS CAPS ¾" ROUND NON-ROTATABLE

Stk. No.	Type	Color	1-9	10-24	25-99
60F1138	188-1471	Red	1.38	1.22	1.09
60F1139	188-1472	Green			
60F1142	188-1475	White			
60F1140	188-1473	Amber			

LENS CAPS ¾" SQUARE NON-ROTATABLE

Stk. No.	Type	Color	1-9	10-24	25-99
60F1152	187-1871	Red	1.38	1.22	1.09
60F1153	187-1872	Green			
60F1156	187-1875	White			
60F1154	187-1873	Amber			

300

301

303

513

KAP KOVER

UL listed. Insulation resistance: more than 1000 megohms @ 500 VDC. Contact ratings below are at 125VAC, 30VDC. Mounting bushing: aluminum, clear anodize finish. Coin silver, gold-plated contacts. Heat resistant plastic black bezel. Stainless steel clip.

LENS CAPS ⅝" SQUARE SERIES 300

Stk. No.	Type	Color	1-9	10-24	25-99
45F652	300-1871	Red	1.38	1.22	1.09
45F653	300-1872	White			
45F654	300-1873	Amber			
45F656	300-1875	Green			

SWITCHES FOR SERIES 300

Stk. No.	Type	Contact	Rating Res.	Rating Ind.	1-9	10-24	25-99
45F628	513-0106-001	SPST N.O.	3	—	6.56	5.34	4.84
45F632	513-0206-001	SPST N.C.	3	—	6.56	5.34	4.84
45F636	513-0306-001	2-Circuit	3	—	7.14	5.80	5.25
45F640	513-1406-001	SPDT	5	2	10.10	8.20	7.37
45F644	513-1506-001	2-Circuit	5	2	10.10	8.20	7.37

KAP KOVER

Fits over Series 300 push button cap, is accommodated by square bezel for snap-in mounting. Clear colorless. Dim. .746" H x .746" W x .513" D. For both switches and matching indicators.

Stock No.	Type	1-9	10-24	25-99
45F742	515-0300	.65	.56	.49

SWITCHES FOR SERIES 300 WITH KAP KOVER

Stk. No.	Type	Contact	Rating Res.	Rating Ind.	1-9	10-24	25-99
45F722	513-0111-001	SPST N.O.	3A	—	6.56	5.34	4.84
45F723	513-0211-001	SPST N.C.	3A	—	6.56	5.34	4.84
45F724	513-0311-001	2-Circuit	3A	—	7.14	5.80	5.25
45F728	513-1411-001	SPDT	5A	2	10.10	8.20	7.37
45F729	513-1511-001	2-Circuit	5A	2	10.10	8.20	7.37

513 SERIES BEZEL MOUNT

LENS CAPS ⅝" ROUND SERIES 301

Stk. No.	Type	Color	1-9	10-24	25-99	100-249
45F658	301-1471	Red	1.38	1.22	1.09	.87
45F659	301-1472	Green				
45F660	301-1473	Amber				
45F662	301-1475	White				

SWITCHES FOR SERIES 301

Stk. No.	Type	Contact	Rating Res.	Rating Ind.	1-9	10-24	25-99
45F629	513-0107-001	SPST N.O.	3	—	6.56	5.34	4.84
45F633	513-0207-001	SPST N.C.	3	—	6.56	5.34	4.84
45F637	513-0307-001	2-Circuit	3	—	7.14	5.80	5.25
45F641	513-1407-001	SPDT	5	2	10.10	8.20	7.37
45F645	513-1507-001	2-Circuit	5	2	10.10	8.20	7.37

LENS CAPS ¾" X 1" RECTANGULAR SERIES 303

Stk. No.	Type	Color	1-9	10-24	25-99
45F664	303-3471	Red	1.54	1.35	1.20
45F665	303-3472	Green			
45F666	303-3473	Amber			
45F668	303-3475	White			

SWITCHES FOR SERIES 303 (*with Barrier)

Stk. No.	Type	Contact	Rating Res.	Rating Ind.	1-9	10-24	25-99
45F638	513-0309-001	2-Circuit	3	—	7.14	5.80	5.25
45F642	513-1409-001	SPDT	5	2	10.10	8.20	7.37
45F646	513-1509-001	2-Circuit	5	2	10.10	8.20	7.37
45F630	513-0110-001	*SPST N.O.	3	—	6.56	5.34	4.84
45F639	513-0310-001	*2-Circuit	3	—	7.14	5.80	5.25
45F643	513-1410-001	*SPDT	5	2	10.10	8.20	7.37
45F647	513-1510-001	*2-Circuit	5	2	10.10	8.20	7.37

MATCHING INDICATOR BASE ASSEMBLIES

Aluminum, clear anodize finish mtg. bushing, black bezel heat resistant plastic brass term. Overall size: 1.080" (x) with barrier.

Stock No.	Type No.	Accept Cap Size	1-9	10-24	25-99	100-249
45F648	533-0601	⅝" Sq.	2.90	2.45	2.15	1.86
45F649	533-0701	⅝" Rd.				
45F650	533-0901	¾ x 1"				
45F651	*533-1001	¾" Sq.				

Lighted Pushbutton Switches DIALIGHT

554 SERIES BEZEL MOUNT

Contact Res. 50 milliohms. Insulation Res. 1000 megohms @ 500V DC. Max. voltage 30V DC or 125V AC. Solder Blade Quick Connect Termination. Snap action switching mechanism insures contact force res. are independent of switch actuation speed. UL listed & CSA approved. (*) Wiping Action.

MOMENTARY ACTION SWITCHES

Stk. No.	Type	Accepts Cap Size	Descript.	1-9	10-24	25-99	100-249
57F3035	554-1121-211	5/8" square	SPDT	3.65	3.38	2.82	2.40
57F3036	554-1121-311	5/8" x 3/4"	500 ma				
25F1006	554-1121-411	3/4" square	to 7A				
20F917	554-1121-511	3/4" x 1"	....				
57F3039	554-1221-211	5/8" square	DPDT	4.24	3.91	3.26	2.78
57F3040	554-1221-311	5/8" x 3/4"	500 ma				
25F1007	554-1221-411	3/4" square	to 7A				
20F918	554-1221-511	3/4" x 1"	....				
25F1008	554-2121-211	5/8" square	SPDT	4.14	3.82	3.19	2.72
25F1009	554-2121-311	5/8" x 3/4"	15 ma				
25F1010	554-2121-411	3/4" square	to 1A				
20F919	554-2121-511	3/4" x 1"	....				
25F1011	554-2221-211	5/8" square	DPDT	4.81	4.45	3.71	3.16
25F1012	554-2221-311	5/8" x 3/4"	15 ma				
25F1013	554-2221-411	3/4" square	to 1A				
20F920	554-2221-511	3/4" x 1"	....				
20F927	554-3121-411	3/4" square	100 ma	3.65	3.38	2.82	2.40
20F926	554-3121-311	5/8" x 3/4"	1 ma to				
20F925	554-3121-211	5/8" square	SPDT				
20F928	554-3121-511	3/4" x 1"	(*)				
20F929	554-3221-211	5/8" square	DPDT	4.24	3.91	3.26	2.78
20F930	554-3221-311	5/8" x 3/4"	1 ma to				
20F931	554-3221-411	3/4" square	100 ma				
20F932	554-3221-511	3/4" x 1"	(*)				

ALTERNATE ACTION SWITCHES

57F3037	554-1131-211	5/8" square	SPDT	4.14	3.82	3.19	2.72
57F3038	554-1131-311	5/8" x 3/4"	500 ma				
25F1014	554-1131-411	3/4" square	to 7A				
20F921	554-1131-511	3/4" x 1"	....				
57F3041	554-1231-211	5/8" square	DPDT	4.81	4.45	3.71	3.16
57F3042	554-1231-311	5/8" x 3/4"	500 ma				
25F1015	554-1231-411	3/4" square	to 7A				
20F922	554-1231-511	3/4" x 1"	....				
25F1016	554-2131-211	5/8" square	SPDT	4.72	4.35	3.64	3.11
25F1017	554-2131-311	5/8" x 3/4"	15 ma				
25F1018	554-2131-411	3/4" square	to 1A				
20F923	554-2131-511	3/4" x 1"	....				
25F1019	554-2231-211	5/8" square	DPDT	5.49	5.08	4.23	3.60
25F1020	554-2231-311	5/8" x 3/4"	15 ma				
25F1021	554-2231-411	3/4" square	to 1A				
20F924	554-2231-511	3/4" x 1"	....				
20F939	554-3131-211	5/8" square	SPDT	4.14	3.82	3.19	2.72
20F940	554-3131-311	5/8" x 3/4"	1 ma to				
20F941	554-3131-411	3/4" square	100 ma				
20F942	554-3131-511	3/4" x 1"	(*)				
20F943	554-3231-211	5/8" square	DPDT	4.81	4.45	3.71	3.16
20F944	554-3231-311	5/8" x 3/4"	1 ma to				
20F945	554-3231-411	3/4" square	100 ma				
20F946	554-3231-511	3/4" x 1"	(*)				

MATCHING INDICATORS

Stk No.	Type	Accepts Cap Size	1-9	10-24	25-99
57F3043	554-0001-211	5/8" Sq.	2.22	2.04	1.71
57F3044	554-0001-311	5/8" x 3/4"			
25F1022	554-0001-411	3/4" Sq.			
20F933	554-0001-511	3/4" x 1"			

LENS CAPS FOR PANEL OR BEZEL MOUNT SWITCHES 5/8" SQUARE

Stk. No.	Type	Color	1-9	10-24	25-99
57F3008	325-0071	Red	.66	.54	.48
57F3009	325-0072	Green			
57F3010	325-0073	Amber			
57F3012	325-0075	White			

5/8" x 3/4" RECTANGULAR

57F3017	326-0071	Red	.66	.54	.48
57F3018	326-0072	Green			
57F3019	326-0073	Amber			
47F3021	326-0075	White			

3/4" SQUARE

25F1023	327-0071	Red	.66	.54	.48
25F1024	327-0072	Green			
20F934	327-0073	Amber			
25F1025	327-0075	White			

3/4" x 1" RECTANGULAR

20F935	328-0071	Red	.66	.54	.48
20F936	328-0072	Green			
20F937	328-0073	Amber			
20F938	328-0075	White			

554 SERIES PANEL MOUNT

UL/CSA listed. Operating life: 250,000 operations momentary, 100,000 operations alternate. Contact resistance 50 milliohms maximum. Insulation resistance 1000 megohms @ 500 VDC minimum. Dielectric withstanding: 1250 VAC. Current ratings below are at 30 VDC, 125 VAC max. Uses T-1¾ bulb with midget flanged base, incandescent.

MOMENTARY ACTION SWITCHES

Stk. No.	Type	Amps	Circuit	1-9	10-24	25-99
25F3000	554-1121	500 ma to 7	SPDT	3.17	2.94	2.45
57F3002	554-1221	500 ma to 7	DPDT	3.75	3.47	2.89
25F999	554-2121	15 ma to 1	SPDT	3.65	3.38	2.82
25F1000	554-2221	15 ma to 1	DPDT	4.32	4.01	3.34
20F913	554-3121	1 ma to 100 ma	SPDT	3.17	2.94	2.45
20F914	554-3221	1 ma to 100 ma	DPDT	3.75	3.47	2.89

ALTERNATE ACTION SWITCHES

57F3001	554-1131	500ma to 7	SPDT	3.65	3.38	2.82
57F3003	554-1231	500 ma to 7	DPDT	4.32	4.01	3.34
25F1001	554-2131	15 ma to 1	SPDT	4.24	3.91	3.26
25F1002	554-2231	15 ma to 1	DPDT	5.01	4.63	3.86
20F915	554-3131	1 ma to 100 ma	SPDT	3.65	3.38	2.82
20F916	554-3231	1 ma to 100 ma	DPDT	4.32	4.01	3.34

MATCHING INDICATOR BASE

Panel-mounted. Solder blade termination.

Stk. No.	Type	1-9	10-24	25-99
57F3004	554-0001	1.74	1.60	1.34

ILLUMINATED PUSHBUTTON

Series 911 & 922 **Series 913**

Series 913. 0.1 amp @ 125 VAC and @ 30 VDC (non-inductive). Bright C2A (NE-2H) neon lamp, non-replaceable. Min. 20,000 hrs. Use in 110-125 VAC circuits. Integral 33K resistor, gold plated contact parts. Mts. from back of panel in 3/8" clearance hole for 1/8" panel thickness. U.L. Listed.

SPST

Stk. No.	Type 913	Lens Color	Action	1-9	10-24	25-99
60F1235	1156-1631-525	Red	SPST N.O.	4.62	3.95	3.62
60F1236	1156-1633-525	Amber	SPST N.O.			
60F1239	1430-1631-525	Red	SPST N.C.			
60F1240	1430-1633-525	Amber	SPST N.C.			

MATCHING INDICATOR BASE

Stock No.	Type	Contact	1-9	10-24	25-99	100-249
20F908	911-1112-525	.....	2.15	1.83	1.63	1.41

CAPS FOR ABOVE BASE

20F909	911-1631	Red	.62	.51	.47	.42
20F910	911-1632	Green				
20F911	911-1633	Amber				
20F912	911-1635	White				

SERIES 922 SWITCHES

SPST momentary, N.O. 0.1 amps @ 125 VAC and @ 30 VDC non-inductive. Over 1,000,000 operations at rated values. Gold plated cont. parts. Mounts from back of panel in 3/8" clearance hole for 1/8" panel thickness. Lens replaceable. Less T-1¾ incand. lamp. Complete unit: one base and one cap. U.L. Listed.

BASES

Stock No.	Type	Contact	1-9	10-24	25-99	100-249
45F733	922-1524-525	N.O.	4.82	4.12	3.77	3.27
45F734	922-1525-525	N.C.	4.82	4.12	3.77	3.27
45F735	922-1526-525	2-Circuit	5.29	4.50	4.13	3.57

CAPS FOR ABOVE BASES

Stock No.	Type	Lens Color	1-9	10-24	25-99	100-249
45F736	908-1631	Red	1.18	.89	.77	.63
45F737	908-1632	Green				
45F738	908-1633	Amber				
45F739	908-1634	Blue				
45F740	908-1635	White				

NO-MAR MOUNTING WRENCHES

506-0375 for Ser. 913, 922, 915 mtg. panel. 506-0500 for base assem. sub. min. 513 and 554 Series.

Stk. No.	Type	Each
60F1046	506-0375	8.32
65F1215	506-0500	

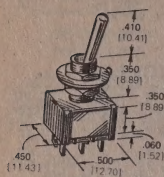
8

MINIATURE SWITCHES

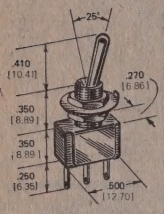
MINIATURE LEVER, ROCKER & TOGGLE SWITCHES

MINIATURE TOGGLE SWITCHES—.250 mtg. hole.

Rated: 5 amps @ 120 VDC, 2 amps @ 250 VAC. Contact rating A, or .4 VA @ 20 VAC or VDC. Contact rating B. High temperature case, UL approved material. Toggle actuators are chrome plated brass w/¼x40 NS bushing. Incl. Hrdwr. ( ) = Momen. Action.

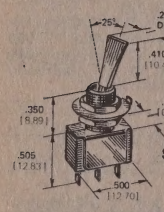


DPDT SOLDER TERM



SPDT P.C. TERM

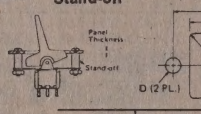
Stk. No.	Type 571-	No. Poles	Switch Function Side Center Side	Cont. Rate	Terminal	Toggle Length	1-24	25-99	100-499	500-999
60F814	1121-0101-011	1	ON-NONE-ON	A	Solder	.410"	1.75	1.20	1.05	.93
60F815	1221-0101-011	1	ON-OFF-ON	A	Solder	.410"	2.05	1.40	1.23	1.08
60F816	1321-0101-011	1	(ON)-OFF-(ON)	A	Solder	.410"	2.05	1.40	1.23	1.08
60F817	1421-0101-011	1	ON-OFF-(ON)	A	Solder	.410"	2.05	1.40	1.23	1.08
60F818	1521-0101-011	1	ON-NONE-(ON)	A	Solder	.410"	2.05	1.40	1.23	1.08
60F819	1621-0101-011	1	NONE-ON-(ON)	A	Solder	.410"	2.05	1.40	1.23	1.08
60F826	1122-0101-011	1	ON-NONE-ON	A	P.C.	.410"	1.85	1.30	1.15	1.03
28F1860	1128-0101-011	1	ON-NONE-ON	A	Sold. Epox.	.410"	1.85	1.30	1.15	1.03
60F827	1129-0101-011	1	ON-NONE-ON	A	PC Epoxied	.410"	1.95	1.40	1.25	1.13
28F1861	1222-0101-011	1	ON-OFF-ON	A	P.C.	.410"	2.15	1.50	1.33	1.18
28F1862	1228-0101-011	1	ON-OFF-ON	A	Sold. Epox.	.410"	2.15	1.50	1.33	1.18
28F1863	1229-0101-011	1	ON-OFF-ON	A	PC Epoxied	.410"	2.25	1.60	1.43	1.28
60F820	1111-0101-011	1	ON-NONE-ON	B	Solder	.410"	1.85	1.30	1.15	1.03
28F1864	1112-0101-011	1	ON-NONE-ON	B	P.C.	.410"	1.90	1.35	1.20	1.08
60F830	1114-0101-011	1	ON-NONE-ON	B	WW.75 Epox	.410"	1.95	1.40	1.25	1.13
60F831	1117-0101-011	1	ON-NONE-ON	B	WW1.062 Epx	.410"	1.95	1.40	1.25	1.13
28F1865	1118-0101-011	1	ON-NONE-ON	B	Sold. Epox.	.410"	1.95	1.40	1.25	1.13
28F1866	1119-0101-011	1	ON-NONE-ON	B	PC Epoxied	.410"	2.00	1.45	1.30	1.18
60F821	1121-0501-011	1	ON-NONE-ON	A	Solder	.840" Flatted	2.25	1.70	1.55	1.43
60F822	1121-0601-011	1	ON-NONE-ON	A	Solder	.450" Flatted	2.25	1.70	1.55	1.43
60F823	1121-0801-011	1	ON-NONE-ON	A	Solder	.840"	1.75	1.20	1.05	.93
60F824	1121-1001-011	1	ON-NONE-ON	A	Solder	.640"	1.75	1.20	1.05	.93
60F825	1121-1201-011	1	ON-NONE-ON	A	Solder	.550"	1.75	1.20	1.05	.93
60F828	2121-0101-011	2	ON-NONE-ON	A	Solder	.410"	2.35	1.63	1.44	1.28
60F829	2221-0101-011	2	ON-OFF-ON	A	Solder	.410"	2.75	1.90	1.68	1.48
28F1867	2321-0101-011	2	(ON)-OFF-(ON)	A	Solder	.410"	2.75	1.90	1.68	1.48
28F1868	2421-0101-011	2	ON-OFF-(ON)	A	Solder	.410"	2.75	1.90	1.68	1.48
28F1869	2521-0101-011	2	ON-NONE-(ON)	A	Solder	.410"	2.75	1.90	1.68	1.48
28F1870	2621-0101-011	2	NONE-ON-(ON)	A	Solder	.410"	2.75	1.90	1.68	1.48
28F1871	2721-0101-011	2	ON-ON-ON	A	Solder	.410"	3.05	2.10	1.85	1.63
28F1872	2821-0101-011	2	ON-ON-(ON)	A	Solder	.410"	3.35	2.30	2.03	1.78
28F1873	2921-0101-011	2	(ON)-ON-(ON)	A	Solder	.410"	3.35	2.30	2.03	1.78
28F1874	2128-0101-011	2	ON-NONE-ON	A	Sold. Epox.	.410"	2.55	1.83	1.64	1.48
28F1875	2228-0101-011	2	ON-OFF-ON	A	Sold. Epox.	.410"	2.95	2.10	1.88	1.68



SPDT SOLDER TERM

Panel Thickness Stand-off

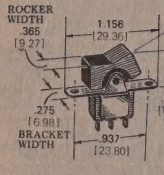
Info. for Sub Panel Mtg. Brk.



Actuator	01,05	02,06
A	.707	1.095
B	.418	.648
C	.937	1.375
D	.094	.120

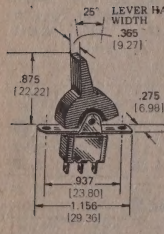
MINI ROCKER & LEVER SUB-PANEL BRACKET MOUNTING

Rated: 5 amps/120 VDC, 2 amps/250 VAC. High Temp. case, UL app. material. Actuators: Blk. Nylon. Mount. Hrdw. incl. Sold. Term. ( ) = Momen. Action.



01 Rocker

Stk. No.	Type 572-	No. Poles	Switch Function Side Center Size	Actuator	1-24	25-99	100-499	500-999
60F834	1121-0104-013	1	ON-NONE-ON	Rocker 01 .365x.648"	2.10	1.55	1.40	1.28
28F1876	1221-0104-013	1	ON-OFF-ON	Rocker 01 .365"x.648"	2.40	1.75	1.58	1.43
28F1877	1321-0104-013	1	(ON)-OFF-(ON)	Rocker 01 .365"x.648"	2.40	1.75	1.58	1.43
28F1878	1421-0104-013	1	ON-OFF-(ON)	Rocker 01 .365"x.648"	2.40	1.75	1.58	1.43
28F1879	1521-0104-013	1	ON-NONE-(ON)	Rocker 01 .365"x.648"	2.40	1.75	1.58	1.43
28F1880	1621-0104-013	1	NONE-ON-(ON)	Rocker 01 .365"x.648"	2.40	1.75	1.58	1.43
60F835	1121-0204-013	1	ON-NONE-ON	Rocker 02 .585"x1.036"	2.10	1.55	1.40	1.28
28F1881	1221-0204-013	1	ON-OFF-ON	Rocker 02 .595"x1.036"	2.40	1.75	1.58	1.43
60F836	1121-0504-013	1	ON-NONE-ON	Lever 05 .365"x.740"	2.10	1.55	1.40	1.28
28F1882	1221-0504-013	1	ON-OFF-ON	Lever 05 .365"x.740"	2.40	1.75	1.58	1.43
60F837	1121-0604-013	1	ON-NONE-ON	Lever 06 .595"x1.174"	2.10	1.55	1.40	1.28
28F1883	1221-0604-013	1	ON-OFF-ON	Lever 06 .595"x1.174"	2.40	1.75	1.58	1.43
28F1884	2121-0104-013	2	ON-NONE-ON	Rocker 01 .365"x.648"	2.70	1.98	1.79	1.63
28F1885	2221-0104-013	2	ON-OFF-ON	Rocker 01 .365"x.648"	3.10	2.25	2.03	1.83
28F1886	2121-0204-013	2	ON-NONE-ON	Rocker 02 .595"x1.036"	2.70	1.98	1.79	1.63
28F1887	2221-0204-013	2	ON-OFF-ON	Rocker 02 .595"x1.036"	3.10	2.25	2.03	1.83
28F1888	2121-0504-013	2	ON-NONE-ON	Lever 05 .365"x.740"	2.70	1.98	1.79	1.63
28F1889	2221-0504-013	2	ON-OFF-ON	Lever 05 .365"x.740"	3.10	2.25	2.03	1.83
28F1890	2121-0604-013	2	ON-NONE-ON	Lever 06 .595"x1.174"	2.70	1.98	1.79	1.63
28F1891	2221-0604-013	2	ON-OFF-ON	Lever 06 .595"x1.174"	3.10	2.25	2.03	1.83

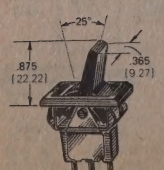


05 Lever Handle

MINIATURE LEVER—SNAP-IN MOUNTING W/BEZEL

Rated: 5 amps/120VDC, 2 amps/250VAC. High temp. case, UL appr. Actuator and bezel are blk. nylon. Solder Terminals. Lever: .450"W x .644"L. Panel cut-out: .600" x .500". ( ) denotes momentary switch action.

Stk. No.	Type 572-	No. Poles	Switch Function Side Center Side	1-24	25-99	100-499	500-999
28F1892	1121-0804-040	1	ON-NONE-ON	2.50	1.95	1.80	1.68
28F1893	1221-0804-040	1	ON-OFF-ON	2.80	2.15	1.98	1.83
28F1894	1321-0804-040	1	(ON)-OFF-(ON)	2.80	2.15	1.98	1.83
27F1895	1421-0804-040	1	ON-OFF-(ON)	2.80	2.15	1.98	1.83
28F1896	1521-0804-040	1	ON-NONE-(ON)	2.80	2.15	1.98	1.83
28F1897	1621-0804-040	1	NONE-ON-(ON)	2.80	2.15	1.98	1.83
28F1898	2121-0804-040	2	ON-NONE-ON	3.10	2.38	2.19	2.03
28F1899	2221-0804-040	2	ON-OFF-ON	3.50	2.65	2.43	2.23
28F1900	2321-0804-040	2	(ON)-OFF-(ON)	3.50	2.65	2.43	2.23
28F1901	2421-0804-040	2	ON-OFF-(ON)	3.50	2.65	2.43	2.23
28F1902	2521-0804-040	2	ON-NONE-(ON)	3.50	2.65	2.43	2.23
28F1903	2621-0804-040	2	NONE-ON-(ON)	3.50	2.65	2.43	2.23
28F1904	2721-0804-040	2	ON-ON-ON	3.80	2.85	2.60	2.38
28F1905	2821-0804-040	2	ON-ON-(ON)	4.10	3.05	2.78	2.53
28F1906	2921-0804-040	2	(ON)-ON-(ON)	4.10	3.05	2.78	2.53



08 Lever Handle

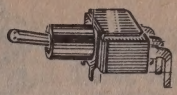
MINIATURE LEVER, ROCKER, & TOGGLE SWITCHES — PC MOUNTED

DIALIGHT

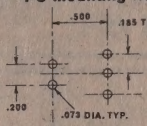
MINIATURE TOGGLE SWITCHES — HORIZONTAL MOUNT

Rated at .4 volt amps/20 VAC or VDC. Terminals are bent at 90° for PC mounting. Brass actuators travel horizontally. Non-threaded bushing is .280" L x .245" dia. High temp. case, UL ap., chrome plated. ( ) denotes momentary switch action.

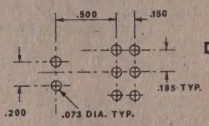
Stk. No.	Type	No. Poles	Switch Function Side-Center-Side	Terminal	Toggle Length	1-24	25-99	100-499	500-999
29F325	573-1113-0101-100	1	ON-NONE-ON	P.C.	.480"	2.00	1.45	1.30	1.18
29F326	573-1119-0101-100	1	ON-NONE-ON	PC epoxied	.480"	2.10	1.55	1.40	1.28
60F832	573-1113-0301-100	1	ON-NONE-ON	P.C.	.270"	2.00	1.45	1.30	1.18
29F327	573-1119-0301-100	1	ON-NONE-ON	PC epoxied	.270"	2.10	1.55	1.40	1.28
29F328	573-1213-0301-100	1	ON-OFF-ON	P.C.	.270"	2.30	1.65	1.48	1.33
29F329	573-1313-0301-100	1	(ON)-OFF-(ON)	P.C.	.270"	2.30	1.65	1.48	1.33
29F330	573-1413-0301-100	1	ON-OFF-(ON)	P.C.	.270"	2.30	1.65	1.48	1.33
29F331	573-1513-0301-100	1	ON-NONE-(ON)	P.C.	.270"	2.30	1.65	1.48	1.33
29F332	573-1613-0301-100	1	NONE-ON-(ON)	P.C.	.270"	2.30	1.65	1.48	1.33
29F333	573-2113-0101-100	2	ON-NONE-ON	P.C.	.480"	2.85	2.13	1.94	1.78
60F833	573-2113-0301-100	2	ON-NONE-ON	P.C.	.270"	2.85	2.13	1.94	1.78
29F334	573-2213-0101-100	2	ON-OFF-ON	P.C.	.480"	3.25	2.40	2.18	1.98
29F335	573-2213-0301-100	2	ON-OFF-ON	P.C.	.270"	3.25	2.40	2.18	1.98



PC Mounting Hole Pattern



SPDT

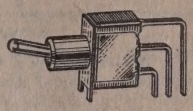


DPDT

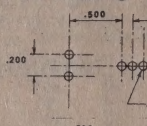
MINIATURE TOGGLE SWITCHES — VERTICAL MOUNT

Rated at .4 volt amps/20 VAC or VDC. Terminals are bent at 90° for PC mounting. Brass actuators travel vertically. Non-threaded bushing is .280" L x .245" dia. High temp. case, UL ap., chrome plated. ( ) denotes momentary switch action.

Stk. No.	Type	No. Poles	Switch Function Side-Center-Side	Terminal	Toggle Length	1-24	25-99	100-499	500-999
29F336	573-1112-0101-100	1	ON-NONE-ON	P.C.	.480"	2.00	1.54	1.42	1.32
29F337	573-1118-0101-100	1	ON-NONE-ON	PC epoxied	.480"	2.10	1.62	1.50	1.39
29F338	573-1112-0301-100	1	ON-NONE-ON	P.C.	.270"	2.00	1.54	1.42	1.32
29F339	573-1118-0301-100	1	ON-NONE-ON	PC epoxied	.270"	2.10	1.62	1.50	1.39
29F340	573-1212-0301-100	1	ON-OFF-ON	P.C.	.270"	2.30	1.77	1.63	1.39
29F341	573-1312-0301-100	1	(ON)-OFF-(ON)	P.C.	.270"	2.30	1.77	1.63	1.52
29F342	573-1412-0301-100	1	ON-OFF-(ON)	P.C.	.270"	2.30	1.77	1.63	1.52
29F343	573-1512-0301-100	1	ON-NONE-(ON)	P.C.	.270"	2.30	1.77	1.63	1.52
29F344	573-1612-0301-100	1	NONE-ON-(ON)	P.C.	.270"	2.30	1.77	1.63	1.52
29F345	573-2112-0101-100	2	ON-NONE-ON	P.C.	.380"	2.85	2.20	2.02	1.88
29F346	573-2112-0301-100	2	ON-NONE-ON	P.C.	.270"	2.85	2.20	2.02	1.88
29F347	573-2212-0101-100	2	ON-OFF-ON	P.C.	.480"	3.25	2.50	2.31	2.15
29F348	573-2212-0301-100	2	ON-OFF-ON	P.C.	.270"	3.25	2.50	2.31	2.15



PC Mounting Hole Pattern



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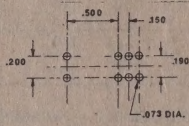
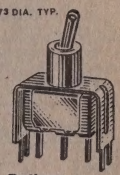


DPDT

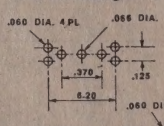
MINIATURE TOGGLE SWITCHES — WITH SUPPORT BRACKETS

Rated at .4 volt amps/20 VAC or VDC. Bracket made of fused, tin plated steel. High temp. case. UL approved. Actuators are brass, chrome plated. Bushing is non-threaded, .280" L x .245" dia. ( ) denotes momentary switch action.

Stk. No.	Type	No. Poles	Switch Function Side-Center-Side	Terminal	Toggle Length	1-24	25-99	100-499	500-999
29F349	577-1111-0101-110	1	ON-NONE-ON	P.C.	.480"	2.05	1.50	1.35	1.23
29F350	577-1112-0101-110	1	ON-NONE-ON	PC epoxied	.480"	2.15	1.60	1.45	1.33
29F351	577-1111-0301-110	1	ON-NONE-ON	P.C.	.270"	2.05	1.50	1.35	1.23
29F352	577-1112-0301-110	1	ON-NONE-ON	PC epoxied	.270"	2.15	1.60	1.45	1.33
29F353	577-1211-0301-110	1	ON-OFF-ON	P.C.	.270"	2.35	1.70	1.53	1.38
29F354	577-1311-0301-110	1	(ON)-OFF-(ON)	P.C.	.270"	2.35	1.70	1.53	1.38
29F355	577-1411-0301-110	1	ON-OFF-(ON)	P.C.	.270"	2.35	1.70	1.53	1.38
29F356	577-1511-0301-110	1	ON-NONE-(ON)	P.C.	.270"	2.35	1.70	1.53	1.38
29F357	577-1611-0301-110	1	NONE-ON-(ON)	P.C.	.270"	2.35	1.70	1.53	1.38
29F358	577-2111-0101-110	2	ON-NONE-ON	P.C.	.480"	2.75	2.03	1.84	1.68
29F359	577-2112-0101-110	2	ON-NONE-ON	PC epoxied	.480"	2.95	2.23	2.04	1.88
29F360	577-2111-0301-110	2	ON-NONE-ON	P.C.	.270"	2.75	2.03	1.84	1.68
29F361	577-2112-0301-110	2	ON-NONE-ON	PC epoxied	.270"	2.95	2.33	2.04	1.88
29F362	577-2211-0301-110	2	ON-OFF-ON	P.C.	.270"	3.15	2.30	2.08	1.88
29F363	577-2211-0101-110	2	ON-OFF-ON	P.C.	.480"	3.15	2.30	2.08	1.88
29F364	577-2212-0301-110	2	ON-OFF-ON	PC epoxied	.270"	3.35	2.50	2.28	2.08
29F365	577-2212-0101-110	2	ON-OFF-ON	PC epoxied	.480"	3.35	2.50	2.28	2.08



PC Mounting Hole Pattern



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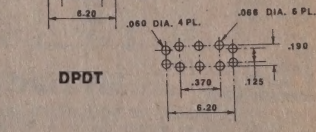
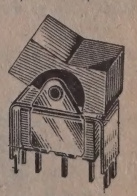


DPDT

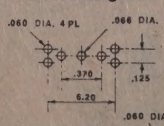
MINIATURE ROCKER AND LEVER SWITCHES — WITH SUPPORT BRACKETS

Rated at .4 volt amps/20VAC or VDC. Bracket made of fused tin plated steel. High temp. case. UL approved. Rocker and lever actuators are black nylon. ( ) denotes momentary switch action.

Stk. No.	Type	No. Poles	Switch Function Side-Center-Side	Terminal	Actuator	1-24	25-99	100-499	500-999
29F366	574-1111-0104-010	1	ON-NONE-ON	P.C.	R.365x.648"	2.40	1.85	1.70	1.58
29F367	574-1112-0104-010	1	ON-NONE-ON	PC epoxied	R.365x.648"	2.50	1.95	1.80	1.68
29F368	574-1111-0204-010	1	ON-NONE-ON	P.C.	R.595x1.036"	2.40	1.85	1.70	1.58
29F369	574-1112-0204-010	1	ON-NONE-ON	PC epoxied	R.595x1.036"	2.50	1.95	1.80	1.68
29F370	574-1111-0504-010	1	ON-NONE-ON	P.C.	L.365x.740"	2.40	1.85	1.70	1.58
29F371	574-1112-0504-010	1	ON-NONE-ON	PC epoxied	L.365x.740"	2.50	1.95	1.80	1.68
29F372	574-1111-0604-010	1	ON-NONE-ON	P.C.	L.595x1.184"	2.40	1.85	1.70	1.58
29F373	574-1112-0604-010	1	ON-NONE-ON	PC epoxied	L.595x1.174"	2.50	1.95	1.80	1.68
29F374	574-1211-0504-010	1	ON-OFF-ON	P.C.	L.365x.740"	2.70	2.05	1.88	1.73
29F375	574-1311-0504-910	1	(ON)-OFF-(ON)	P.C.	L.365x.740"	2.70	2.05	1.88	1.73
29F376	574-1411-0504-010	1	ON-OFF-(ON)	P.C.	L.365x.740"	2.70	2.05	1.88	1.73
29F377	574-1511-0504-010	1	ON-NONE-(ON)	P.C.	L.365x.740"	2.70	2.05	1.88	1.73
29F378	574-1611-0504-010	1	NONE-ON-(ON)	P.C.	L.365x.740"	2.70	2.05	1.88	1.73
29F379	574-2111-0504-010	2	ON-NONE-ON	P.C.	L.365x.740"	3.10	2.38	2.19	1.73
29F380	574-2112-0504-010	2	ON-NONE-ON	PC epoxied	L.365x.740"	3.30	2.58	2.39	2.23
29F381	574-2211-0504-010	2	ON-OFF-ON	P.C.	L.365x.740"	3.50	2.65	2.43	2.23
29F382	574-2212-0504-010	2	ON-OFF-ON	PC epoxied	L.365x.740"	3.70	2.85	2.63	2.43



PC Mounting Hole Pattern



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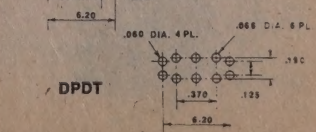


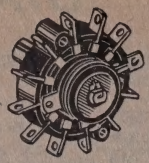
DPDT

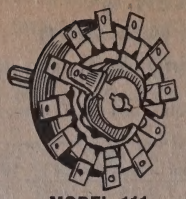
8

Power Tap Switches

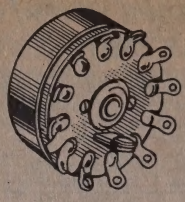
Introducing

MODEL 711
Smallest Switch for Its Rating
7 Amps, 125 Volts





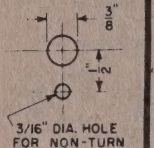
MODEL 111



MODEL 212

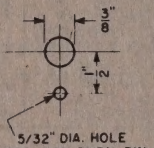
MODEL 312

MODEL 711 & 111 (SINGLE UNIT)

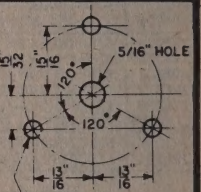


MODEL 111 (TANDEM)

MODEL 212 (SINGLE UNIT)



MODEL 212 (TANDEM) MODEL 312 (ALL UNITS)



POWER TAP SWITCHES, HI CURRENT, NON-SHORTING TYPE

MODEL 711 — 7 AMPS, 125 VOLTS

Alternating Current Rating **7 Amps. 125 Volts** — Diameter 1⅛" — Shaft Diameter ¼" —Standard Mounting: For ⅛" panel maximum, by means of ⅜"-32 threaded bushing and hex. nut. Weight, single unit: .047 lb. approximately. Dual purpose terminals accept 3/16" quick-connectors as well as soldering. Non-turn lug can be positioned at "12, 3, 6, and 9 o'clock."

Stk. No.	No. of Taps	Total Rotation	Type	1-4	5-9	10-Up
28F1999	3	60°	711-3	6.37	5.42	4.26
28F2000	4	90°	711-4	6.74	5.72	4.50
28F2001	5	120°	711-5	7.10	6.03	4.77
28F2002	6	150°	711-6	7.46	6.34	5.00
28F2003	8	210°	711-8	8.18	6.96	5.48
28F2004	10	270°	711-10	8.89	7.56	5.96
28F2005	11	300°	711-11	9.21	7.83	6.17

MODEL 111— 15 AMPS, 125 VOLTS

Alternating Current Rating **15 Amps. 125 Volts** — Diameter 1¾" — Shaft Diameter ¼" — Standard Mounting: For ¼" panel maximum, by means of ⅜"-32 threaded bushing and hex. nut. Weight, single unit: .16 lb. approximately.

Stk. No.	No. of Taps	Total Rotation	Type	1-4	5-9	10-Up
28F1970	3	60°	111-3	5.63	4.79	3.77
28F1971	4	90°	111-4	5.87	4.99	3.94
28F1972	5	120°	111-5	6.08	5.16	4.06
28F1973	6	150°	111-6	6.34	5.39	4.24
28F1974	7	180°	111-7	6.56	5.58	4.40
28F1975	8	210°	111-8	6.54	5.57	4.39
28F1976	9	240°	111-9	7.14	6.08	4.79
28F1977	10	270°	111-10	7.36	6.26	4.92
28F1978	11	300°	111-11	7.54	6.41	5.05

MODEL 312 — 30 AMPS, 300 VOLTS

Alternating Current Rating **30 Amps. 300 Volts** — 150V A.C. between taps — Diameter 3⅜" — Shaft Diameter ¼" — Standard Mounting: For ¼" panel maximum, three No. 10-32 flat-head machine screws ⅜" long. Weight, single unit: .75 lb. approx.

Stk. No.	No. of Taps	Total Rotation	Type	1-4	5-9	10-Up
28F1989	3	60°	312-3	14.51	12.34	9.72
28F1990	4	90°	312-4	14.82	12.59	9.92
28F1991	5	120°	312-5	15.06	12.80	10.09
28F1992	6	150°	312-6	15.63	13.29	10.49
28F1993	7	180°	312-7	16.31	13.87	10.93
28F1994	8	210°	312-8	16.88	14.34	11.31
28F1995	9	240°	312-9	17.55	14.91	11.75
28F1996	10	270°	312-10	18.11	15.40	12.14
28F1997	11	300°	312-11	18.80	15.97	12.59
28F1998	12	330°	312-12	19.25	16.36	12.90

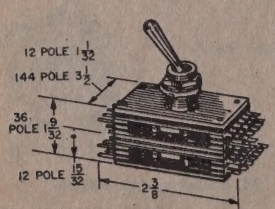
MODEL 212— 20 AMPS, 150 VOLTS

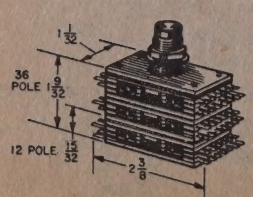
Alternating Current Rating **20 Amps. 150 Volts** — Diameter 2¼" — Shaft Diameter ¼" — Standard Mounting: For ¼" panel maximum, by means of ⅜"-32 threaded bushing and hex. nut. Tandem Mounting for ¼" panel maximum, three No. 10-32 flat-head machine screws ⅜" long.Weight, single unit: .4 lb. approximately.

Stk. No.	No. of Taps	Total Rotation	Type	1-4	5-9	10-Up
28F1979	3	60°	212-3	12.94	10.99	8.66
28F1980	4	90°	212-4	13.48	11.46	9.03
28F1981	5	120°	212-5	13.65	11.61	9.14
28F1982	6	150°	212-6	14.21	12.08	9.51
28F1983	7	180°	212-7	14.37	12.21	9.63
28F1984	8	210°	212-8	14.92	12.69	9.99
28F1985	9	240°	212-9	15.09	12.83	10.11
28F1986	10	270°	212-10	15.65	13.29	10.49
28F1987	11	300°	212-11	15.81	13.43	10.59
28F1988	12	330°	212-12	15.97	13.59	10.71

T-Bar SWITCHES FOR MULTIPOLE, HI-DENSITY SWITCHING

Designed especially for general purpose and 10 level man. switching. Capability of switching up to 72 circuits at one time. Toggle and pushbutton switches mate with snap-on, crimp type T-Bar connectors. (See index under T-Bar relays.)





SWITCH SPECIFICATIONS

Contacts: Series 800—general purpose gold plated; Series 900—low-level bifurcated gold plated. Contact Rating: Series 800—5 amps max. resistive to 150 watts; Series 900—1 amp max. resistive to 50 watts. Life Expectancy: Series 800—50,000 cycles; Series 900—50,000 cycles at 20 CPM. Contact Resistance: 20 milliohms typical. Ambient Temp.: —55°C to +85°C. Terminals: Mate with T-Bar Connectors. Dielectric Strength: 1000 VRMS @ 60 cycles/sec. Insulation: 5000 megohms min.

SERIES 803 PUSHBUTTON SWITCHES

Button travel, .07". Switches from 4 to 36 circuits. Electrically same as 802.

Stk. No.	Type	Action	1-24	25-49	50-74
59F732	803- 4C	4PDT	9.00	8.55	8.15
59F733	803- 8C	8PDT	12.00	11.40	10.85
59F734	803-12C	12PDT	13.55	12.85	12.25
59F737	803-24C	24PDT	28.90	27.45	26.10
59F740	803-36C	36PDT	40.90	38.85	36.95

SERIES 802/902 TOGGLE SWITCHES

All types are double throw (Form C). Switch from 8 to 72 circuits simultaneously. For lo-level applications (less than 1 amp), specify the new 902 bifurcated series. For general purpose, hi-current applications, use 802 series. The 8, 12, 24 and 36 pole units are single stacks. The 48 and 72 pole units are double stacks.

Stock No.	Type No.	Pole Units	1-24	25-49	50-74
59F725	802- 8C	8	17.30	16.45	15.60
59F726	802-12C	12	19.10	18.15	17.25
59F729	802-24C	24	37.30	35.45	33.70
59F731	802-36C	36	52.10	49.50	47.05
59F744	802-48C	48	72.80	69.15	65.75
59F746	802-72C	72	109.65	104.15	99.00
23F1160	902- 8C	8	17.30	16.45	15.60
23F1161	902-12C	12	19.10	18.15	17.25
23F1162	902-24C	24	37.30	35.45	33.70
23F1163	902-36C	36	52.10	49.50	47.05
23F1164	902-48C	48	72.80	69.15	65.75
23F1165	902-72C	72	109.65	104.15	99.00

Oak Rotary Switches

OAK

CERAMIC MULTI-SECTION SWITCHES

Series JC. Single ball, 30° indexing. Meet MIL-S3786, 50-Hr. salt spray finishes. Frame dim. 1 17/32" H. x 1 3/8" W., 1 1/2" over clips. 1/4" dia. x 2 3/8" L., shaft break-off points @ 3/4", 1 1/8" 1 7/8" from mtg. surf., adj. stop. Sect. spacing, 1st spaces 3/8", 2nd 7/16", 3rd 15/32", 4th 13/32"; approx. 1800V peak break-down voltage; break 1 amp @ 28 VDC, .5 amp @ 115 VAC. Av. shpg. wt., 5 oz.

SHORTING TYPES JC

Stock No.	Type	Sec.	Poles Tot.	Poles Pos.	1-24	25-49	50-99	100-499
57F666	399468JC	1	1	2-12	3.30	2.97	2.86	2.75
57F668	399470JC	2	2	2-12	5.27	4.74	4.56	4.39

NON-SHORTING TYPES JC

57F667	399469JC	1	1	2-12	3.30	2.97	2.86	2.75
57F669	399471JC	2	2	2-12	5.27	4.74	4.56	4.39
57F671	399473JC	3	3	2-12	7.32	6.59	6.34	6.10
57F673	399475JC	4	4	2-12	9.38	8.44	8.13	7.81
57F675	399477JC	1	2	2-6	3.39	3.05	2.94	2.83
57F677	399479JC	2	4	2-6	5.49	4.94	4.76	4.58
57F679	399481JC	3	6	2-6	7.55	6.79	6.54	6.29
57F681	399485JC	1	6	2	3.57	3.21	3.09	2.98
57F543	399705JC	1	3	2-5	3.30	2.97	2.86	2.75
57F549	399711JC	2	10	2-3	6.05	5.44	5.24	5.04
57F551	399713JC	5	10	2-6	11.75	10.57	10.18	9.79
57F553	399715JC	6	12	2-6	13.88	12.49	12.03	11.56

SUBMINIATURE ROTARY SWITCHES

Ultra-compact switches provide superior insulating quality, with dimensional stability even under severe environmental conditions For all applications where extremely small size is essential. Long-life silver alloy contacts are gold plated to prevent tarnish. Double-wiping design, with frame components of materials and finishes to withstand 50-hour salt spray. Exclusive Tri-Ball detente mechanism, with helical spring provides approximately 16 in-oz. torque. Offers negligible contact noise and circuit resistance thruout 10,000 cycle life. All are non-shorting.

Stock No.	Type	Sec.	Poles Tot.	Poles Pos.	1-24	25-49	50-99	100-499
57F888	399634-512	2	2	2-12	7.73	6.95	6.70	6.44
57F889	399639-511	1	2	2-6	5.67	5.10	4.91	4.73
57F891	399635-513	3	3	2-12	9.87	8.88	8.55	8.23
57F895	399641-513	3	6	2-6	9.87	8.88	8.55	8.23

PHENOLIC MULTI-SECTION SWITCHES

Series K. Meet MIL S-3786. Single ball 30° indexing. 1 7/16" over clips; 1/4" dia. x 2 3/8" L., bushing 3/8"-32 thread, 3/8" L. nut & washer. 1st spacer 3/8", 2nd, 3rd, 4th 1/2" ea. 1800 V, peak breakdown voltage; break 1 amp. @ 28 VDC, 0.5 amp. @ 115VAC. Av. shpg. wt. 4 oz.

SHORTING TYPE "K"

Stock No.	Type	Sec.	Poles Tot.	Poles Pos.	1-24	25-49	50-99	100-499
57F648	399418K	1	1	2-12	3.33	3.00	2.89	2.78
57F656	399426K	1	2	2-6	3.33	3.00	2.89	2.78
57F658	399428K	2	4	2-6	3.90	3.51	3.38	3.25
57F654	399424K	4	4	2-12	6.23	5.60	5.40	5.19

NON-SHORTING TYPE "K"

57F649	399419K	1	1	2-12	3.33	3.00	2.89	2.78
57F651	399421K	2	2	2-12	4.44	4.00	3.85	3.70
57F653	399423K	3	3	2-12	6.03	5.43	5.23	5.03
57F655	399425K	4	4	2-12	6.23	5.60	5.40	5.19
57F657	399427K	1	2	2-6	3.33	3.00	2.89	2.78
57F659	399429K	2	4	2-6	3.90	3.51	3.38	3.25
57F661	399431K	3	6	2-6	5.25	4.73	4.55	4.38
57F663	399433K	1	6	2	3.33	3.00	2.89	2.78
57F665	399435K	2	12	2	4.25	3.82	3.68	3.54
57F862	399493K	2	6	2-5	4.20	3.78	3.64	3.50
57F864	399495K	3	9	2-5	5.25	4.73	4.55	4.38
57F563	399733K	5	5	2-11	6.00	5.40	5.20	5.00
57F567	399737K	6	6	2-11	6.98	6.28	6.05	5.81
57F573	399743K	5	10	2-5	7.38	6.64	6.40	6.65

TYPE 200 SERIES SLIDE SWITCHES

30% narrower than ordinary slide switches; gold-plated, Double-Wiping contacts which are self-cleaning. Rated 3 amps at 125 VAC operation. Non-Shorting.

Stk. No.	Type	Funct.	Cont.	1-24	25-49	50-99	100-499
57F816	399275-275	SPST	2	.45	.41	.39	.38
57F818	399277-277	SPDT	3	.45	.41	.39	.38
57F819	399278-278	DPDT	6	.53	.47	.46	.44

MINIATURE SWITCHES

Series A. Dual ball, 30° indexing. Finishes meet MIL-S-3786, 200-hr. salt spray finishes. Frame dim. 1"Hx15/16"W; 1 3/16" over clips; 1/4" dia. x 2 3/8"L shaft break-off points @ 3/4", 1 1/8" 1 1/2", from mtg. surf.; Adj. stop. Sect. spacing, 1st spacer 17/64", 2nd 5/32", 3rd 5/32" approx. 750V peak breakdown voltage 1 amp @ 28 VDC, .5 amp. @115 VAC. Av. shpg. wt. 4 oz.

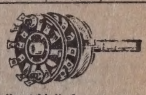
SHORTING—TYPE "A"

Stock No.	Type	Sec.	Poles Tot.	Poles Pos.	1-24	25-49	50-99	100-499
57F600	399279AM	1	1	2-12	4.82	4.33	4.17	4.01
57F602	399283AM	2	2	2-12	5.70	5.13	4.94	4.75
57F608	399287AM	2	4	2-6	5.70	5.13	4.94	4.75

NON-SHORTING TYPE "A"

57F601	399280AM	1	1	2-12	4.82	4.33	4.17	4.01
57F603	399284AM	2	2	2-12	5.70	5.13	4.94	4.75
57F605	399286AM	3	3	2-12	7.07	6.36	6.12	5.89
57F607	399282AM	1	2	2-6	4.82	4.33	4.17	4.01
57F609	399225AM	2	4	2-6	7.40	6.22	5.56	5.25
57F611	399292AM	3	6	2-6	7.07	6.36	6.12	5.89
57F615	399294AM	2	8	2	6.14	5.52	5.32	5.11

SUB MINIATURE PHENOLIC SWITCHES



Series F. Dual ball, 30° indexing. Meet MIL-S3786, 50-Hr. salt spray finishes. Frame dim. 1 5/16" H. x 1 1/4" W; 1 3/8" over clips; 1/4" dia. x 2 3/8" L., shaft break-off points @ 3/4", 1 1/8" from mtg. surf., adj. stop, except 2-pos. fixed stop. Sect. spacing, 1st spacer 5/16", 2nd 3/8" approx. 1000V peak breakdown voltage; break 1 amp @ 28 VDC, 0.5 amp @ 115 VAC, Av. shpg. wt. 3 oz.

SHORTING TYPE "F"

57F616	399322F	1	1	2-11	2.34	2.11	2.03	1.95
57F620	399326F	1	2	2-5	2.34	2.11	2.03	1.95
57F622	399328F	2	4	2-5	3.72	3.35	3.22	3.10

NON-SHORTING TYPE "F"

57F617	399323F	1	1	2-11	2.34	2.11	2.03	1.95
57F619	399325F	2	2	2-11	3.72	3.35	3.22	3.10
57F621	399327F	1	2	2-5	2.34	2.11	2.03	1.95
57F623	399329F	2	4	2-5	3.72	3.35	3.22	3.10
57F627	399333F	2	6	2-3	3.75	3.38	3.25	3.13
57F629	399335F	1	4	2	2.37	2.13	2.05	1.98

STANDARD PHENOLIC SWITCHES

Series H. Dual ball, 30° indexing. Meet MIL-S-3786, 50-Hr. salt spray finishes. Frame dim. 1 7/8"H. x 1 19/32"W., 1 13/16" over clips. 1/4" dia. x 2 3/8"L., shaft breakoff points @ 3/4", 1 1/8", 1 7/8" from mounting surface. Adj. stop. Sect. spacing 1st spacer 1/2": 2nd 1"; 3rd 1". Approx. 2500V peak break-down voltage. 1 amp @ 28 VDC, .5 amp @ 115 VAC. Av. shpg. wt. 4 oz.

SHORTING TYPES "H"

57F686	399514H	2	2	2-11	3.99	3.59	3.46	3.33
57F692	399520H	2	4	2-5	3.60	3.24	3.12	3.00

NON-SHORTING TYPES "H"

57F687	399515H	2	2	2-11	3.99	3.59	3.46	3.33
57F689	399517H	3	3	2-11	4.98	4.48	4.32	4.15
57F691	399519H	1	2	2-5	2.67	2.40	2.31	2.23
57F693	399521H	2	4	2-5	3.60	3.24	3.12	3.00
57F597	399529H	4	4	2-11	5.33	4.79	4.62	4.44

PHENOLIC 17 POS. SWITCHES

Series I. Single ball, 20° indexing. Meet MIL-S-3786 50-Hr. salt spray finishes. Frame dim. 2 5/16"Hx1 31/32"W. 2 1/8 over clips. 1/4" dia. x 2 3/8"L., shaft, break-off points @ 3/4, 1 1/8, 1 7/8, from mounting surf. Adj. stop 2-17 pos. adjustable. Sect. spacing all 1/2". Approx. 1000V. peak break-down voltage 1 amp @ 28VDC, 5 amps @ 115 VAC. Av. shpg. wt., 4 oz.

NON-SHORTING TYPES "L"

57F709	399622L	1	1	2-17	3.68	3.31	3.19	3.06
57F713	399648L	3	3	2-17	7.85	7.06	6.80	6.54
57F715	388616L	4	4	2-17	9.99	8.99	8.66	8.33

PHENOLIC 23 POS. SWITCHES

Series MF. 50 hour salt spray. MIL-P-3115. Ball type indexing, one fixed and adjustable stop per switch. Break one amp at 28 VDC or 0.5 amp at 110 VAC, resistive. Carry 5 amps.

SHORTING TYPE "MF" SERIES

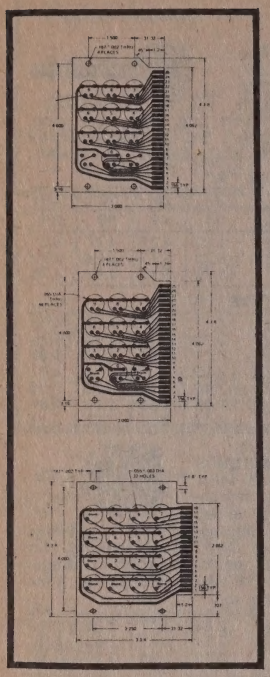
57F716	399684MF	1	1	2-23	3.98	3.58	3.45	3.31
57F718	399686MF	2	2	2-23	5.78	5.20	5.01	4.81
57F722	399690MF	4	4	2-23	9.38	8.44	8.13	7.81

NON SHORTING TYPE "MF" SERIES

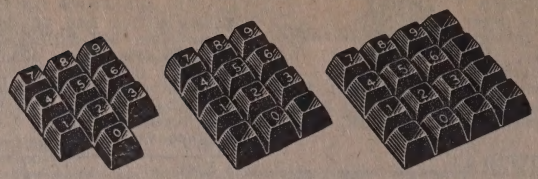
57F717	399685MF	1	1	2-23	3.98	3.58	3.45	3.31
57F719	399687MF	2	2	2-23	5.78	5.20	5.01	4.81
57F721	399689MF	3	3	2-23	7.50	6.75	6.50	6.25
57F723	399691MF	4	4	2-23	9.38	8.44	8.13	7.81

8

OAK Keyboard Switches



SERIES 400 KEYBOARD SWITCHES

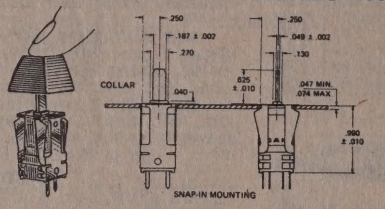


- Operating life: more than 20,000,000 operations
- Less than 100 milliohms contact resis.
- Gold-alloy contacts, nickel base
- Temp. range 0-85°C

Breakdown voltage: over 500 VAC. Contact resistance less than 100 milliohms throughout switch life. Contact rating 5 VDC, resistive load, 100mA. Housing—0.50″ x 0.50″ x 1.00″ high. Snap-in clip for panel mtg. Contact bounce less than 3 millisec., N.O. only. Tested for 20 million operations, per key at rated load. Temp. range 0 to 85°C. Operating force 3 oz. ±½ oz. (85 gm. ±15 gm.) Key travel 0.125″ ±0.010″total, pre-travel 0.070″ nominal. Contacts: gold-alloy crown on nickel base, crossbar wiping. Copper alloy contact leaves. Terminals: 0.050″ (±0.002) x 0.008″ x 0.240″ long (below standoffs on housing. Terminal ends tinned to facilitate soldering.

Stk. No.	Type	1-4	5-9
57F508	399578-KB	18.38	17.44
57F509	399579-KB	19.13	17.81
57F510	399580-KB	20.40	19.39

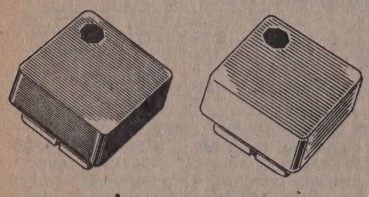
SERIES 400 SINGLE SWITCHES



Single switches furnished with one blank button. Stainless steel plunger.

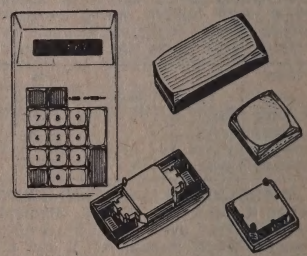
Stk. No.	Type	Action	1-24	25-49
57F511	399576-KS	SPST N.O.	1.90	1.52
57F512	399582-KS	DPST N.O.	2.25	1.80
57F513	399577-KS	SPDT	2.25	1.80
57F514	399583-KS	SPST N.O.	2.60	2.08

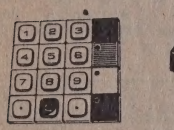
LOW PROFILE 415 SERIES

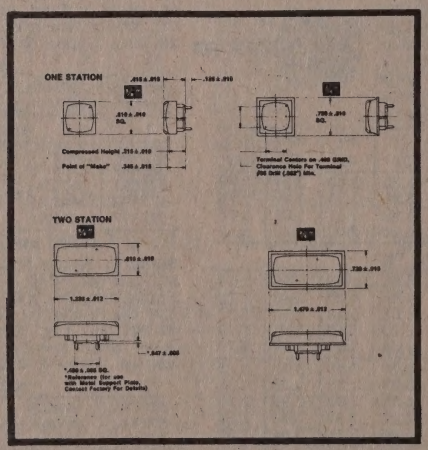


- PC board mtg.
- Range —20 to +75°C

Tested to 10 million operations. Switch action SPST/N.O. Contact resistance 100 milliohms maximum. Height .415″ (incl. terminals, which are 0.125″ long on .400″ grid). Temp. range —20 to +75°C. PC board mtg. Travel 0.100″ approx., pre-travel 0.070″ nom. Operating force 70 gm. (+20 gm., −15 gm.). Contact bounce 3 millisec. max.





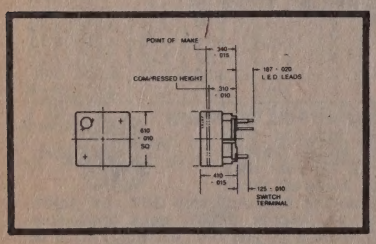


5/8″ KEYTOP

Stk. No.	Type 399-	Each
57F515	591-LP Single Blk.	.90
57F516	592-LP Single Red	
57F517	593-LP Dble. Blk.	
57F518	594-LP Dble. Red	
57F519	595-LP Set 0-9 Wh.	
57F520	596-LP Single Wh.	
57F521	597-LP Single Blu.	
57F522	598-LP Dble. Wh.	
57F523	599-LP Dble. Blu.	

3/4″ KEYTOP

Stk. No.	Type 399-	Each
57F524	535-LP Set 0-9 Wh.	.90
57F525	536-LP Single Blk.	
57F526	537-LP Single Red	
57F527	538-LP Single Wh.	
57F528	539-LP Single Blu.	
57F529	540-LP Dble. Blk.	
57F530	541-LP Dble. Red	
57F531	542-LP Dble. Wh.	
57F532	543-LP Dble. Blu.	



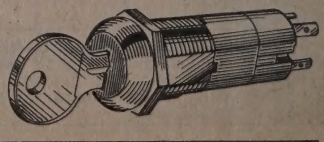
LOW-PROFILE LED SERIES 415

Tested to 10 million operations. Enclosed switching, SPST/N.O. Contact resis. 100 milliohms max. Temp. range —20 to +75°C. Terms. 0.125″ L. on 0.400″ grid. LED avble. in flat key top only, indicates red on, no color off. LED terms. 0.187″ L. Fwd. volt. 1.65V, fwd. curr. 20 mA, rev. curr. @ 3V is 5.0 nA. White 5-61913-109, Gray 5-61913-108, Blue 5-61913-106, Black 5-61913-100.

Stk. No.	Type	1-49	50-99
57F533	5-61613-109	2.60	2.34
57F534	5-61913-108		
57F535	5-61913-106		
57F536	5-61913-100		

ANTI-STATIC KEYLOCK SWITCH

Designed to protect sensitive electronic circuitry from inadvertent static discharge up to 20,000 volts. 90° throw, SP switching. Positions: *-501,* OFF-ON(CW); *-601:* ctr. OFF, ON(CW) and ON(CCW); *-701:* ctr. OFF-ON-ON-ON cont. rotn. Rated 1.0A @ 28VDC, 3.0A @ 120VAC. Cont. resis. 10 milliohms. ¾″ dia. x 2 1/16″ dp. Up to 10,000 operations. UL/CSA recgnzd.



Stk. No.	Type	1-49	50-99
57F537	5-51115-501	9.42	6.28
57F538	5-51115-601	10.00	6.69
57F539	5-51115-701	10.00	7.12

8

Magnetic Reed Switches

HAMLIN

Dry and mercury wetted magnetic switches are precision created for reliable operation under most critical conditions. They offer excellent flexibility in a broad range of applications. These switches are hermetically sealed for safe, dependable use in any atmosphere—even under explosive conditions and are unaffected by high or low temperatures or pressure. They offer long life with high sensitivity and their rapid cycling rate make these ideal for a wide variety of uses. Applications include position indicators, counting devices, limiting switches, flow meters, communication instruments and reed relays. Actuating time: 1 millisecond or less. Life Expectancy: Dry reed switches—50 million operations. Mercury Wetted switches—1 billion operations. Contacts: Form A (SPST-NO), and Form C (SPDT). These switches may be actuated by permanent magnets, shown below, or electro magnets. Average shipping weight 1 oz. each.

MINIATURE MAGNETIC REED SWITCHES

Stock No.	Type	Size	Form	Maximum Cont. Ratg. Watts	Maximum Amps.	Maximum DC Volts	Maximum Cont. Rests.	Amp. Turn Pull In	Use Mag.	1-24	25-99	100-499	SPECIAL FEATURES
33F1051	MRR-2-185	11	A	10	.500	200	.100	30±7.5	H-33	**1.20**	**.96**	**.90**	Miniature Form A—Rhodium Contacts
33F1053	MRH-15-185	11	A	10	.500	50	.150	30±7.5	H-33	**3.25**	**2.60**	**2.44**	High Insulation Rev.—10^{15} OHMS
33F1201	MARC-2-186	10	A	10	.500	100	.250	30±10	H-33	**.95**	**.75**	**.70**	Economy Form A

SUB-MINIATURE MAGNETIC REED SWITCHES

33F1057	MSRR-2-185	9	A	10	.500	200	.100	30±7.5	H-33	**1.15**	**.95**	**.90**	Sub-Mini. Form A—Rhodium Contacts
33F1058	MSRR-2CD-155	9	A	3	.500	200	.200	25±7.5	H-33	**2.00**	**1.60**	**1.50**	Close Differential

TINY MAGNETIC REED SWITCHES

Stock No.	Type	Size	Form	Maximum Cont. Ratg. Watts	Maximum Amps.	Maximum DC Volts	Maximum Cont. Rests.	Amp. Turn Pull In	Use Mag.	1-24	25-99	100-499	SPECIAL FEATURES
33F1061	MTRR-2-185	6	A	10	.250	100	.150	30±7.5	H-33	**1.50**	**1.12**	**.90**	Off Center Cap—Moderate Cur/Volt.
33F1064	MRG-DT-175	7	C	3	.250	28	.150	27.5±7.5	H-33	**3.45**	**2.75**	**2.58**	Form C—Moderate Current/Voltage
33F1203	MLC-DT-186	7	C	3	.250	28	.150	30±10	H-33	**2.40**	**1.90**	**1.80**	Economy Form C

MICRO AND MINI MAGNETIC REED SWITCHES

33F1066	MMRR-2-185	1	A	.3	.010	28	.200	30±7.5	H-31	**2.25**	**1.80**	**1.69**	The "Grain of Wheat"
33F1067	MINI-2S-115	2	A	3	.110	28	.200	20±7.5	H-31	**1.45**	**1.16**	**1.09**	The "Mini Reed"

HIGH CURRENT MAGNETIC REED SWITCHES

Stock No.	Type	Size	Form	Maximum Cont. Ratg. Watts	Maximum Amps.	Maximum DC Volts	Maximum Cont. Rests.	Amp. Turn Pull In	Use Mag.	1-24	25-99	100-499	SPECIAL FEATURES
33F1078	SRT-2-455	15	A	110VA	1.0	28	.500	75±7.5	H-32	**3.30**	**2.65**	**2.50**	Power Switch—1 Amp
29F3041	DRR-129-425	14	A	100VA	3.0	28	.500	70±7.5	H-34	**3.30**	**2.65**	**2.50**	

STANDARD MAGNETIC REED SWITCHES

33F1072	DRR-1-425	14	A	15	1.0	400	.060	70±7.5	H-34	**1.40**	**1.12**	**1.05**	Standard Form A—Rhodium Contacts
33F1074	DRR-5-425	14	A	25	1.0	1,000	.060	70±7.5	H-34	**2.65**	**2.11**	**1.98**	High Breakdown Voltage
33F1075	DRT-5-425	14	A	50	3.0	1,000	.100	70±7.5	H-34	**4.80**	**3.84**	**3.60**	Inductive Load

COMPACT MAGNETIC REED SWITCHES

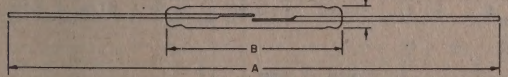
33F1077	SRR-2-425	12	A	15	1.0	400	.060	70±7.5	H-32	**1.80**	**1.45**	**1.35**	Off Center Gap—Moderate Cur/Volt
33F1080	DRR-DTH-445	13	C	10	.5	250	.075	72.5±7.5	H-32	**2.25**	**1.80**	**1.50**	High Breakdown Voltage
33F1081	DRT-DTH-445	13	C	20	1.5	500	.150	72.5±7.5	H-34	**4.90**	**3.90**	**3.18**	Inductive Loads
33F1205	DLC-DT-327	13	C	10	.5	200	.100	55±15	H-32	**1.90**	**1.50**	**1.25**	Economy Form C

HIGH VOLTAGE MAGNETIC REED SWITCHES

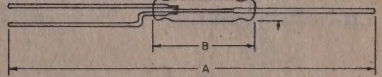
Stock No.	Type	Size	Form	Maximum Cont. Ratg. Watts	Maximum Amps.	Maximum DC Volts	Maximum Cont. Rests.	Amp. Turn Pull In	Use Mag.	1-24	25-99	100-499	SPECIAL FEATURES
33F1084	DRVT-10-658	14	A	50	3.0	7,500	.080	120±20	H-34	**5.00**	**4.50**	**4.00**	Form A Breakdown Voltage 10 KVDC

MERCURY WETTED MAGNETIC REED SWITCHES

33F1088	MDC-1-387	50	A	50	20	100	.050	65±15	H-33	**3.75**	**3.00**	**2.80**	Miniature Form A Mercury Wetted
33F1207	MDC-DT-420	3	C	14	.500	28	.050	70±15	H-33	**12.50**	**9.37**	**7.50**	Form C Mercury Wetted



Form A



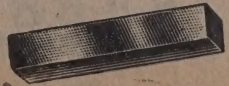
Form C

DIMENSION CHART FOR SWITCHES

Size Code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A Overall Length—Nominal	2.000	1.235	1.600	2.076	1.500	2.125	2.125	.950	2.250	2.250	2.250	3.375	3.375	3.250	3.465
B Glass Length—Maximum	.375	.500	.600	.562	.850	.750	.610	.800	.800	.800	.800	1.610	1.562	1.950	1.640
C Glass Diameter—Maximum	.090	.070	.130	.105	.214	.092	.130	.145	.090	.105	.130	.195	.218	.218	.212

ALNICO V PERMANENT MAGNETS

Stock No.	Magnetic Type	Dimensions	1-24	25-99
33F1090	H31-604	1/16x1/16x1/2"	**.30**	**.30**
33F1091	H32-605	3/16x3/16x1"	**.35**	**.35**
33F1092	H33-606	1/8x1/8x3/4"	**.30**	**.30**
33F1093	H34-607	1/4x1/4x1"	**.40**	**.40**



Series 5701
Magnetic
Actuator

MAGNETICALLY ACTUATED REED PROXIMITY SWITCHES

Offer the long life and high reliability of reed switches. Include all the advantages of magnetic reed switches but come packaged ready for mounting. Epoxy package resists most solvents, acids and salts. Safe for use in hazardous environments. Shock and vibration characteristics comparable with the basic reed switch.

FOR A & C TYPES FOR AC & DC OPERATION

Stock No.	Mfr's Type	Form	Contact Rating Watts	Switching Voltage VDC	Current AMPS	Break-Down Voltage	1-24	25-49	50-99	100-249
33F1208	5801	A	10	200DC/240AC	.500	400 V	3.75	3.40	3.00	2.60
33F1209	5802	C	3	100DC/120AC	.250	200 V	7.75	7.00	6.20	5.35
33F1073	5804	A	10	100DC/120AC	.500	250 V	1.45	1.30	1.15	1.00

Series 5801
SPST-Form A

- High reliability and long life
- Come packaged for mounting in any position
- Hermetic seals—for safe use in hazardous environments

FORM A 1½ AMP REED/TRIAC COMBINATION AC ONLY

Stock No.	Mfr's Type	Form	Current Rating	Voltage Rating	Break-Down Voltage	1-24	25-49	50-99	100-249
33F1210	5901	A	1.5 AMPS	120-240 VAC 50-60Hz	400 V	7.75	7.00	6.20	5.35

MAGNETIC ACTUATOR

Stock No.	Mfr's Type	Operating Distance	Differential	Release Distance	1-24	25-49	50-99	100-249
33F1211	5701	To 5/8"	1/8" to 1/4"	5/16" to 13/16"	2.00	1.80	1.60	1.40
33F1076	5805	To 29/32"	1/32" to 7/16"	39/64" to 1"	1.20	1.10	.95	.85

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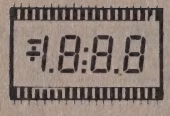

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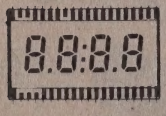

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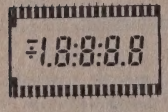

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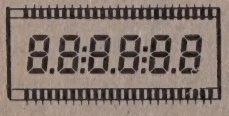

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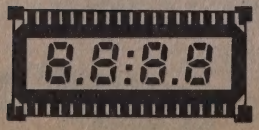


3900

LIQUID CRYSTAL DISPLAYS

- Field Effect
- Wide Viewing Cone
- Distortion-free Image
- Thermoplastic Bonding

Field effect liquid crystal displays. Distortion-free image throughout a wide viewing cone. Thermoplastic bonding provides maximum seal integrity over the recommended temperature range. Operating voltage is five volts RMS in the 30-100 Hz range, for all displays.

3½ AND 4½ DIGIT INSTRUMENT

Stock No.	Type	Character Height	No. of Digits	Display Height	Display Length	1-9	10-24	25-49
33F1046	3902-315	.5"	3½	1.2"	2"	16.00	12.00	10.00
29F3010	3909-315	.5"	4½	1.2"	2"	16.00	12.00	10.00

4, 6, AND 8 DIGIT NUMERIC

Stock No.	Type	Character Height	No. of Digits	Display Height	Display Length	1-9	10-24	25-49
29F3011	3906-315	.5"	4	1.2"	2"	16.00	12.00	10.00
29F3012	3908-315	1"	4	1.8"	3.695"	36.00	27.00	22.50
33F1054	3918-315	.5"	6	1.2"	2.75"	20.00	15.00	12.50
29F3013	3922-315	.5"	8	1.2"	3.695"	28.00	21.00	18.50

12 HOUR CLOCK

29F3014	3931-315	.7"	3½	1.48"	2.75"	24.00	18.00	15.00

2 DIGIT INSTRUMENT

29F3015	3935-315	.5"	2	1.2"	1.2"	14.00	10.50	8.75

4, 6, AND 8 DIGIT NUMERIC

Stock No.	Type	Character Height	No. of Digits	Display Height	Display Length	1-9	10-24	25-49
29F3016	3900-315	.35"	4	.9"	2"	15.00	11.25	9.35
29F3017	3913-315	.4"	5	1.2"	2"	16.00	12.00	10.00
29F3018	3919-315	.7"	6	1.5"	3.7"	32.00	24.00	20.00

Component Seals/Pilot Light Filters

APM

HIGH PRESSURE SEALS FOR STANDARD TOGGLE SWITCHES

N-1030A

N-1030B

Type	Throat or I.D.	Height	Flats
N-1030	1/8"	7/8"	5/8"
N-1030A	7/32"	7/8"	5/8"
N-1030B	1/8"	27/64"	5/8"
N-5030	3/64"	7/16"	3/8"

Silicone rubber chemically and mechanically bonded to nut, make these boots impervious to salt water, acids, and ozone. Flexible from —160°F to +400°F. Meets MIL-B-5423. Pressure Range: 15 PSI Bush mtg. Wt. approx. 1 oz. per 5.

Stock No.	Type	Thread Size	Description	1-249	250-999	1000-3999	4000-9999
30F000	N1030	15/32-32	Enclosed	.98	.79	.67	.60
30F001	N1030A	15/32-32	Metal Cap	1.70	1.35	1.16	1.04
30F002	N1030B	15/32-32	Open Top	.98	.79	.67	.60
30F011	N5030	¼-40	Enclosed	1.40	1.01	.90	.68

Stk. No.	Type	Thread Size	Description	1-249	250-999	1000-3999	4000-9999
30F005	N-5030L	¼-40	Enclosed	1.40	1.01	.90	.68
30F003	N-5032B	¼-40	Open Top	1.40	1.01	.90	.68

SNAPSEELS

Black neoprene water & dust-proof material. Operating Temperatures: —40°F to +225 F. Bushing dia. for type 1312/7: ⅜-27 (2200/13/2) or ⅜-32 (2200/13/3); type 1111/4 & 1211/10: 15/32-32 (2200/13/1).

Stock No.	Type	To Switch	1-999	1000-2999	3000-9999	10,000-19,999
30F097	1211/5	Push-button	.32	.28	.25	.21
30F098	1111/4	Toggle				
30F099	1312/7	Rotary				

HEXSEAL

Seats for locking type potentiometers and variable capacitors. Temp. Range: —160°F to +500°F. Shaft size: ¼". Thread size: ⅜-32". Ht. 17/32". Width ⅝".

Stock No.	Type No.	1-999	1000-2999	3000-9999	10,000-19,999
30F060	NLK-9030-¼	1.62	1.29	1.10	1.00

HIGH PRESSURE SEALS

Designed for shafts which pass through panels or housings. Meets MIL-B-5423/9. For standard rotary switches. Wt. approx. 1 oz. per 5.

Stock No.	Type	Thread Size	Hex Size	1-249	250-999	1000-3999	4000-9999
30F013	N-9030-¼	⅜-32	½"	.81	.65	.56	.50
30F014	N-9040-⅜	¼-32	7/16"	.87	.70	.59	.53
30F015	N-9060-¼	15/32-32	¾"	1.50	1.10	.95	.79

SILIKROME COLORED FILTERS FOR INCANDESCENT LAMPS

1813/2 1813/8 1813/14 1813/15 1813/27

Change colors of clear incandescent miniature lamps. Operate at 400 for 1000 hours without appreciable change in color. Temperature range: —160°F to 400°F. Resistant to environmental conditions. Mil. Spec. models available on special order.

Stock No.	Type	Color	Size	Overall Ht.	O.D.	1-199	200-999	1000-3999
30F807	1813/15-B1	Blue	T-2	13/64"	9/32"	.24	.19	.16
30F806	1813/15-G1	Green	T-2	13/64"	9/32"			
30F808	1813/15-A2	Amber	T-2	13/64"	8/32"			
30F811	1813/20-B1	Blue	T-2	27/64"	9/32"	.27	.22	.17
30F810	1813/20-G1	Green	T-2	27/64"	8/32"			
30F812	1813/20-A2	Amber	T-2	27/64"	9/32"			
30F803	1813/14-B-1	Blue	T-2	13/64"	9/32"	.24	.19	.16
30F802	1813/14-G-1	Green	T-2	13/64"	9/32"			
30F804	1813/14-A-2	Amber	T-2	13/64"	9/32"			

Stock No.	Type	Color	Size	Overall Ht.	O.D.	1-199	200-999	1000-3999
30F781	1813/2-R-5	Red	T-1¾	5/16"	¼"	.21	.17	.14
30F793	1813/2-B-1	Blue	T-1¾	5/16"	¼"			
30F782	1813/2-G-1	Green	T-1¾	5/16"	¼"			
30F794	1813/2-A-2	Amber	T-1¾	5/16"	¼"			
30F795	1813/8-R-5	Red	T-3¼	11/16"	7/16"	.26	.21	.17
30F786	1813/8-B-1	Blue	T-3¼	11/16"	7/16"			
30F788	1813/8-G-1	Green	T-3¼	11/16"	7/16"			
30F796	1813/8-A-2	Amber	T-3¼	11/16"	7/16"			
30F797	1813/27-R-5	Red	T-3¼	11/16"	7/16"	.26	.21	.17
30F799	1813/27-B-1	Blue	T-3¼	11/16"	7/16"			
30F798	1813/27-G-1	Green	T-3¼	11/16"	7/16"			
30F800	1813/27-A-2	Amber	T-3¼	11/16"	7/16"			

HIGH PRESSURE SEALS FOR STANDARD PUSHBUTTON SWITCHES

N-3030 NH-3030

NC-3030

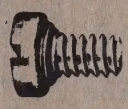
N-5040

4080 Series

*Dial light seal (trans.). Indicator light and press to test switches.

Meet MIL-B-5423. High pressure sealing is maintained by a gasket rib, which seats firmly against any panel surface to keep out moisture, dust, or combustible vapors. Temp. Range: —160° to +400°F.

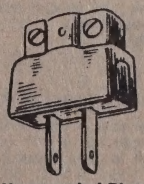
Stock No.	Type	Thread Size	Descirp.	1-249	250-999	1000-3999	4000-9999
30F006	N-3030	15/32,32	Bush, Mtg.	.90	.72	.62	.56
30F007	NC-3030	15/32,32	Bush, Mtg.	.90	.72	.62	.56
30F008	NH-3030	½-32	Bush. Mtg.	.98	.79	.67	.60
30F009	4080	⅝-24	*	1.74	1.57	1.41	1.27
30F010	4082	15/32-32	*	1.74	1.57	1.41	1.27
30F012	N-5040	¼-40	Bush. Mtg.	1.40	1.01	.90	.68
30F065	N-5040G	¼-32	Bush. Mtg.	1.40	1.01	.90	.68
30F066	N-5040R	¼-40	Bush. Mtg.	1.40	1.01	.90	.68

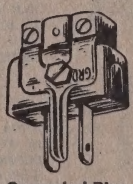


SLOTTED PAN-HEAD SEELSCREWS

Single unit fasteners which form an absolute seal against any surface. Grooved under head and have a silicone rubber O-ring pressed into the groove. Maintain seal even after frequent removal from equipment. Range: —160°F to +500°F.

Stock No.	Size	Head Depth	Head Dia.	1-199	200-999	1000-3999	4000-14999
30F018	S4/40x¼"	.069	.220	.17	.13	.10	.08
30F019	S4/40x⅜"	.069	.220	.18	.13	.10	.08
30F039	S4/40x1"	.069	.220	.21	.16	.12	.10
30F021	S6/32x¼"	.083	.271	.17	.13	.10	.08
30F022	S6/32x⅜"	.083	.271	.17	.13	.10	.08
30F023	S6/32x½"	.083	.271	.18	.13	.10	.08
30F043	S6/32x1"	.083	.271	.20	.15	.11	.09
30F024	S8/32x⅜"	.097	.323	.18	.14	.10	.08
30F025	S8/32x½"	.097	.323	.19	.14	.11	.09
30F044	S8/32x⅝"	.097	.323	.19	.15	.11	.09
30F045	S8/32x¾"	.097	.323	.20	.15	.12	.09
30F047	S8/32x1"	.097	.373	.22	.17	.13	.10
30F027	S10/32x⅜"	.113	.374	.20	.15	.11	.09
30F028	S10/32x½"	.113	.374	.20	.15	.12	.09
30F051	S10/32x1"	.113	.374	.28	.21	.16	.13
39F030	S10/24x⅜"	.113	.374	.20	.15	.11	.09
30F055	S10/24x1"	.113	.374	.28	.21	.16	.13
30F056	S¼/20x⅜"	.148	.493	.30	.23	.17	.14
30F033	S¼/20x½"	.148	.493	.32	.24	.18	.15
30F057	S¼/20x⅝"	.148	.493	.34	.25	.19	.15
30F059	¼/20x1¼"	.148	.493	.47	.35	.26	.21


Ungrounded Plug
UP120M


Grounded Plug
Removable Ground
UP121M

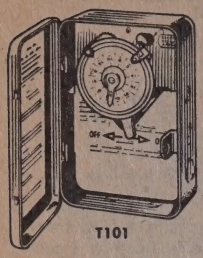
Type UP221M High-Impact diallyl phthalate (Type GDi-30F), meets MIL-C-3767/13, provides excellent dielectric properties against moisture under influence of polarized voltages. Parallel blades not polarized. Shell and strain relief: cadmium plated steel. Blades: brass. Accepts cable diameters from .125" to .450" at 125V-15amp or 250V-10amp. Type UP121M Same as above except: polarized parallel blades, removable grounding blade, and Type MIL-C-3767/4.

Stock No.	Type	1-99	100-499	500-999	1000-2499
30F016	UP120M	1.52	1.46	1.32	1.19
30F017	UP121M	1.65	1.59	1.43	1.28

8

INTERMATIC® Timers and Photo Controls

GENERAL PURPOSE TIMERS


T101

Model T101. Turns device on and off for any period over 1 hour . . . once every 24 hours. May be set up for more operations with additional tripper sets (below). Can be manually operated without upsetting automatic sequence. SPST switch. U-Beam blades, high-power switching mechanism, and tungsten rating of 40 amps to carry incandescent lighting loads. Size, 7¾"x5x3". For 125 V, 60 Hz AC. 3 lbs.
24F978. EACH 16.38

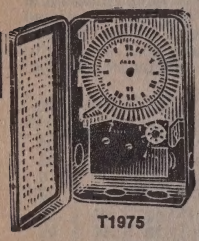
Model T103. Same as above, but DPST.
24F977. EACH 18.35
24F982. Set of extra trippers ..... .39

7-DAY "SKIPPER" TIME SWITCHES

Model T171
T173, T175

Model T171, T173, T175. Provides a program of operations for most commercial or industrial needs. For use where it is desired to skip operations on weekends or other selected days. Has 24-hour time dial and 7-day skipper dial. Small skipping screws are merely inserted into respective day holes for skipping operation. Contacts rated up to 40 amps per pole. 3 skipping screws, one cutout, one off tripper included. 125 VAC, 60 Hz. Drawn steel case, gray finish. 7¾x5x3". 3 lbs.

Model T173. DPST.
24F1890. EACH 24.05
Model T175. SPDT.
24F1891. EACH 24.05
Model T171. SPST.
24F1892. EACH 22.36
Model P171-30. SPST portable unit with plug-in cord set. Rated 15 amps, 125 VAC.
24F1899 EACH 21.20


T1975

PROGRAM TIME SWITCH

Type T1975. Provides up to 96 on and off operations in 15-minute steps every 24 hours. Ideal for devices requiring frequent control. Permanently attached trippers are spotted every 15 minutes around the dial . . . slide easily, and can't get lost. 20-amp. contacts can be set up for: SPST normally open or closed, or SPDT. Knockout box, 7¾"x5x3". For 125v, 60 hz. AC. 4 lbs. With "skipper" feature.

24F980. EACH 35.80

D811

MASTER CONTROL

Type D811. Automatic Program Timer. Features 24 separate tabs for multiple daily programming. Easy to set. Slide out one tab for each hour of "ON" time desired. Has manual ON/OFF switch to permit use without disturbing auto. oper. Max. capacity: 125V, 60Hz, 1875 Watts, ¼ HP. Max. ON time: 23 hrs. Min. ON time: 1 hr. (*) Not CSA listed.
13F062. NET 7.66

D111

Model D111. Turns lights, radio, and TV on. Durable compact construction. Easy to read dial. Precision easy to set color coded trippers with 24 hour on/off timing and special manual control. UL listed. One year Warranty. 15 amps, 1875 watts. Cordless Plug-in.
24F263 NET 5.82

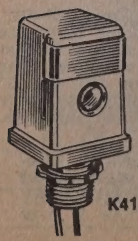
PHOTO CONTROL ON STEM

K1121

Series K1100. Adjustable stem permits mounting at almost any angle up to 80° (mount lens in northerly direction for best results). Relay type; CSA Listed. For 105-130 VAC, 50/60 Hz. Activation: 1-3 FC ON; 3-7 FC OFF. Three 8" color-coded leads. White epoxy. Size, 2½" w. x 5¾" h. Wt. ½ lb.

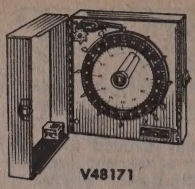
24F2419. Model K1121. 1500 watts 14.30

THERMAL PHOTO CONTROLS


K4121

Type K4121. Features sonic welded Lexan case and lens. Seals out moisture. Eliminates possibility of leaks by avoiding uses of gaskets, rivets, etc. Equipped with light level adj. slide. ½"-14 thread stem mounting. Rated: 15 Amp., 125 V., 1800 Watts. UL listed for outdoor applications. (*) Not CSA listed.
13F060. NET 7.18
Type K4221. Same as K4121 except swivel mounted. (*) Not CSA listed.
13F061. NET 7.94

SCHEDULER


V48171

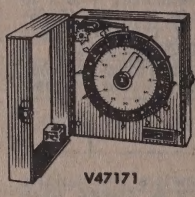
Provides 1 to 288 short interval operations per day. Operates for periods of from **2-60** second durations of 5 min. intervals. Has skipper feature which allows signals to be omitted for any 12 or 24 hour period. Furnished with 9 skipper trippers, 8 advance warning and 24 signal trippers. For 120 VAC, 60 Hz. Size, 10⅞" x 7⅜" x 3⅜". Wt. 8½ lbs.
Model V48171. 1 Circuit, 24 hour.
43F042. EACH 97.86
Model V49177. 2 Circuit, 24 hour
43F043. EACH 103.61

SEVEN DAY PROGRAMMERS

V46401

Model V46401. Provides different programs for every day of the week. Up to 4 operations per day, with minimum of 3 hours between operations. 40 amp tungsten rated contacts. For 120 VAC, 60 Hz. Gray steel case, 10⅞" x 7⅜" x 3⅜". Shpg. wt., 6¼ lbs.
24F1897. 4PST switch 37.64
Model V46107. Same as above, but with DPDT switch. Shpg. wt. 6½ lbs.
24F1898 ..... 37.64

SUPERVISOR DELUXE


V47171

Ideal for control of background music, industrial process operations, heating systems. Periods of operation can be varied in multiples of 5 minutes. Repeats, program every 24 hours and skips any days desired. Includes toggle switches for testing signal and cutting off automatic operations. Gray steel case 10⅞" x 7⅜" x 3⅜". 125 V, 60 Hz. AC. Weight 8½ lbs.
24F1893. Model V47171 One Circuit. 90.07

24F1894. Model V47177 Two Circuit 97.86

IN-WALL TIME SWITCH

E1022

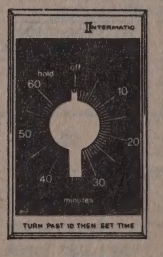
Series E1000. Built in wall switch and outlet box timers. (Fits boxes 3"x2"x2½") May be used for timing lights and appliances up to 1 H.P. Multiple Program Dial accommodates 12 "ON" and 12 "OFF" trippers (2 furnished). Rated: 15 A. 12 A full load, 1440 watts tungsten, 120 VAC @ 60 Hz.
Type E1020. w/o outlets. Pearl wht. housing w/ twilight charcoal panel.
13F059. NET 11.67
Type E1022. w/dual outlets. Pearl wht. housing w/woodgrain panel.
24F2425. NET 12.97

MULTIPLE PROGRAM TIMER

EB11

Model EB11. Multiple program trippers turn lights on and off automatically one or more times, repeat the cycle(s) every 24 hours. Rated 15 amps, 1875 watts at 125 VAC, 60 Hz. With 2 On and 2 Off trippers. 3x4¼x3⅜". 2 lbs. *
24F2426 ..... 9.72
24F2427. Extra set of trippers. (2 On and 2 Off)
NET EACH ..... .49

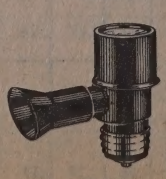
ENERGY SAVER SPRING WOUND SWITCH



FM60H

Single plate. Switch, single pole, single throw (SPST) "OFF" type-breaks circuit at end of timing cycle. Rated 1 H.P. at 125 V AC, 20 amps, 125V AC, 10 amps, 250V AC. Switch is open in "Off" position and closed in "Hold" or timing cycle positions. Ambient temperature range 40°F-120°F. UL and CSA Listed. Dimensions: width: 2¾", height: 4½", maximum depth 1 1/16".
24F248. F60MH. 0-60 Min. w/hold. **NET** 6.66
24F249. F5M. 0-5 Min. **NET** 6.66
24F258. F15M. 0-15 Min. **NET** 6.66
24F259. F30M. 0-30 Min. **NET** 6.66
24F260. F60M. 0-60 Min. **NET** 6.66
24F261. F12H. 0-12 Hrs. **NET** 6.99

THERMAL PHOTO CONTROL


K2211

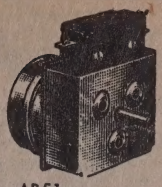
Model K2211. "Lite-all" socket type for post light. Easy-to-install. Screws into standard medium base socket. Bulb or par light is then screwed directly into the photo control unit, no wiring necessary. With telescoping "eye" shield prevents lamp from reflecting into the "eye" of the photo control. *
24F262. K2211. 150 watts. 105-130 volts ... 6.83

All are U.L. and CSA listed except (*) not CSA listed.

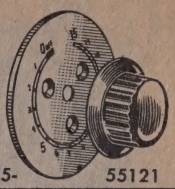
Timers

SERIES AB51 HAND SET INTERVAL TIMER

Type AB51. Rotation energizes load and timing motor. On release motor drives timer to zero; motor and load then de-energized. Setting changeable during cycle without damage. Behind panel mount: 3, .180 dia. tapped holes on .562 R. Setting shaft: ¼" dia., flattened to .156 for ½". Flat located 180° from "0" time. SPDT switch rated 25 amps. 125/250 VAC resistive. Spade terminals. Motor 120 VAC, 60 Hz. Size: 2¼" x 3⅜" x 3". Weight: 1 lb. UL recognized. CSA listed.



AB51



AT5- 55121

Stock No.	Type	Time Range	1-4	5-9	10-24	25-49
54F145	AB51-001	1 Min.	12.70	12.10	11.50	10.75
54F146	AB51-002	6 Min.				
54F147	AB51-003	15 Min.				
54F148	AB51-004	30 Min.				
54F149	AB51-005	60 Min.				
54F150	AB51-006	2 Hrs.				
54F151	AB51-007	6 Hrs.				
54F152	AB51-008	8 Hrs.				
54F153	AB51-010	12 Hrs.				
54F154	AB51-016	24 Hrs.				

Stock No.	Type	Dial Face	Net Each
54F159	AT5-1020-901	3 Hrs.	1.50
54F155	AT5-1021-901	1 Min. or 1 Hr.	
54F157	AT5-1022-901	15 Min.	
54F164	AT5-1140-901	24 Hrs.	
54F161	AT5-1141-901	6 Min. or 6 Hrs.	
54F162	AT5-1142-901	8 Hrs.	
54F163	AT5-1143-901	12 Hrs.	
54F158	AT5-1147-901	30 Min.	
54F160	AT5-1148-901	2 Hrs.	

54F090. Knob type 55121 for Series AB Timers. **NET**.....55

EF47 AND EF37 ELAPSED TIME INDICATORS

Non-resettable, running time verifications for leasing, maintenance and warranty. Operating temp: −12°C to +55°C. Models with square or round face operate on 120 VAC or 240 VAC @ 60 Hz, tinned leads. Available on special order for 50 Hz and/or with terminal block (Add suffix TB behind model no.).

Stock No.	Type	Time Range	Input	1-4	5-24	25-49	50-99
54F295	EF37	99999 min.	120V/60Hz.	8.25	7.50	6.90	6.30
54F296	EF37	99999.9 hr.	120V/60Hz.	8.25	7.50	6.90	6.30
54F299	EF37	99999 min.	240V/60Hz.	8.95	8.20	7.60	6.90
54F300	EF37	99999.9 hr.	240V/60Hz.	8.95	8.20	7.60	6.90
54F293	EF47	99999 min.	120V/60Hz.	8.25	7.50	6.90	6.30
54F294	EF47	99999.9 hr.	120V/60Hz.	8.25	7.50	6.90	6.30
54F297	EF47	99999 min.	240V/60Hz.	8.95	8.20	7.60	6.90
54F298	EF47	99999.9 hr.	240V/60Hz.	8.95	8.20	7.60	6.90

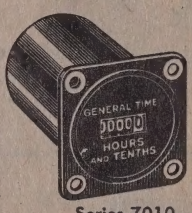
EF47

EF37

ELAPSED TIME INDICATORS

Series 7010. Non-resettable, lightweight, panel mount, hermetically sealed, tamperproof. Panel cutout is 1.670" diameter. 115 volt operation. Operating temperature range: −55°C to +85°C. Bezel: 1¾", Depth: 2²⁷⁄₆₄".
Series ED. Non-resettable, commercial unit equipped with special miniature synchronous motor. Panel mount, with four mounting holes. Panel cutout: 1.670" diameter. UL recognized. ED71 also CSA listed. Operating temperature range: −12°C to +55°C. ED 71 has 11¼" wire leads. ED72 has glass fused terminals.

Stock No.	Type	Time Range	Input Watts	1-4	5-9	10-24	25-49
54F060	7010-004	9999.9 Hrs	2.5 @ 115V, 400 Hz	58.30	55.60	52.90	49.40
54F100	7010-010	9999.9 Hrs	2.5 @ 115V, 60 Hz				
54F063	ED7112	9999.9 Hrs	2.5 @ 60 Hz, 2.2 @ 50 Hz	33.05	31.50	34.00	27.95
54F073	ED7212	9999.9 Hrs	2.5 @ 60 Hz, 2.2 @ 50 Hz	36.20	34.15	32.45	30.35



Series 7010
Series ED

RG21 REPEAT CYCLE TIMERS

Cam actuated, single switch for rear mounting. Continuous run. Cam adjustable from 7° min to 160° max. (±3%). SPDT switch. 20 A. 3.7 W. motor. 120 VAC. 60 Hz. 2⅝"x3⅛x2½". UL recognized.

Stock No.	Type RG21	Time Range	1-4	5-9	10-24	25-49
54F017	-090	7½ Sec	20.45	19.50	18.50	17.35
54F018	-091	15 Sec				
54F019	-092	30 Sec				
54F020	-093	1 Min				
54F021	-094	5 Min				
54F022	-095	10 Min				
54F023	-096	15 Min				
54F024	-097	30 Min				
54F025	-098	60 Min				

ELAPSED TIME INDICATORS

Time measurement and readout. Non-resettable, synchronous motor driven units. White numerals on black. 125 VAC or (*) 240 VAC. Power input at 60 Hz: EF27, 5 watts; EF13, 2.5 watts. Operating Temperature range: −12°C to +55°C. Mounts in 2⅛" dia. panel cutout. 6" wire leads. EF13: 2.88" dia. bezel mounted with #6 screws. EF27: 2¾" sq. bezel with mounting studs. UL recognized. CSA listed.

Stock No.	Type	Time Range	1-4	5-9	10-24	25-49
54F061	EF1333	99999.9 M	14.95	14.25	13.55	12.70
54F062	EF1335	99999.9 H	14.95	14.25	13.55	12.70
54F168	EF2733	99999.9 M	17.60	16.75	15.95	14.90
54F170	EF2735	99999.9 H	17.60	16.75	15.95	14.90
54F091	EF1335*	99999.9 H	17.85	17.00	16.20	15.10

NOTE: M-min. H-hrs.

EF13

EF27

- **Highly accurate**
- **−12°C to +55°C**
- **125 or 240 VAC**

SERIES RE REPEAT CYCLE MULTI-CAM TIMERS

2 to 6 switches may be actuated during cycle. Adjustable friction loaded cams. Complete unit requires one switch stack and one drive motor. Size: 2⅞"H x 3⅝"W x 3⅜"D. Add 1⅛" to depth for each additional switch. UL recognized.

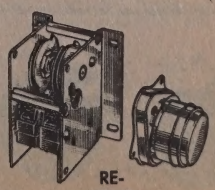
SWITCH STACKS

Stock No.	Type	Switch	1-4	5-9	10-24	25-49
54F027	RE62-091	2	19.20	18.15	17.25	16.15
54F028	RE63-092	3	25.40	24.20	23.00	21.50
54F029	RE64-093	4	30.50	29.10	27.65	25.85
54F030	RE65-094	5	38.85	37.00	35.15	32.90
54F031	RE66-095	6	45.20	43.10	40.95	38.30

DRIVE MOTORS

Order with switch stack for complete unit

Stock No.	Type	Time Range	1-4	5-9	10-24	25-49
54F032	MP10-390	7½ S.	10.55	9.40	8.95	8.35
54F115	MP10-400	10 S.				
54F033	MP10-391	15 S.				
54F034	MP10-392	30 S.				
54F035	MP10-393	1 M.				
54F036	MP10-394	5 M.				
54F037	MP10-395	10 M.				
54F038	MP10-396	15 M.				
54F039	MP10-397	30 M.				
54F040	MP10-398	1 H.				

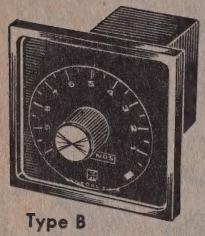


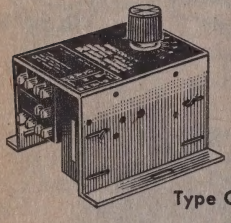
RE-
MP10-

Timers

DIGITAL ELECTRONIC TIMERS, SERIES Q-20

Type A


Type B


Type C

Provides typical repeat accuracy of ±0.5% in all time ranges, including those as long as 60 minutes. Operate over an input voltage range of ±12.5% of nominal voltage. Life expectancy is limited only by the output relay which has a forecast mechanical life of over 10 million operations, and a full load life expectancy of 100,000 operations. Operation is possible at settings as low as 10% of maximum time setting. Electronic latch prevents false energization due to transients and unwanted feedback. Heavy duty contacts switch high loads such as ⅛ hp motors or 1 KVA heating elements. Type numbers in which the Q20 is followed by an **A** are of the plug-in configuration to be used with a spade-terminal-type socket. **B** indicates a panel mount configuration, and **C** indicates a chassis mount package. **On Delay** types begin timing operations as soon as power is applied. **Interval** and **Off Delay** types require an external switch for initiation of operation. 117VAC, 50/60 Hz.

ON DELAY

Stk. No.	Type	Max. Time Set	1-4	5-9	10-24
57F3800	Q20-A-01-A-2-A	1 sec	25.10	23.80	22.55
57F3801	Q20-A-05-A-2-A	5 sec			
57F3802	Q20-A-15-A-2-A	15 sec			
57F3803	Q20-A-60-A-2-A	60 sec			
57F3804	Q20-A-65-A-2-A	5 min			
57F3805	Q20-A-75-A-2-A	15 min	25.80	24.50	23.50
57F3806	Q20-A-77-A-2-A	60 min			
57F3807	Q20-B-01-A-2-A	1 sec	31.35	29.80	28.25
57F3808	Q20-B-10-A-2-A	10 sec			
57F3809	Q20-B-60-A-2-A	1 min			
57F3810	Q20-B-70-A-2-A	10 min			
57F3811	Q20-B-77-A-2-A	60 min	**32.05**	**30.50**	**28.95**
57F3812	Q20-C-03-A-2-A	3 sec	23.20	22.05	20.90
57F3813	Q20-C-10-A-2-A	10 sec			
57F3814	Q20-C-30-A-2-A	30 sec			
57F3815	Q20-C-63-A-2-A	3 min			
57F3816	Q20-C-70-A-2-A	10 min			
57F3817	Q20-C-76-A-2-A	30 min	**23.90**	**22.75**	**21.60**

OFF DELAY

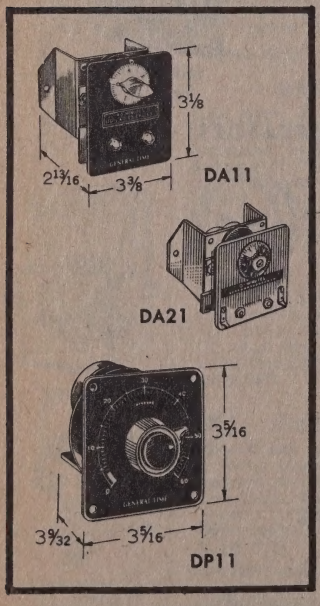
57F3836	Q20-A-01-C-2-A	1 sec	25.10	23.80	22.55
57F3837	Q20-A-15-C-2-A	15 sec			
57F3838	Q20-A-65-C-2-A	5 min			
57F3839	Q20-A-77-C-2-A	60 min	**25.80**	**24.50**	**23.50**
57F3840	Q20-B-03-C-2-A	3 sec	**31.35**	**29.80**	**28.25**

Uses P & B Socket #27E043 (9KU1).

INTERVAL

Stk. No.	Type	Max. Time Set	1-4	5-9	10-24
57F3818	Q20-A-01-B-2-A	1 sec	25.10	23.80	22.55
57F3819	Q20-A-10-B-2-A	10 sec			
57F3820	Q20-A-60-B-2-A	60 sec			
57F3821	Q20-A-70-B-2-A	10 min			
57F3822	Q20-A-77-B-2-A	60 min	**25.80**	**24.50**	**23.50**
57F3823	Q20-B-03-B-2-A	3 sec	31.35	29.80	28.25
57F3824	Q20-B-10-B-2-A	10 sec			
57F3825	Q20-B-30-B-2-A	30 sec			
57F3826	Q20-B-63-B-2-A	3 min			
57F3827	Q20-B-70-B-2-A	10 min			
57F3828	Q20-B-76-B-2-A	30 min	**32.05**	**30.50**	**28.95**
57F3829	Q20-C-01-B-2-A	1 sec	23.20	22.05	20.90
57F3830	Q20-C-05-B-2-A	5 sec			
57F3831	Q20-C-15-B-2-A	15 sec			
57F3832	Q20-C-60-B-2-A	60 sec			
57F3833	Q20-C-65-B-2-A	5 min			
57F3834	Q20-C-75-B-2-A	15 min	23.90	22.75	21.60
57F3835	Q20-C-77-B-2-A	60 min			
57F3841	Q20-B-60-C-2-A	60 sec	**31.35**	**29.80**	**28.25**
57F3842	Q20-B-76-C-2-A	30 min	**32.05**	**30.50**	**28.95**
57F3843	Q20-C-03-C-2-A	3 sec	23.20	22.05	20.90
57F3844	Q20-C-60-C-2-A	60 sec			
57F3845	Q20-C-76-C-2-A	30 min	**23.90**	**22.75**	**21.60**

SERIES DA11 AND DA21 RESET TIMERS



Type DA11. For use where delay, interval, or repeat cycle time functions are required for adjustable time periods. Repeat cycle requires two units. Resets to start when power removed. Manual knob adjustment. Rear mounted. SPDT switch. 20 Amps. Solder lug terminals. 5 watt motor. Repeat Acc: ±¾%. Min. Time Setting: 0 sec. UL recognized. CSA listed. 3⅜x3⅛x2¹³⁄₁₆". Shpg. wt.: 1 lb. **DA21.** Same as DA11 exc. locknut adjustment. UL recognized, CSA listed. Use with external relay.

120 VOLTS AC

DA11 Stk. No.	Type	DA21 Stk. No.	Type	Maximum Setting	Reset	1-4	5-9	10-24	25-49
54F000	DA11-036	.....	.....	5.7 Sec.	.25 Sec.	28.50	25.35	24.10	22.50
54F001	DA11-031	54F006	DA21-001	14 Sec.	1.0 Sec.				
54F002	DA11-032	54F007	DA21-002	57 Sec.	1.5 Sec.				
54F004	DA11-033	54F009	DA21-003	4.5 Min.	15 Sec.				
54F005	DA11-034	54F010	DA21-004	9.5 Min.	120 Sec.				

240 VOLTS AC

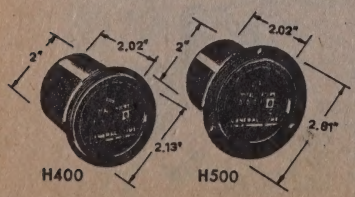
54F076	DA11-032	.....	.....	57 Sec.	1.5 Sec.	29.50	28.10	26.70	24.95
54F078	DA11-033	.....	.....	4.5 Min.	15 Sec.				
54F079	DA11-034	.....	.....	9.5 Min.	120 Sec.				

SERIES DP11 PANEL MOUNT RESET TIMERS

Apply wherever delay, interval, or repeat cycle timing (requires two timers) are needed. Simple pointer knob for timing adjustment. Reset to start position when power is removed. Time elapse readout in center of adjustment knob. SPDT switch, 10 amps, 5 watt timing motor, 120 VAC 60 Hz. Repeat accuracy, +1% of total time. Screw term. Size: 3⅝ sq. x 3³⁄₃₂" depth. Requires 3⅜" dia. mounting hole. Use with external relay.

Stk. No.	Type DP11-	Time Setting Max	Time Setting Min.	Maximum Reset Time	Dial Grads. Maj.	Dial Grads. Min.	1-4	5-9	10-24	25-49
54F072	007	6 Sec.	0.3 Sec.	.5 Sec.	1 Sec.	1 Sec.	32.65	31.15	25.60	27.70
54F011	001	15 Sec.	0.8 Sec.	1.0 Sec.	1 Sec.	.2 Sec.				
54F012	006	30 Sec.	1.5 Sec.	1.5 Sec.	5 Sec.	.5 Sec.				
54F013	002	60 Sec.	3.0 Sec.	1.5 Sec.	10 Sec.	1 Sec.				
54F015	003	5 Min.	0.2 Sec.	15 Sec.	1 Min.	.1 Min.				
54F016	004	10 Min.	0.4 Sec.	120 Sec.	1 Min.	.2 Min.				

4-40 VDC SERIES H-DC HOUR METERS



5 Digits. Non-resettable, 4 to 40 VDC meters with permanently sealed, high impact, heavy-duty cases. Standard SAE mounting required; 2" (nom.) dia. panel cutout. Jeweled bearings, accurate within 1% @ −20°C — +165°C. Auto-Recycle after 9999.9 hrs. With oper. indicator. MIL-3971-C.

Stk. No.	Type	Mount	1-4	5-9	10-Up
54F058	H400	Screw	14.60	12.40	10.60
54F059	H500	Bracket			

635 AND 636 ELAPSED TIME INDICATORS

Type 635. Compact, non-resettable indicators with 1" diameter number wheels for excellent readability. Quick stop and start induction motor. Six-digit register. **Type 636.** Similar to 635, but has unique pushbutton reset with no danger of overshoot; 5-digit register. For 115 VAC, 60 Hz. Case Styles: E has 3½" round bezel; S has 3½" square bezel; G is utility type with 2½" round bezel; X is 2½" round bezel; Y, 2½" square bezel; K, utility type with 2½" square bezel. 3½" units mount in 2.82" dia. panel cutout; 2½" units mount in 2.22" cutout.

TYPE 635 SIX-DIGIT

Stock No.	Type	Case Style	Total Count	1-24	25-49	50-99	100-249
55F4397	10053	E	99,999.9 minutes	19.50	17.55	16.58	15.60
55F4399	10055	E	99,999.9 hours				
55F3141	10061	S	99,999.9 minutes				
55F3143	10063	S	99,999.9 hours				
55F3146	10069	G	99,999.9 minutes	14.60	13.14	12.41	11.68
55F3148	10071	G	99,999.9 hours				
35F3803	10184	K	99,999.9 minutes				
35F3805	10186	K	99,999.9 hours				

TYPE 636 FIVE-DIGIT

Stock No.	Type	Case Style	Total Count	1-24	25-49	50-99	100-249
55F4444	10072	X	9,999.9 seconds	34.30	30.87	29.16	27.44
55F4447	10074	X	9,999.9 minutes				
55F4450	10075	X	9,999.9 hours				
55F4460	10076	E	9,999.9 seconds				
55F4463	10078	E	9,999.9 minutes				
55F4466	10079	E	9,999.9 hours				
55F4452	10080	Y	9,999.9 seconds				
55F4455	10082	Y	9,999.9 minutes				
55F4458	10083	Y	9,999.9 hours				
55F4468	10084	S	9,999.9 seconds				
55F4471	10086	S	9,999.9 minutes				
55F4474	10087	S	9,999.9 hours				

SOLID STATE PLUG-IN TIMERS

390

391

392

393

394

Solid state timers with adjustment of delay, interval or cycle times. Compact cases are 2⅜" by 1¾" by 2¹⁵⁄₁₆" high (exclusive of knobs). Isolated DPDT relay contact output, rated 10A resistive @ 120 VAC. For 120 volts, 50-60 Hz.

390 Series, "On" Delay models. Repeatability ±2%.

Stock No.	Type	Time Range	1-24	25-49	50-99	100-249
55F3118	20003	.05-10 sec	22.50	20.25	19.13	18.00
55F3119	20004	.1-10 sec	22.50	20.25	19.13	18.00
55F3120	20005	.3-30 sec	22.50	20.25	19.13	18.00
55F3121	20006	.6-60 sec	22.50	20.25	19.13	18.00
55F3122	20007	3-300 sec	23.75	21.38	20.19	19.00
55F3123	20008	6-600 sec	26.50	23.85	22.53	21.20

391 Series, extended "On" delay with indicator light.

55F3124	20009	180-1800 sec	38.50	34.65	32.73	30.80
55F3125	20010	300-3600 sec				

392 Series, "Off" Delay model.

55F3126	20011	.1-10 sec	24.00	21.60	20.40	19.20
55F3127	20012	.3-30 sec	24.00	21.60	20.40	19.20
55F3128	20013	.6-60 sec	24.00	21.60	20.40	19.20
55F3129	20014	3-300 sec	27.00	24.30	22.95	21.60

393 Series, Interval timer.

55F3130	20015	.05-5 sec	24.00	21.60	20.40	19.20
55F3131	20016	.1-10 sec	24.00	21.60	20.40	19.20
55F3132	20017	.3-30 sec	24.00	21.60	20.40	19.20
55F3133	20018	.6-60 sec	24.00	21.60	20.40	19.20
55F3134	20019	3-300 sec	27.00	24.30	22.95	21.60

394 Series, Repeat cycle timer.

55F3135	20020	.05-5 sec	36.50	32.85	31.03	29.20
55F3136	20021	.1-10 sec				
55F3137	20022	.3-30 sec				
55F3138	20023	.6-60 sec				

402

472

RESET AND CYCLE TIMERS

561

SERIES 402 PLUG-IN RESET TIMER WITH PILOT LIGHT

Accurate, adjustable interval or timing delay between operation of a control circuit and closing of load circuits. Repeat accuracy: ±0.4%. Motor voltage: 115 VAC, 60 Hz. Power input: motor 3.0 watts, clutch 5 watts. Snap-action SPDT switches rated 10 amps res. Size, 3⅞" sq. x 4³⁄₃₂" deep.

Stock No.	Type	Time Range	1-24	25-49	50-99	100-249
35F3806	10006	6 seconds	67.40	60.66	57.29	53.92
35F3807	20002	15 seconds				
35F3808	10007	30 seconds				
35F3809	10008	60 seconds				
35F3810	10009	5 minutes				
35F3811	10010	60 minutes				
35F3812	10011	5 hours				

SERIES 472 BRACKET MOUNT RESET TIMERS

External clutch reset timers provide interval or delay timing with choice of momentary or sustained contact control. SPDT load switches rated 10 A resistive at 125/250 VAC. Dimensions: 3²¹⁄₃₂" wide, 2⅞" deep, 3²⁷⁄₃₂" high. UL rec.

Stock No.	Type	Time Range	1-24	25-49	50-99	100-249
20F896	10018	15 sec.	39.95	35.96	33.96	31.96
20F897	10019	30 sec.				
20F898	10020	60 sec.				
20F899	10021	5 min.				
20F900	10022	15 min.				
20F901	10023	30 min.				
20F902	10024	60 min.				
20F903	10025	5 hrs.				
20F904	10026	24 hrs.				

SERIES 561 PERCENTAGE CYCLE TIMER

Fully adjustable, continuous repeating. On or off time may be set at any portion of total cycle between 4% and 96%. Repeat accuracy within 1%. Load switch rated 20 amps at 115/220 VAC, resistive, 50/60 Hz. 3.750" dia. x 3.093" behind panel.

Stk. No.	Type	Time Range	1-24	25-49	50-99	100-249
35F3817	10179	15 seconds	36.70	33.03	31.20	29.36
35F3818	10180	30 seconds				
35F3819	10181	60 seconds				
35F3820	10182	5 minutes				

SERIES 635D DIRECT CURRENT ELAPSED TIME INDICATOR

- **Highly accurate**
- **Extremely legible display**
- **No need to observe polarity**

Operates on any voltage from 4 to 40 VDC without adjustment. Precision engineered, highly accurate. Accumulate total operating time when connected to circuit to be measured. 1 in. dia. wheels. Standard NEMA panel mounting, bezel dia. 2.68". Overall len. behind bezel 2.68" plus ½" for 2 quick connect terminals. Time registration 99,999.9 hrs.

Stock No.	Type	1-24	25-49	50-49	100-249
20F895	10096	21.00	18.90	17.85	16.80

TYPE 241 AUTOMATIC RESET INTERVAL TIMER

- **High Visibility 300° Dial**
- **Silver-Cadmium Load Contacts**
- **Repeat Accuracy: ±0.25%**

Start button integral with setting knob turns on load and starts timer. SPDT contacts rated 15 amps at 115 VAC, 60 Hz; 10 amps at 250V, non-inductive. Repeat accuracy: ±0.25% except 15 second time range ±0.5%. Three-hole mounting on 1.687" radius. Silver-cadmium oxide snap-action load contacts. High visibility dial with 300° scale. 115 VAC.

Stk. No.	Type	Time Range	Calibration	1-24	25-49	50-99	100-249
55F351	10000	60 seconds	1 second	42.75	38.48	36.34	25.57
35F3800	10001	5 minutes	5 seconds				
55F352	10002	15 minutes	15 seconds				
55F378	20001	30 minutes	30 seconds				
55F353	10003	60 minutes	1 minute				
35F3801	10004	5 hours	5 minutes				
55F4476	10005	24 hours	30 minutes				

INDUSTRIAL TIMER
AN ESTERLINE COMPANY

Industrial Timer Controls

AUTOMATIC RESET TIME DELAY SERIES TDAB AND TDAF

TDAB

TDAF

Have SPDT switches rated 10 amps, 115 V, 60 Hz. TDAF, panel mount. TDAB, behind panel mount. Shpg. wt. 4 lbs. TDAB is UL approved.

BACK MOUNT

Stk. No.	Type
24F302	TDAB-15S
24F1811	TDAB-60S
24F1812	TDAB-15M
24F303	TDAB-30M
24F304	TDAB-60M
24F1871	Type K Steel Housing Enclosure for TDAB

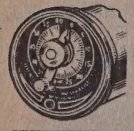
Type TDAB ..... Each 52.00
Type K ..... Each 6.50

PANEL MOUNT

Stk. No.	Type	Time Cy.	Calibration
24F305	TDAF-6S	6 sec.	1/10 sec.
24F1806	TDAF-15S	15 sec.	1/4 sec.
24F1807	TDAF-30S	30 sec.	1/2 sec.
24F1838	TDAF-60S	60 sec.	1 sec.
24F1808	TDAF-15M	15 min.	15 sec.
24F1809	TDAF-30M	30 min.	30 sec.
24F1839	TDAF-60M	60 min.	60 sec.

Type TDAF ..... Each 52.00

AUTOMATIC RESET SERIES TD AND CTD

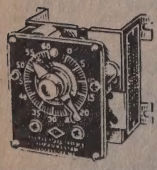


Designed for "through the panel" mounting. 3" dia. extra strong bakelite case with terminals at rear. 115V. 60 Hz Wt. 1½ lbs. (*) 3½", (†) 5" depth. UL. recognized C.S.A. approved.

Stock No.	Type No.	Time Cycle	Calibration
24F1851	TD-6S*	6 sec.	1/10 sec.
24F275	TD-15S*	15 sec.	1/4 sec.
24F276	CTD-1M†	60 sec.	1 sec.
24F277	CTD-3M†	3 min	3 sec.

Type TD ..... Each 34.50
Type CTD ..... Each 49.00

AUTOMATIC RESET SERIES SF AND CSF

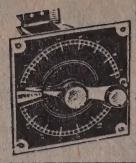


Designed for back of panel or chassis installation. 115V. 60 Hz. UL recognized C.S.A. approved. SF dimensions: 2¾ x 3 1/16 x 2⅝". CSF dimensions: 2¾ x 3 1/16 x 2 29/32".

Stock No.	Type No.	Time Cycle	Calibration
24F279	SF-6S	6 sec.	1/10 sec.
24F1853	SF-15S	15 sec.	1/4 sec.
24F1854	SF-30S	30 sec.	1/2 sec.
24F280	CSF-1M	60 sec.	1 sec.
24F281	CSF-3M	3 min.	3 sec.
24F282	CSF-5M	5 min.	5 sec.

Type SF ..... Each 28.50
Type CSF ..... Each 35.00

AUTOMATIC RESET H AND CH SERIES



Designed for panel mounting. Four screws hold timer in place. Terminals at rear. 115V, 60 Hz. 3-9/16x3-7/16x (*) 3-11/16" (†) 3-7/8". UL recognized. C.S.A. approved. Shpg. wt. 1½ lbs.

Stk. No.	Type	Time Cy	Calibration
24F1855	H-6S*	6 sec.	1/10 sec.
24F296	H-15S*	15 sec.	1/4 sec.
24F1856	H-30S*	30 sec.	1/2 sec.
24F297	CH-1M†	60 sec.	1 sec.
24F298	CH-3M†	3 min.	3 sec.
24F299	CH-5M†	5 min.	5 sec.

Type H ..... Each 30.00
Type CH ..... Each 37.00

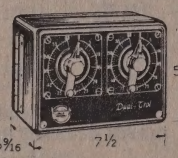
SERIES 90 DELAY TIMERS

Requires little or no field adjustments. No calibrated dial is supplied with it. Time cycle changed by offsetting one cam arm. Contacts are SPDT, 10 amps. Rated at 115/60. Dimensions: 2 5/8x2 1/4x2 1/4". UL recognized and C.S.A. approved. Shpg. wt. 1 lb.

Stk. No.	Type	Time Cycle	Calibration
24F1843	90-6S	6 sec.	1/2 sec.
24F1844	90-15S	15 sec.	1½ sec.
24F1845	90-30S	30 sec.	3 sec.
24F1846	90-60S	60 sec.	6 sec.
24F1847	90-90S	90 sec.	9 sec.

Series 90 ..... Each 21.00

SERIES "DUAL TROL" RECYCLING TIMERS



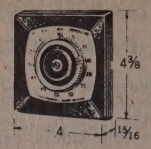
Dual-Trol is a compact recycling timer that continuously closes and opens a SPDT load switch. A complete unit consists of two TM timer modules-one to set the ON interval. Second to set the OFF interval-and a control cabinet. Any two modules from listing below may be used to achieve the desired combination of time cycles. TM modules are complete timing mechanisms with 4-prong plugs that match receptacles within cabinet, for easy installation. Isolated SPDT load switch connects to terminal strip within cabinet; switch is rated 10A non-inductive at 115 VAC. 115 VAC/60 hz. 5⅛×5 9/16×7½" Wt. 2 lbs.

TIMING ELEMENTS (2 REQUIRED)

Stock No.	Type	Max. Time	Min. Time
24F1861	TM-15S	15 sec.	1/4 sec.
24F1862	TM-30S	30 sec.	1/2 sec.
24F1863	TM-60S	60 sec.	1 sec.
24F1864	TM-3M	3 min.	3 sec.
24F1865	TM-5M	5 min.	5 sec.
24F1866	TM-15M	15 min.	15 sec.
24F1867	TM-30M	30 min.	30 sec.
24F1868	TM-60M	60 min.	1 min.
24F1869	TM-3H	3 hours	3 min.
24F1870	DTH Cabinet	...	...

Type TM ..... Each 36.00
Cabinet ..... Each 55.00

SERIES MPB AUTOMATIC RESET INTERVAL TIMER PANEL MOUNT



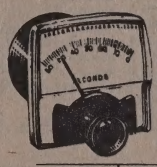
The Series MPB is an automatic reset, push-button operated interval timer. The MPB features an attractive bezel framed dial with time selector ring and start button combined into a single assembly. Time interval indication is viewed by a moving white pointer located within the selector ring. Repeat accuracy is ±½ of 1% of full scale with a reset time of ½ second at maximum dial setting. **Mounting:** Mounted through a 3½" diameter hole and is secured to the panel with four screws. **Electrical Specifications: Load switch rating:** SPDT snap action, 15 amp. non-inductive at 125/250 VAC. **Motor Voltage:** 120 v, 60 Hz. **Terminations:** ¼" push-on terminals. **Dimensions:** 4" L x 2-15/32" D x 4-3/8" H. **Shipping Weight** 3 lbs.

TIME CYCLES AND PRICES

Stk. No.	Model	Min. Setting	Max. Setting	Key
24F1756	MPB-60S	1 sec.	60 sec.	A
24F1757	MPB-5M	5 sec.	5 min.	B
24F1758	MPB-15M	15 sec.	15 min.	B
24F1759	MPB-60M	1 min.	60 min.	B
24F1760	MPB-3H	3 min.	3 hours	B

Key A ..... Each 19.50
Key B ..... Each 24.00

AUTOMATIC RESET TIME DELAY TIMER MTD.

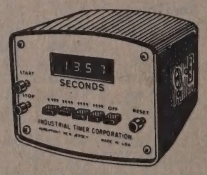


Timing cycle begins when power is applied to timer, motor; contacts transfer when progress indicator reaches zero point on timer dial. Operates from 115V, 60 Hz. SPDT contacts rated 10A/115V. Underwriters lab recognized.

Stock No.	Model No.	Max. Setting	Min. Setting
62F2036	MTD-15S	15 sec.	1/4 sec.
62F2037	MTD-60S	60 sec.	1 sec.
62F2038	MTD-5M	5 min.	5 sec.
62F2039	MTD-60M	60 min.	1 min.

TYPE MTD ..... Each 50.00

SERIES ESC ELECTRONIC STOP CLOCK



Four Range Timing From 0 To 9999 Sec.

- **0.3" Led Display With Red Filter**
- **Accuracy Typically 0.005%**
- **Operat. Temp.: 0°C To 70°C.**

The Series **ESC** digital electronic stop clock utilizes a crystal time base and LSI CMOS circuitry. Moving decimal allows max. timing from 9.999 to 9999 sec. in four ranges: 9.999, 99.99, 999.9, 9999 sec. Pushbutton controls for start, stop, and reset are located on front panel. Remote start and reset receptacles and plugs provided. Wall or table mounting. Oper. voltage: 105-125 VAC, 50 or 60 Hz.

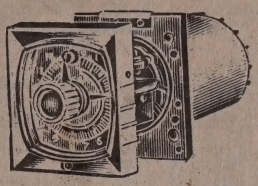
Stock No.	Type	Each
24F246	ESC	255.00

Make NEWARK Your One-Stop Source for All Your Industrial Electronic Needs

Industrial Timer Controls

INDUSTRIAL TIMER
AN ESTERLINE COMPANY

For applications where dependable one-unit timers are required. Feature positive adjustments automatic reset. These units are all manufactured to high standards of quality and will stand up under hard usage. Heavy-duty synchronous motors operate on 115 volts-60 hz. Type PAB and Type P contacts rated at 15 amps non-inductive load, all others 10 amps.



GP2

Series PC

SC-100

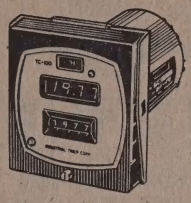
SERIES GP2 PLUG-IN AUTOMATIC RESET DELAY/INTERNAL TIMER WITH SPIDER CLUTCH

The GP2 is an automatic reset, synchronous motor driven plug-in timing control and is completely interchangeable with all popular plug-in timers. In its primary function the timer provides two delayed sets of contacts and two sets of instantaneous contacts with rating of 10 amps. Non-inductive at 125/250 VAC. The patented Spider Clutch is a new and unique concept that incorporates the high accuracy of infinite engagement clutches with the mechanical integrity of toothed clutches. Accuracy ¼ of 1%. Reset time — less than ½ sec. for full scale. For 120 VAC 60 Hz. Wt. 2 lb. 7 oz.

Stock No.	Type	Max. Time Cyc.	Dial Cal.	EACH
62F1991	GP2-15S	15 sec.	¼ sec.	60.00
62F1993	GP2-60S	60 sec.	1 sec.	
62F1995	GP2-5M	5 min.	5 sec.	
62F1996	GP2-15M	15 min.	15 sec.	
62F1997	GP2-30M	30 min.	30 sec.	
62F1998	GP2-60M	60 min.	60 sec.	

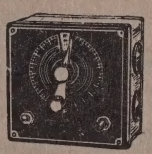
ELECTRONIC PLUG-IN PROGRAMMABLE TIMER/COUNTER

- Output, Instantaneous & Delay
- Internal Ceramic Time Base Generator
- Electrical Noise Immunity
- Transformer Isolation Protects Transient



Model TC-100. Microprocessor based control unit with internal time base. Accurate, high speed control with 3 sets of 10 amp isolated output contacts. Designed to control time and count applications at rates up to 100 pulses per second. Functions: Timing; Count totalize; Count Predetermined. Power: 11 VA max. Readout: Four .300" red LEDs. Noise Immunity: Optical Isolation and CMOS circuitry. Count Speed: 100 pps; .005 sec. min. on or off. 100% count accuracy.
55F4980. NET **300.00**

ECONOMY SERIES P



Low-cost timing units complete with AC line cord, built-in actuating start button and two receptacles on side of case for load and remote control circuits. 5 × 5 × 3¾". Shpg. wt., 3 lbs.

120VAC 60 Hz.

Stock No.	Type No.	Time Cycle	Calibration
24F269	P4R	15 sec.	¼ second
24F1813	P2R	30 sec.	½ second
24F256	P1M	60 sec.	1 second
24F274	P3M	3 min.	3 seconds
24F257	P5M	5 min.	5 seconds

Type P ..... **Each 55.00**

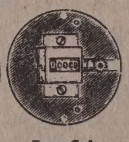
ELECTRIC STOP-CLOCK

Model SC-100. Provides functions of mechanical stopwatch with advantage of electrical control. Measures intervals from .01 to 60 seconds; ideal for research, time-and-motion study, sporting events. Remote-control provision permits start/stop with pushbutton on cord, etc.; reset with button unit or remotely with a series switch. Compound dial has 2 pointers measuring 1-60 sec. in 1-sec increments and .01-1 sec. in .01 sec increments respectively. Synchronous motor, automatic wear compensation. 115V 60 hz AC only. 5x5x4²⁵⁄₃₂". Shpg. wt. 5 lbs.

24F300 ..... **Each 89.00**

ELAPSED TIME METERS

Type C-2



Type C-4

Type C-5

Provide exact record of operating hours of AC machines and appliances. Longlife synchronous self-lubricating motors, connected to counters. Series C-2A enclosed in a 3½" bakelite meter case; requires a 2⅞" diameter hole in panel for mounting. Series C-5 is resettable to zero, has a ¾" square flange and requires a 2¾" diameter mounting hole. Series C-4 open type 2½" round flange. 2" diam. mtg. holes. All 115 V 60 hz except C-2* which is 230 volts. Shpg. wt., 1 lb. Max. no. of minutes.

Stk. No.	Type	Max. Hrs.	Calib.	EACH
55F670	C-2	10,000	1/10 hr.	30.00
55F671	C-2*	10,000	1/10 hr.	32.00
55F680	C-5	10,000	1/10 hr.	50.00
24F1817	C-4	10,000	1/10 hr.	22.00

MANUAL RESET SERIES — "S"

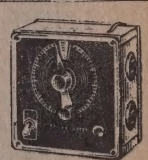
Manual reset signaling timers are designed to command visual and audible attention when a time interval is completed. Sockets on side of timer provide for connection of additional lights, alarms or controlled circuits 115v 60 hz operation. 5 × 5 × 3¹⁵⁄₁₆". Wt., 3 lbs.

120VAC 60 Hz.

Stock No.	Type No.	Time Cycle	Calibration
24F1837	S-5M	5 min.	5 seconds
24F1814	S-15M	15 min.	15 seconds
24F1815	S-30M	30 min.	30 seconds
24F266	S-1H	1 hr.	1 minute
24F267	S-3H	3 hrs.	3 minutes

TYPE S ..... **Each 40.00**

SIGNALLING TIMER—AUTOMATIC RESET SERIES SAR



Provides an audible signal at the end of a pre-set time cycle. Load receptacles are provided on the side of the case for either a load to be operated during the time cycle or at the end of the time cycle. Toggle switch on front of unit. SPDT switching action. SPDT contacts rated at 10 amps. 115 volt 60 hz. Shipping weight: 3 lbs.

Stock No.	Type	Time Cycle	Calibration	EACH
24F344	SAR-5M	5 min.	5 sec.	55.00
24F345	SAR-15M	15 min.	15 sec.	
24F346	SAR-30M	30 min.	30 sec.	
24F347	SAR-1H	1 hr.	1 min.	
24F348	SAR-3H	3 hr.	3 min.	

LARGE QUANTITY PRICES AVAILABLE UPON REQUEST
CONTACT YOUR NEAREST NEWARK BRANCH

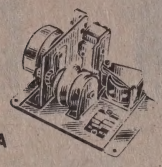
8

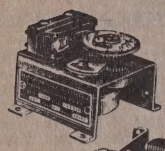
INDUSTRIAL TIMER
A UNIT OF ESTERLINE CORPORATION

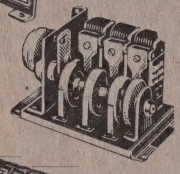
Industrial Timer Controls

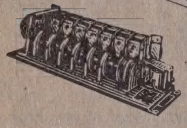
HOW TO ORDER CAM TIMERS

Locate desired time cycle duration in "Gear Assemblies" chart below, order gear-and-rack assembly listed in left-hand column. Appropriate foundation (motor-switch) units appear at top of "Time Cycle" columns. Example: 4 circuits are to be controlled, with a 30-second time cycle, recycling. Order gear-and-rack assembly. A12, stk. no. 24F315, and note that foundation unit MC2 is required. At bottom of page, locate MC2 under heading "4 SWITCH CHASSIS". Order stk. no. 62F2010. U/L & CSA approved.


RA


CM


MC


RC

GEAR ASSEMBLIES—TOTAL TIME CYCLE*

Stock No.	Mfrs. Type	CMO	MC1 CM1 RC1	CM2 MC2 RC2	CM3 MC3 RC3	CM4 MC4 RC4	CM5 RC5 MC5	CM6 MC6 RC6	CM7 MC7 RC7	CM8 MC8 RC8	CM9 MC9 RC9	CM10 MC10 RC10	CM12 MC12 RC12	NET
24F306	E12	40c	4S	10S	20S	40S	2M	3M20S	10M	20M	40M	2H	8H	
24F307	E15	50c	5S	12.5S	25S	50S	2M30S	4M10S	12M30S	25M	50M	2H30M	10H	
24F308	C12	1S	6S	15S	30S	60S	3M	5M	15M	30M	60M	3H	12H	
24F309	C14	70c	7S	17.5S	35S	70S	3M30S	5M50S	17M30S	35M	70M	3H30M	14H	
24F310	C15	75c	7.5S	18.75S	37.5S	75S	3M45S	6M15S	18M45S	37M30S	75M	3H45M	15H	
24F311	B12	80c	8S	20S	40S	80S	4M	6M40S	20M	40M	80M	4H	16H	
24F312	C18	90c	9S	22.5S	45S	90S	4M30S	7M30S	22M30S	45M	90M	4H30M	18H	
24F313	B15	100c	10S	25S	50S	100S	5M	8M20S	25M	50M	100M	5H	20H	
24F314	C22	110c	11S	27.5S	55S	110S	5M30S	9M10S	27M30S	55M	110M	5H30M	22H	
24F315	A12	2S	12S	30S	60S	2M	6M	10M	30M	60M	2H	6H	24H	
24F316	C26	2S10c	13S	32.5S	65S	130S	6M30S	10M50S	32M30S	65M	2H10M	6H30M	26H	
24F317	A14	2S20c	14S	35S	70S	140S	7M	11M40S	35M	70M	2H20M	7H	28H	
24F318	A15	2S30c	15S	37.5S	75S	150S	12M30S	12M30S	37M30S	75M	2H30M	7H30M	30H	2.00
24F319	A16	2S40c	16S	40S	80S	160S	8M	13M20S	40M	80M	2H40M	8H	32H	
24F320	G34	2S50c	17S	42.5S	85S	170S	8M30S	14M10S	42M30S	85M	2H50M	8H30M	34H	
24F321	A18	3S	18S	45S	90S	3M	9M	15M	45M	90M	3H	9H	36H	
24F322	A20	3S20c	20S	50S	100S	200S	10M	16M40S	50M	100M	3H20M	10H	40H	
24F323	A22	3S40c	22S	55S	110S	220S	11M	18M20S	55M	110M	3H40M	11H	44H	
24F324	A24	4S	24S	60S	2M	4M	12M	20M	60M	2H	4H	12H	48H	
24F325	A26	4S20c	26S	65S	130S	260S	13M	21M40S	65M	2H10M	4H20M	13H	52H	
24F326	A28	4S40c	28S	70S	140S	280S	14M	23M20S	70M	2H20M	4H40M	14H	56H	
24F327	A30	5S	30S	75S	150S	5M	15M	25M	75M	2H30M	5H	15H	60H	
24F328	A32	5S20c	32S	80S	160S	320S	16M	26M40S	80M	2H40M	5H20M	16H	64H	
24F329	A34	5S40c	34S	85S	170S	340S	17M	28M20S	85M	2H50M	5H40M	17H	68H	
24F330	A36	6S	36S	90S	3M	6M	18M	30M	90M	3H	6H	18H	72H	

*c=cycles (refers to 60 cps current; e.g. 50 c=5/6 sec), S=seconds, M=minutes, H=hours.

SERIES RA SINGLE-CAM SINGLE-CYCLE TIMER

Performs a single electrical cycle upon momentary actuation from a remote position. 115V 60 Hz. Order with any gear assembly (above) for time cycles from 2 to 18 minutes. Wt., 1 lb.

RA5 Single-cam timer
62F2000. NET **33.00**

SERIES CM SINGLE-CAM RECYCLING TIMER

Snap action totally-enclosed, dustproof SPDT switch. Rated 10A-115V, 10A-220V, non-inductive AC, Cam and gear train interchangeable for longer or shorter time cycle, attach to motor chassis by single 6-32 screw. Can be set so switch is actuated from 2% to 98% of total time cycle; each cycle automatically repeats until power is turned off. 3-1/16x2-13/16x2¼". 115 volts 60 Hz operation. Order motor switch chassis covering required time range, and gear assemblies for specific time cycles. Wt., 1 lb.

Stock No.	Type	Stock No.	Type	Each
24F1827	CM0	24F1829	CM3	23.50
24F1828	CM1	24F250	CM4	
24F268	CM2	24F251	CM5	

Stock No.	Type	Stock No.	Type	Each
24F252	CM6	24F1820	CM9	23.50
24F1819	CM7	24F254	CM10	
24F253	CM8	24F255	CM12	

SERIES MC MULTI-CAM RECYCLING TIMER

Recycling type identical in operation to CM timer but with multiple cams to operate more than one switch. The cams are mounted on a single driving shaft, coupled to the motor by a gear and rack assembly (see gear assembly chart above). Cams can be adjusted in any combination of timed sequences. Each cam is individually adjustable from 2 to 98% of the total time cycle. Order Motor-Switch chassis plus any gear assembly to achieve required time cycle. For 115 v.-60 Hz.

SERIES RC SINGLE CYCLE MULTI-CAM TIMER

Similar to MC series, except operates one cycle only. See "How to Order," above. For 115VAC, 60 HZ.

2 SWITCH CHASSIS

Stk. No.	Type	Stk. No.	Type	Each
...	...	62F2052	MC6	38.00
62F2050	MC1	62F2053	MC7	
62F2002	MC2	62F2054	MC8	
62F2051	MC3	62F2055	MC9	
62F2005	MC4	62F2056	MC10	
62F2006	MC5	62F2057	MC12	
...	...	62F2061	RC6	54.50
62F2004	RC1	62F2062	RC7	
62F2007	RC2	62F2008	RC8	
62F2058	RC3	62F2063	RC9	
62F2059	RC4	62F2064	RC10	
62F2060	RC5	62F2065	RC12	

4 SWITCH CHASSIS

Stk. No.	Type	Stk. No.	Type	Each
...	...	62F2068	MC6	57.00
62F2066	MC1	62F2069	MC7	
62F2010	MC2	62F2070	MC8	
62F2067	MC3	62F2071	MC9	
62F2013	MC4	62F2072	MC10	
62F2014	MC5	62F2073	MC12	
...	...	62F2077	RC6	73.00
62F2012	RC1	62F2078	RC7	
62F2015	RC2	62F2016	RC8	
62F2074	RC3	62F2079	RC9	
62F2075	RC4	62F2080	RC10	
62F2076	RC5	62F2081	RC12	

6 SWITCH CHASSIS

Stk. No.	Type	Stk. NO.	Type	Each
...	...	62F2084	MC6	73.50
62F2082	MC1	62F2085	MC7	
62F2018	MC2	62F2086	MC8	
62F2083	MC3	62F2087	MC9	
62F2021	MC4	62F2088	MC10	
62F2022	MC5	62F2089	MC12	
...	...	62F2093	RC6	91.50
62F2020	RC1	62F2094	RC7	
62F2023	RC2	62F2024	RC8	
62F2090	RC3	62F2095	RC9	
62F2091	RC4	62F2096	RC10	
62F2092	RC5	62F2097	RC12	

8 SWITCH CHASSIS

Stock No.	Type	Each
...	...	92.00
62F2098	MC1	
62F2026	MC2	
62F2099	MC3	
62F2029	MC4	
62F2030	MC5	
62F2100	MC6	
62F2101	MC7	

Stock No.	Type	Each
62F2102	MC8	92.00
62F2103	MC9	
62F2104	MC10	
62F2105	MC12	
...	...	110.50
62F2028	RC1	
62F2110	RC2	
62F2106	RC3	

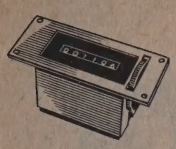
Stock No.	Type	Each
62F2107	RC4	110.50
62F2108	RC5	
62F2109	RC6	
62F2031	RC7	
62F2032	RC8	
62F211-1	RC9	
62F2112	RC10	
62F2113	RC12	

You Can Depend on NEWARK for Everything in Industrial Electronics

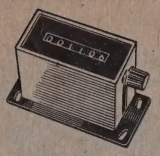
REDINGTON

ELECTRO-MECHANICAL

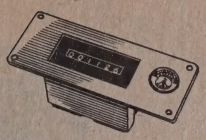
ALL UNITS ARE UL LISTED AND CSA APPROVED



P2-1106



2-1106



P2-1126

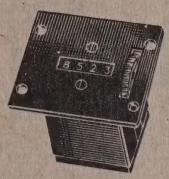
MODEL 110 SERIES

Simplified, inexpensive, 6-figure, reset, general purpose electro-mechanical counter which requires no maintenance during its normal life expectancy. Rated at 1,000 counts per minute AC and 1,200 counts per minute DC with pulse timing of 30 ms "on, "30 ms "off" AC and 25 ms "on," 25 ms "off" DC voltage. Power consumption: 5 watts, available in base mount, panel mount, and for the security conscious a key reset panel mount version. U.L. listed, C.S.A. approved.

Stock No.	Type	Volt AC	Reset	Mount	Replaces ITT Gen. Con. No.	1-9	10-24
57F1918	2-1106	115	Knob	Base	CE900AS602	27.75	23.60
57F1907	P2-1106	115	Thumb Wheel	Panel	CE900BS602	31.25	26.55
57F3522	P2-1126	115	Key	Panel	CE900BK602	41.70	35.45

MODEL P128

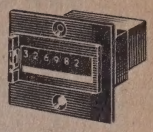
- **Unique Panel Plate**
- **Rugged Die Cast Cover**
- **Long Operating Life**



4 figure, panel mount, general purpose reset counter rated at 1,000 counts per minute. Die cast cover and frame. Needs no lubrication or maintenance. Power consumption: 5 watts. 2⅞"Lx2⁹⁄₁₆"Wx2¾₁₆"D. U.L. listed and C.S.A. approved.

Stock No.	Type	Volt. AC	Reset	Mount	Replaces ITT Gen. Con. No.	1-9	10-24
57F3510	P2-1284	115	Thumb Wheel	Panel	CE40BS402U	24.75	21.05

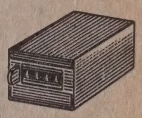
MODEL R300 SERIES



6 figure, push button reset, "dual" behind the panel/panel mount. Fits 25X50 MM International mtg. dimensions. Rated 1,000 counts/minute AC & 1,500 DC. Oper. life: excess of 200 million counts. Pwr: 2.75 watts. 2⅜"L x 2"W x 2⅞"D.

Stock No.	Type	Volt	Reset	Mount	1-9	10-24
57F3505	R2-3106	115 AC	Push Button	Dual	42.85	36.40
57F3506	R8-3206	24 DC	Push Button	Dual	37.00	31.45

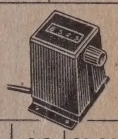
MODEL PR-3704



4 figure, sub-miniature, push button, reset, panel mount counter rated @ 1,000 counts per minute AC & 1,200 DC. For limited space panel applications where frequent resetting is required. Power: 3 watts. 2¼"L x 2¼"W x 2½"D.

Stock No.	PR Type	Volt	Reset	Mount	1-9	10-24
57F1908	2-3704	115AC	Push button	Panel	19.10	16.25
57F1909	8-3704	24DC	Push button	Panel	17.95	15.25

MODEL 1274



4 figure, knob reset, general purpose, base mount counter. For applications where space is limited and reliability + accuracy needed. Rated @ 1,000 cpm. 5 watts. 2⅜"L x 2¼"W x 2½"H.

Stock No.	Type	Volt	Reset	Mount	Replaces ITT Gen. Con. No.	1-9	10-24
57F1910	2-1274	115AC	Knob	Base	CE40AS402U	24.05	20.45

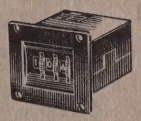
MODEL G-1616

6 figure, non-reset, "dual" behind the panel or base mount medium duty counter 600 counts/min. For vending and game machine trade. Temp. range: −40° F to +160° F. Timing: 50 ms "on," 50 ms "off." 5 watts AC and 2.5 watts DC. 1¾"L x 2¼"W x 2½"H.

Stock No.	Type	Volt	Reset	Mount	Replaces ITT Gen. Con. No.	1-9	10-24
57F3521	G2-1616	115AC	None	Dual	CE60AN/BN	11.05	9.40
57F1911	G3-1616	24AC	None	Dual	CE60AN/BN		
57F3507	G8-1616	24DC	None	Dual	CE60AN/BN		

PRE-DETERMINING CONTROLS

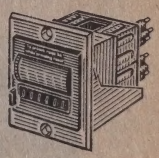
MODEL P-1063 SERIES



3 figure, non-repeating, subtractive, electro-mechanical, predetermining control with thumb wheel preset. Subtracts one count for each pulse from preset number to 000 then SPDT switch is actuated. Remains until new pulse is received. 600 counts per minute. 4 watts. Switch, 3A @ 250AC. 2½"L x 2⅜"W x 2½"D.

Stock No.	Type	Volt	Reset	Mount	1-9	10-24
57F1912	P2-1063	115 AC	None	Panel	46.20	39.25
57F1913	P8-1063	24 DC	None	Panel		

MODEL 500



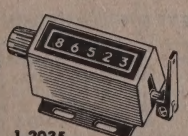
6 figure predetermining electric counter. Manual or electric reset. Up to 1000 counts per min. AC, up to 1200 counts per min. DC. Switch life: 100,000 operations. Contacts: SPDT, 5 Amps, 125/250 VAC. Power Consumption: 3.75 w for counter, 20 w for electric reset. Weight: 14-16 oz.

Stk. No.	Type	Volt	1-9	10-24	25-49	50-99
67F5930	F2-5106*	115AC	100.70	85.60	80.55	75.55
67F5931	F8-5206#*	24DC	92.90	78.95	74.30	69.70

*Manual Button Reset #Electric Reset

MECHANICAL STROKE COUNTERS

CU



1-2035

1-2936

MODEL CU

5 figure, compact medium duty stroke counter. For moderate duty applications. Supplied with operating lever and spring assembly to simplify installation. 600 counts per minute. Built to provide accurate, maintenance free counting. Life in excess of 50 million counts. 2½"L x 1½"W x 1¹³⁄₃₂"H.

Stock No.	Type	Reset	Arm Action	Shaft Extension	Replaces ITT Gen. Con. No.	1-9	10-24
57F3516	CU-35	Knob	Top Coming	Right Side	CM33AS501A	14.80	12.60
57F3518	CU-45	Knob	Top Going	Right Side	CM33BS501A		

MODEL 20

Medium duty, 5 figure counter. Built in return spring. Features pre-travel and over-travel. Rated @ 1,000 counts per minute. Operating life in excess of 50 million counts. 2⅝"L x 1½"W x 1⅜"H.

Stock No.	Type	Reset	Arm Action	Shaft Extension	1-9	10-24
57F1916	1-2035	Knob	Top Coming	Right Side	16.90	14.35

MODEL 29

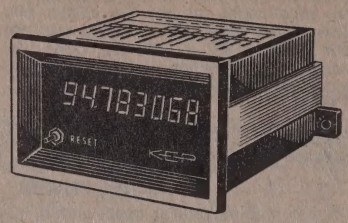
6 figure, heavy duty, industrial counter. For high production and continuous operation. 100 million count life. 1,000 counts/min. Interchangeable with Durant "H" series and Veeder-Root Series 1667. Easy to read ⁵⁄₁₆" numbers. 5½"L x 1¾"W x 2"H.

Stock No.	Type	Reset	Arm Action	Shaft Extension	Replaces ITT Gen. Con. No.	1-9	10-24
57F1917	1-2936	Knob	Top Coming	Right Side	CM67AS601A	29.40	25.00

8

Kessler-Ellis Counters and Timers

ELECTRONIC COUNTER/TIMER

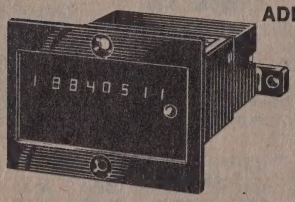


- Counts overlapping add/subtract pulses
- AC/DC pulses or switch closures to count
- 8 bright 0.3" and 0.4" LED displays
- Battery built-in for standby
- 110 VAC—50/60Hz built-in power supply
- C/MOS L.S.I. low power circuitry
- One mega-Hertz count speeds
- Memory: freezes display, outputs w/o affecting logic
- BCD parallel output
- Resets: both panel and remote, standard

Series 8000. 8 digits, .330" high red LED's. Reciprocal is shown below zero. Four decimal point positions field selectable. 0-10KHz count speed. Dry switch closure count inputs. 3-30 VDC positive going pulses into 10K ohms typical simultaneous pulses. Separate add and subtract inputs will accurately register simultaneous and overlapping pulses. 120 VAC pulses into 27K ohms; maximum speed is 75Hz. Dry switch closure remote reset overrides count. 110 VAC — 50/60hz operating voltage. **Power Consumption:** eight digits lit to the number 8, 150 milliamps; blank display, 75 microamps. Built-in battery standby. During power failure, display blanks to conserve energy. Count is held by built-in battery for up to 6 months. Counter may be stored for 6 months and used for 1 hour's operation before requiring battery recharging. **BCD Output:** Parallel source of 5VDC capable of driving 10 TTL loads; compatible with most printers and data collection modules. Opened collector zero output turns off whenever the counter passes through or idles at zero; up to 200 milliamps may be switched through this transistor. Wall mounting with flying lead termination. Panel and remote reset.

Model 8150-8110-WF3. Mode of Operation: Counter — up/up & down.
13F3385. NET **290.00**
Model 8250-8110-WF3. Mode of Operation: Timer — Seconds.
13F3386. NET **340.00**
Model 8350-8110-WF3. Mode of Operation: Timer — Minutes.
13F3387. NET **340.00**

ADD/SUBTRACT COUNTER

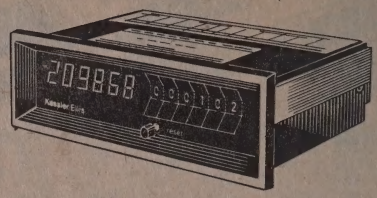


- Overlapping pulses counted
- Built-in battery
- .160" high LED displays
- Optically isolated inputs
- AC or DC pulses and switch closures to count
- 5 to 40 VDC power
- 1" x2" case size

Count Speed: 0-10kHz. **Count Input:** SP—Positive going signals from 5V to 30V DC or dry switch closures. Simultaneous overlapping add and subtract pulses are accurately registered to 15,000 counts per minute, 2 millisecond minimum pulse widths. **Reset:** 3-30 VDC positive going signals or dry switch closures. Reset triggers on leading edge. Input impedance is 2K to 5K ohms typical. AC pulses to 120VAC. Display: 160" high digits. **Power Supply:** 5-48VDC regulated or unregulated. **Current Consumption:** 80 milliamps with all 8 digits lit to number "8.1" One milliamp if display is disabled. **Power Interruptions:** With built-in battery power may be interrupted for up to 6 months without loss of count. Counter may be stored for 1 year and used for 1 hour's operation before requiring battery recharging. While on standby, display blanks to conserve energy. **Termination:** Printed Circuit Board edge connector supplied. **Battery Standby:** In power failure all data is secured by 3.6 volts/50 microamps. Display may be momentarily recalled with a switch closure. Three 1.2 volt nickel cadmium batteries are suggested. **Zero Output:** Logic level zero output provides 500 milliamps of switching power whenever the counter passes through or idles at zero.

Model K1823SP12B2A50HZ. 8 digits, spring clip mounting.
13F3390. NET **150.00**
Model K1423SP12B2A50HZ. 4 digits, spring clip mounting.
13F3391. NET **150.00**
Model K1813SP12B2A50HZ. 8 digits, panel mounting.
13F3392. NET **150.00**
Model K1413SP12B2A50HZ. 4 digits, panel mounting.
13F3393. NET **150.00**

PRESET COUNTER/TIMER



- Six digits of preset and display
- .400" high orange LED display
- 110 VAC power supply built-in
- 2 preset points, 8 amps each
- Subtracts or adds to preset number
- Counts between 2 numbers
- Battery standby circuit built-in
- Timer modes with line dividers and crystal oscillators

6 digit presettable counter/timer with two 8-amp form C control relays. These replays are field programmable to either auto reset at the preset number or transfer and remain transferred until the manual reset button is pushed. The SCPS series timer resolves to hours, minutes, seconds, 1/1000ths of a second and 1/100ths of a second. The SCP counters can be pulsed with 3-30VDC or 110VAC counting accurately in the harshest industrial environments. Both counters and timers may be directly powered with 110VAC and provide 100 milliamps of regulated 12VDC to power sensing devices. Units count up to the preset number. Timers are started by closing switch, stopped by opening switch. Panel mounting. Panel and remote reset. **Input to Count:** 3-30 VDC pulse (specify voltage). Standard impedance is 10K ohms. Switch closure inputs. Counter has separate add and subtract inputs as well as common data input together with directional high/low inputs. **Count speeds:** 0-500Hz. Separate button allows preset change without changing count. **Battery standby** circuit built-in; during power failure, display blanks, data is secured by an 8VDC battery/charger package. Current consumption during standby is 25 milliamps. **Power Consumption:** 6 digits lit to number 8—180 milliamps. **Operating Temperature Range:** +32°F to +140°F. **Output Signal:** Two form C (SPDT) relay contacts rated 8 amps inductive at 120 VAC or 28 VDC; contact closes at leading edge of final count. **Operating Voltage:** Built-in 110 VAC 50/60hz power supply.

Model SCPS16-P-3-H12-5-U1-z. Pre-Set Counter.
13F3388. NET **320.00**
Model SCPT16-P-3-H12-5-U1-Z. Pre-Set Timer/units X resolution. (Example: SCPTS x 1000=preset timer, seconds and 1/1000ths.)
13F3396. NET **415.00**
Model SCPHMS16-P-3-H12-5-U1-Z. Pre-Set Timer/Hrs.-Min.-Sec.
13F3389. NET **425.00**

AC POWERED ELECTRONIC TOTALIZER

Similar in appearance to series 8000. **Model 8050-312-PC3** features built-in 110VAC—50/60hz power supply which both powers the counter and provides 100 milliamps of regulated 5VDC to power photoelectrics and proximity sensors. Accepts many AC/DC and switch closure inputs at speeds to 1 mega-Hertz while operating in noisey industrial environments. Built-in self-charging nicad battery which protects the count for 6 months during power failures. Its 0.330-inch high LED's project through a polarized lens. BCD output. 8 digits. Panel mounting. Termination: printed circuit board connector supplied. Panel and remote reset. Input to Count (voltage): high impedance pulse plus voltage (max speed 1 megahertz).
13F3395. NET **200.00**

RATE METER/FREQUENCY COUNTER

Similar in appearance to series 8000. **Model 8451-312-WF,** as a rate meter, is switch field programmable to operate in two different modes. Mode one indicates rpm, updates every second and requires just one pulse per revolution to activate. This single pulse per revolution may come from a switch, reflective tape and photo cell combinations or AC/DC pulses. It is designed for simple measurements of speeds between 200 and 50,000 rpm. The 8400's second rate meter mode shows rpm and updates each second but is designed for use with sensors such as proximity switches and shaft encoders which generate 60 pulses per revolution. This mode is accurate to within 1 cycle/.005 seconds and is designed for applications where speeds as low as 1 rpm are to be precisely measured. As a frequency counter, will track 3-30 VDC signals at speeds to 1Mhz refreshing the display at precise one second intervals. Displayed information changes only as the rate changes and then does so in one instantaneous jump. Any of the three modes may be "rocker switch" selected in the field. Built-in 110 VAC—50/60hz power supply which also supplies power for photo electrics and shaft encoders. 0.4" high LED's.
13F3394. NET **310.00**

QUICK INDEX TO RELAYS

Manufacturer's Type	Page
AGASTAT	
BCSA, SCA, SCBXX, SCCLA, SSC, 7012, 7022	357
ALCO	
FR FRE FRP	249
ALLIED CONTROL	
BOT, E6, MH, MPC, MPCL, MPCS, PO, SA6, WJS, WKJ	352
DR	351
T-154	350, 351
T-163	350, 351
T-351, T-362, TF-154, TF-351	351
TS-154, TS-163, TSS-154, TSS-163	350
Accessories	351
AMPERITE	
6.3NO, 26VNO, 115VNC	365
AMPHENOL	
Coaxial Switches	365
C. P. CLARE	
CG	335
GP3R, GPS	336
HGM, HGJM, HGSM	333
HGSR	334
HGW	332
LA, LB, LBP	336
MRB	335
PR, PRB, PRME	335
RP	336
203, 212, 222, 223, 234	334
251	336
354	336
511	336
851, 861	332
922	335
925, 951	332
961	334
CONTROLS CO. OF AMERICA	
800	365
G.E.	
CR120	357
GORDOS/GRIGSBY BARTON	
M, MR, HG, WR	362
651A, 651C	360
741A, 761	360
821A, 821C	360
822A	360
831A, 831C	360
832A	360
2200	361
2400	361
4400	361
12400	361
14000	361
15000	361
GUARDIAN	
DNS	318
MAS, MC, MER	317
MET	316
MSSR	316
PAS, PC, PER	317
T, TP	312
TDO	316
2, 4, 9	313
10, 11, 12, 14, 16, 18	313
22, 24, 28	313
34	313
42	313
200	314
220	315
640	314
660, 665	317
705	317
840, 845	317
900	314
1200/1200	314
1210, 1215, 1220, 1225	315
1240, 1245	314
1310, 1315	315

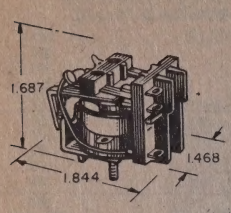
Manufacturer's Type	Page
GUARDIAN (Con't)	
1330, 1335	323
1345	316
1360, 1365	315
1380, 1385	316
1390, 1395	316
1475	317
1505	315
1510, 1515, 1555, 1565, 1575	318
2600/2620	314
2700	314
HAMLIN	
7500, HE321A, HE421A, HE421C, HE461A, HE721A, HE721C, HE821A, HE821C, HE831A	364
MACROMATIC	
6, 8, 23, 78, 80, 81	363
MAGNECRAFT	
WH25, WM30, WM35, WM60	324
W62	324
W63, W64, W65	326
W67	325, 326
W78	327
W88	322, 329
W88A, W88L, W88K, W88U	331
W97	330
W199	330
W101	320, 329
W102	320, 321
W103	321
W104	320, 329
W107, W117, W118	328
W120	324
W128, W131, W132	330
W151	324
W155	323
W158	324
W171, W172, W173, W174	328
W211	327
W214, W218	326
W328	323
W388	322, 326
W502, W503	326
W588	323
W630	323
W6000	319
Accessories	317, 322, 323, 325
MIDTEX	
48	354
155	354
156	353
157	354
158	353
159, 160, 187	355
190	353
301, 302	355
612, 613, 614, 615, 630, 640	356
POTTER & BRUMFIELD	
AB, ABC	297
AP	308
BU	306
CD, CG, CH, CJ, CK, CL, CR	305
CS	310
CU	304, 305
CZS	301
EBT	310
EAX, ECT, EOM, EOT	311
FC, FL	309
GA	293
GM	308
HC, HCM	309
HP	293
JM, JML, JMF, JMS, JMP	301
JR, JRC, JRE, JRM, JT	303
KA, KAP	292
KB, KBP	308
KCP	306
KHS, KHU	293
KM	309
KNP	296
KR, KRP	295
KT	306
KUA	310

Manufacturer's Type	Page
POTTER & BRUMFIELD (Con't)	
KUL	308
KUP, KUMP	294
KUR	310
LB, LM	306
MB, MH	301
ML	306
MR, MS	301
PM	296
PRD	297
PW	306
RS	306
R10-E1, R10-E2, R10-E6	298, 299
R10L, R10S	299
R12, R13, R14, R15, R16, R52	308
R40, R50	306
SC, SL	309
SS5D	306
S87R	297
S89R	309
T10	300
Accessories	292, 293, 294, 295, 296, 299, 300, 301, 307
REGDON	
R7, R12, R16, R24, 5U5, 312, 809, 827, 930, 940, 960	331
RBM/ESSEX	
MS64	359
60	359
70, 75	358, 359
84, 91, 92	358
93, 124	359
129, 143	358
150	359
154	358
SPC TECHNOLOGY	
(Relay Sockets) CMS, MRS, ORS, RS	419
SIGMA	
4, 5	342
8, 8L, 8P	344
41, 42	342
45	337
48	342
49	337
50	340
60	338
67, 68	337
70	341
76	339
77, 78	338
191, 193	339
221, 223, 226	343
301	344
Accessories	339, 337, 341, 344
STRUTHERS-DUNN	
A42, A45	345
A255	346
A275	348
A283	347
A311	346
A314	347
B11, B175	348
C85	348
C281	347
CX3671, CX3672	317
MRR, MRRD, MRRN, MRRS, MRRQ, MR-Y, RR	349
RSX	346
SS	346
219	346
236, 237, 255	346
282	345
285	347
286, 287	345
292	347
326	345
392	347
415, 425	348
T-BAR ELECTRONICS CONTROLS	
801	366
901	366
907	366

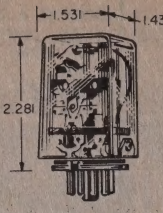
9

Potter & Brumfield General Purpose Relays

KA AND KAP SERIES



KA Series



KAP Series

KAP5

KAP14

KAP11

Small, Low Cost Relays For Light Power Loads

Highly efficient general purpose relays for light power loads such as small motors, solenoids and other relays and general automation work. All relays bear CSA listing (File No. LR-15734) and carry UL component recognition (File No. E22575). Mechanical life expectancy: 10 million operations. Duty-continuous. Contacts: "Y" Suffix-Movable, Gold flashed silver; stationary, Silver overlay, 5A. "G" Suffix silver-cadmium oxide on movable rated 10 amps.
KA Series is the open version of this series. Mounting: one No. 6-32 threaded stud and locating tab on .438" centers. Wt. 2 oz.
KAP Series is the enclosed model and is protected by a clear polycarbonate dust cover. Terminals: 8 or 11 pin plug. Wt. 3 oz.

COIL DATA—KA SERIES

Input Volts	DC Coils Ohms	Milliamps	Input Volts	AC Coils Ohms	Milliamps
6	32	188	6	6	335
12	120	100	12	24	168
24	472	51	24	85	84
			120	2,250	17.5
110	10,000	11	240	9,110	8.75
200	Use 110 v. relay with 10K 5W wire-wound resistor in series				

KA OPEN—5 AMPS—AC TYPES

Stock No.	Type	Action	Input Volts	1-24	25-50	51-99	100 249
24F545	KA5AY	SPDT	6				
24F1308	KA5AY	SPDT	12	4.95	4.70	4.46	3.71
24F593	KA5AY	SPDT	24				
24F515	KA5AY	SPDT	120				
45F022	KA5AY	SPDT	240	5.60	5.32	5.04	4.20
24F547	KA11AY	DPDT	6				
24F1309	KA11AY	DPDT	12	6.00	5.70	5.40	4.50
24F594	KA11AY	DPDT	24				
24F517	KA11AY	DPDT	120				
24F1310	KA11AY	DPDT	240	6.50	6.18	5.85	4.88
24F549	KA14AY	3PDT	6	6.70	6.37	6.03	5.03
24F1213	KA14AY	3PDT	12	6.70	6.37	6.03	5.03
24F595	KA14AY	3PDT	24	6.70	6.37	6.03	5.03
24F519	KA14AY	3PDT	120	6.70	6.37	6.03	5.03
62F3089	KA14AY	3DPT	240	7.30	6.94	6.57	5.48

KA OPEN—5 AMPS—DC TYPE

24F552	KA5DY	SPDT	6				
24F1214	KA5DY	SPDT	12	4.80	4.56	4.32	3.60
24F596	KA5DY	SPDT	24				
24F1311	KA5DY	SPDT	110	5.65	5.37	5.09	4.24
24F553	KA11DY	DPDT	6				
24F1215	KA11DY	DPDT	12	5.25	4.99	4.73	3.94
24F597	KA11DY	DPDT	24				
67F1069	KA11DY	DPDT	48	5.65	5.37	5.09	4.24
24F554	KA11DY	DPDT	110	6.15	5.84	5.54	4.61
24F523	KA14DY	3PDT	6				
24F1216	KA14DY	3PDT	12	6.80	6.46	6.12	5.10
24F598	KA14DY	3PDT	24				
24F1217	KA14DY	3PDT	110	7.20	6.84	6.48	5.40

KAP ENCLOSED—5 AMPS—AC TYPE

24F2565	KAP11AY	DPDT	24	9.35	8.88	8.42	7.01
24F2566	KAP11AY	DPDT	120				
24F2567	KAP11AY	DPDT	240	9.85	9.36	8.87	7.39
24F2576	KAP14AY	3PDT	24	11.55	10.97	10.40	8.66
24F2577	KAP14AY	3PDT	120				
24F2578	KAP14AY	3PDT	240	12.00	11.40	10.80	9.00

KAP ENCLOSED—5 AMPS—DC TYPE

Stock No.	Type	Action	Volts	1-24	25-50	51-99	100-249
24F2573	KAP11DY	DPDT	12	9.30	8.84	8.37	6.98
24F2574	KAP11DY	DPDT	24	9.30	8.84	8.37	6.98
24F2575	KAP11DY	DPDT	110	10.20	9.69	9.18	7.65
24F2583	KAP14DY	3PDT	12	11.45	10.88	10.31	8.59
24F2584	KAP14DY	3PDT	24	11.45	10.88	10.31	8.59
24F2585	KAP14DY	3PDT	110	12.25	11.64	11.03	9.19

KAP OPEN—10 AMPS—AC TYPE

24F1665	KA5AG	SPDT	6				
24F1666	KA5AG	SPDT	12	5.00	4.75	4.50	3.75
24F1667	KA5AG	SPDT	24				
24F1668	KA5AG	SPDT	120				
24F1669	KA5AG	SPDT	240	5.65	5.37	5.09	4.24
24F1670	KA11AG	DPDT	6				
24F1671	KA11AG	DPDT	12	6.10	5.80	5.49	4.58
24F1672	KA11AG	DPDT	24				
24F1673	KA11AG	DPDT	120				
24F1674	KA11AG	DPDT	240	6.60	6.27	5.94	4.95
24F1675	KA14AG	3PDT	6				
24F1676	KA14AG	3PDT	12	6.75	6.41	6.08	5.06
24F1677	KA14AG	3PDT	24				
24F1678	KA14AG	3PDT	120				
24F1679	KA14AG	3PDT	240	7.45	7.08	6.71	5.59

KA OPEN—10 AMPS—DC TYPE

45F023	KA5DG	SPDT	6	4.85	4.61	4.37	3.64
45F024	KA5DG	SPDT	12	4.85	4.61	4.37	3.64
45F026	KA5DG	SPDT	24	4.85	4.61	4.37	3.64
45F025	KA5DG	SPDT	110	5.70	5.42	5.13	4.28
45F027	KA11DG	DPDT	6	5.45	5.18	4.91	4.09
45F028	KA11DG	DPDT	12	5.45	5.18	4.91	4.09
45F029	KA11DG	DPDT	24	5.45	5.18	4.91	4.09
45F030	KA11DG	DPDT	110	6.35	6.03	5.72	4.76
62F3090	KA14DG	3PDT	6	6.60	6.27	5.94	4.95
45F031	KA14DG	3PDT	12	6.60	6.27	5.94	4.95
45F032	KA14DG	3PDT	24	6.60	6.27	5.94	4.95
45F033	KA14DG	3PDT	110	7.35	6.98	6.62	5.51

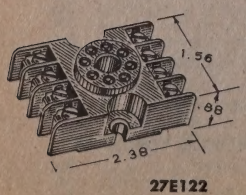
KAP ENCLOSED—10 AMPS—AC TYPES

62F3091	KAP5AG	SPDT	24	8.50	8.08	7.65	6.38
45F034	KAP5AG	SPDT	120	8.50	8.08	7.65	6.38
24F2568	KAP11AG	DPDT	6	9.50	9.03	8.55	7.13
24F2569	KAP11AG	DPDT	24	9.50	9.03	8.55	7.13
24F2570	KAP11AG	DPDT	120	9.50	9.03	8.55	7.13
24F2579	KAP11AG	3PDT	24	11.70	11.12	10.53	8.78
24F2580	KAP14AG	3PDT	120	11.70	11.12	10.53	8.78

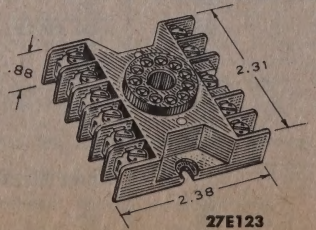
KAP ENCLOSED—10 AMPS—DC TYPES

62F3092	KAP5DG	SPDT	24	8.25	7.84	7.43	6.19
62F3093	KAP5DG	SPDT	110	9.35	8.88	8.42	7.01
24F2571	KAP11DG	DPDT	24	9.45	8.98	8.51	7.09
24F2572	KAP11DG	DPDT	110	10.35	9.83	9.32	7.76
24F2581	KAP14DG	3PDT	24	11.65	11.07	10.49	8.74
24F2582	KAP14DG	3PDT	110	12.55	11.92	11.30	9.41

OCTAL-STYLE SOCKETS



27E122

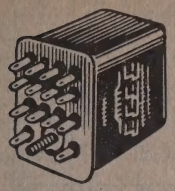


27E123

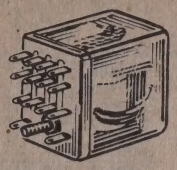
For KRP, KRP3-H, KAP, KBP, KCP, EBT, and EBA relays; CD-21, CD-38, CH, CK, and CR time delays; and CS sensor. **Type 27E122** is a molded polycarbonate, 8-pin screw socket, rated 10 amperes. **Type 27E123** is a molded polycarbonate, 11-pin screw terminal socket, rated 10 amperes.

Stock No.	Type	1-24	25-50	51-99	100-249
57F3431	27E122	3.12	2.96	2.81	2.34
57F3432	27E123	4.67	4.44	4.20	3.50

KHU—KHS SERIES COMPACT RELAYS



KHS



KHU

- **KHU Series UL recognized**
- **Used for data processing, computer and process control applications.**

Small 4PDT relays. Designed to meet exacting requirements of data processing, computer and process control applications. **Suffix-1** denotes gold-flashed silver contacts rated 3 amps @ 30 VDC or 120 VAC, resistive. **Suffix-2** denotes silver-cadmium oxide contacts rated 3 amps. **Suffix-3** indicates gold alloy contacts for low level to 2 amp application. **Suffix-6** indicates gold overlay on silver bifurcated contacts rated 1 amp @ 30 VDC resistive or 120 VAC. Mounting: solder terminals with 3-48 stud 0.312" long. **KHU Series** is recognized under component program of UL and has clear polycarbonate cover. **KHS Series** is hermetically sealed in metal enclosure. Weight without socket: KHU—1.12 oz. KHS—1.63 oz.

DC VOLTS—Hermetically Sealed Metal—3 AMP except (††) 2 AMPS

Stock No.	Type	Coil Input Volts	Coil Res. (Ohms)	1-24	25-50	51-99	100-249
24F2561	KHS17D11	6	40	12.85	12.21	11.57	9.64
24F2562	KHS17D11	12	160	12.85	12.21	11.57	9.64
24F2563	KHS17D11	24	650	12.85	12.21	11.57	9.64
24F2564	KHS17D11	110	11000	13.80	13.11	12.42	10.35
24F3280	KHS17D12	24	650	12.80	12.16	11.52	9.60
67F1058	KHS17D12	110	11000	13.75	13.06	12.38	10.31
67F1059	KHS17D13††	24	650	23.75	22.56	21.38	17.81

DC VOLTS—U.L. Recognized Clear Plastic—3 AMP except (**) 1 AMP

45F035	KHU17D11	6	40	7.20	6.84	6.48	5.40
45F036	KHU17D11	12	160	7.20	6.84	6.48	5.40
45F037	KHU17D11	24	650	7.20	6.84	6.48	5.40
45F038	KHU17D11	48	2600	7.40	7.03	6.66	5.55
62F3083	KHU17D11	90	9000	8.15	7.74	7.34	6.11
45F039	KHU17D11	110	11000	8.15	7.74	7.34	6.11
45F140	KHU17D12	24	650	7.15	6.79	6.44	5.36
45F041	KHU17D12	110	11000	8.10	7.70	7.29	6.08
62F3080	KHU17D16**	12	160	9.85	9.36	8.87	7.39
62F3081	KHU17D16**	24	650	9.85	9.36	8.87	7.39

AC VOLTS—Hermetically Sealed Metal—3 AMPS

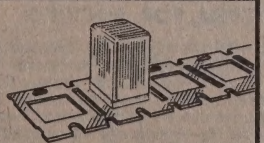
Stock No.	Type	Coil Input Volts	Coil Res. (Ohms)	1-24	25-50	51-99	100-249
24F2557	KHS17A11	6	10.5	13.85	13.16	12.47	10.39
24F2558	KHS17A11	12	43	13.85	13.16	12.47	10.39
24F2559	KHS17A11	24	160	13.85	13.16	12.47	10.39
24F2560	KHS17A11	120	3900	14.05	13.35	12.65	10.54
24F3283	KHS17A12	120	3900	14.00	13.30	12.60	10.50
67F1061	KHS17A13	120	3900	24.95	23.70	22.46	18.71

AC VOLTS—UL Recognized Clear Plastic—3 AMPS

45F042	KHU17A11	6	10.5	8.20	7.79	7.38	6.15
45F043	KHU17A11	12	43	8.20	7.79	7.38	6.15
45F044	KHU17A11	24	160	8.20	7.79	7.38	6.15
45F045	KHU17A11	120	3900	8.40	7.98	7.56	6.30
62F3082	KHU17A12	120	3900	8.35	7.93	7.52	6.26

MOUNTING STRIP

Will mount 16 KH sockets (except 27E166) in two lengths of aluminum strip, each measuring 10.9" x 2.25" x .062".



Stk. No.	Type	1-24	25-50	51-99	100-249
57F3464	37D633	.93	.88	.84	.70

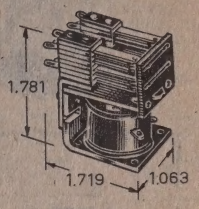
SOCKETS AND SPRING FOR KH SERIES

Stock No.	Type	Description	1-24	25-50	51-99	100-249
57F3422	27E006	4PDT sol. term.	.79	.75	.71	.59
57F3415	24A032	Skt. retainer	.05	.05	.05	.04
57F3423	27E007	4PDT PC. term.	.82	.78	.74	.62
57F3402	20C217	Hold Down Spring	.15	.14	.14	.11
57F3447	27E166	4PDT screw term.	7.57	7.19	6.81	5.68

GA SERIES—MULTIPLE LEAF

- **Multiple Contact**
- **For Industrial Control**

Low Cost, all purpose, multiple contact, voltage switching relay. Used for many industrial control applications. Tinned, pierced solder type terminals. Contacts: Silver rated 5 amps, @ 28 VDC or 120 VAC resistive. Designed for maximum self-cleaning action. Mounting: 8-32 tapped core with locating boss. Weight: 3¼ oz.

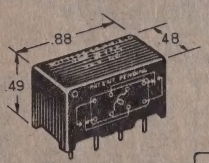


COIL DATA—GA SERIES

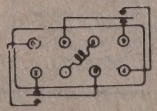
DC Coils			AC Coils		
Volts	Ohms	Milliamps	Volts	Ohms	Milliamps
6	18	333	6	1.7	1,000
12	72	167	12	6.8	500
24	288	83	24	26.0	260
110	6,050	18	120	690	50
			240	2,950	25

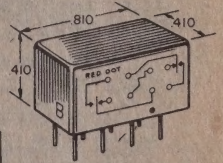
Stock No.	Type	Action	Coil Input	1-24	25-50	51-99	100-249
24F1183	GA11A	DPDT	6VAC				
24F1184	GA11A	DPDT	24VAC	7.95	7.55	7.16	5.96
24F1185	GA11A	DPDT	120VAC				
62F3094	GA11A	DPDT	12VAC	7.95	7.55	7.16	5.96
62F3095	GA14A	3PDT	24VAC	9.70	9.22	8.73	7.28
24F1186	GA17A	4PDT	6VAC				
24F1187	GA17A	4PDT	12VAC	11.10	10.55	9.99	8.33
24F1188	GA17A	4PDT	24VAC				
24F1189	GA17A	4PDT	120VAC				
24F1190	GA11D	DPDT	6VDC				
24F1191	GA11D	DPDT	12VDC	7.80	7.41	7.02	5.85
24F1192	GA11D	DPDT	24VDC				
24F1193	GA11D	DPDT	110VDC	8.20	7.79	7.38	6.15
24F1194	GA17D	4PDT	6VDC				
24F1195	GA17D	4PDT	12VDC	10.50	9.98	9.45	7.88
24F1196	GA17D	4PDT	24VDC				
24F1197	GA17D	4PDT	110VDC	10.80	10.26	9.72	8.10
62F3096	GA14A	3PDT	120VAC	9.70	9.22	8.73	7.28

HP AND HPS SERIES HALF SIZE CRYSTAL CASE



HP Series





HPS Series

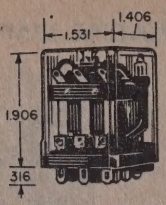
HP SERIES. Circuit board or socket mounting. Encased in a nylon heat-sealed (non-hermetic) cover. Contacts rated 0.3-2 Amps @ 28 VDC or 0.1-0.5A @ 120VAC @ 25°C resistive. Terminals on .2 grid. Wt. 3 oz. **HPS SERIES.** Hermetically sealed version of **HP SERIES.** Designed for prolonged submersion of pc. boards. HP socket may be used for mounting. Sealed metal enclosed. Wt. ¼ oz.

Stk. No.	Type	Action	VDC	1-24	25-50	51-99	100-249
67F1070	HP11D	DPDT	6	12.05	11.45	10.85	9.04
24F2898	HP11D	DPDT	12	12.05	11.45	10.85	9.04
24F2899	HP11D	DPDT	24	12.05	11.45	10.85	9.04
45F227	HP11D	DPDT	48	12.65	12.02	11.39	9.49
24F3367	HPS11D	DPDT	12	13.90	13.21	12.51	10.43
24F3368	HPS11D	DPDT	24	13.90	13.21	12.51	10.43

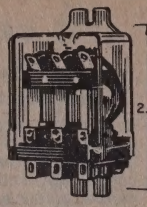
Stk. No.	Type	Description	1-24	25-50	51-99	100-249
57F3426	27E062	DPDT sol. term.	1.06	1.01	.95	.80
57F3416	24A051	Skt. retainer	.17	.16	.15	.13

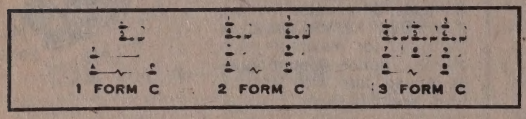
Potter & Brumfield General Purpose Relays

KUP SERIES—RELIABLE 10 AMP RELAYS AND KUMP 15 AMP RELAYS



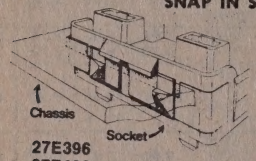
For Industrial Control



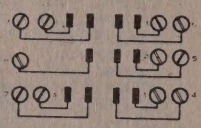


Type KUP-KUMP relays have polycarbonate dust cover, are UL Recognized under File E22575, and CSA Listed under file 15734. Contact ratings of all **KUP** models are for duty at either 28V DC or 240V AC, 80% PF. Power rating of 10 amp contacts is ¼ HP, 120V AC; and ½ HP, 240V AC, 80% PF. The 5 amp contacts are rated 1/10 HP, 120V AC; and ½ HP, 240V AC, 80% PF. **KUMP** contacts are rated at 15 amps, 277V AC, 80% PF; ¼ HP, 120V AC; and ½ HP, 240V AC. Contact life expectancy for both relay series is 10 million operations, mechanical, and 100,000 operations at full load. At loads of less than maximum rating, life expectancy rises accordingly. All models have .187" QC/solder terminals. **KUP** with suffix "55" has flange mount case unsuited for socket mounting. All other models use sockets and hold-down springs listed. Weight is approximately 3 oz. each model.

SNAP IN SOCKETS



27E396
27E400

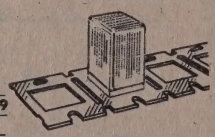


SPDT/DPDT/3PDT snap-in sockets require no mounting screws or retainer spring. 27E396 has .187" quick connection termination; 27E400, solder eyelet termination.

Stk. No.	Type	1-24	25-50	51-99	100-249
57F3466	27E396	1.55	1.47	1.40	1.16
57F3467	27E400	1.00	.95	.90	.75

MOUNTING STRIP

Will mount 6 KU sockets (except 27E121) in aluminum strip 11.9" x 3.0" x .062".



Stk. No.	Type	1-24	25-50	51-99	100-249
57F3465	37D632	1.09	1.04	.98	.82

SOCKETS AND SPRINGS FOR KUP RELAYS

Stock No.	Type	Description	1-24	25-50	51-99	100-249
57F3424	27E043	Solder term.	1.00	.95	.90	.75
57F3425	27E046	Printed circuit socket	1.17	1.11	1.05	.88
57F3403	20C228	Hold down spring	.22	.21	.20	.17
57F3430	27E121	Screw term. socket	4.95	4.70	4.46	3.71
57F3427	27E067	QC term. socket	1.55	1.47	1.40	1.16

AC VOLTS—10 AMPS except (*) 5 AMPS

Stock No.	Type	Action	Coil V	1-24	25-50	51-99	100-249
24F2600	KUP5A15	SPDT	6				
24F2601	KUP5A15	SPDT	12	5.55	5.27	5.00	4.16
24F2602	KUP5A15	SPDT	24				
24F2603	KUP5A15	SPDT	120				
24F2604	KUP5A15	SPDT	240	6.25	5.94	5.63	4.69
67F1108	KUP11A11*	DPDT	120	6.50	6.18	5.85	4.88
24F2609	KUP11A15	DPDT	6				
24F2610	KUP11A15	DPDT	12	6.60	6.27	5.94	4.95
24F2611	KUP11A15	DPDT	24				
24F2612	KUP11A15	DPDT	120				
24F2613	KUP11A15	DPDT	240	7.30	6.94	6.57	5.48
67F1109	KUP14A11*	3PDT	120	7.25	6.89	6.53	5.44
24F2618	KUP14A15	3PDT	6				
24F2619	KUP14A15	3PDT	12	7.35	6.98	6.62	5.51
24F2620	KUP14A15	3PDT	24				
24F2621	KUP14A15	3PDT	120				
24F2622	KUP14A15	3PDT	240	8.05	7.65	7.25	6.04

DC VOLTS—10 AMPS except (*) 5 AMPS

24F2605	KUP5D15	SPDT	6	5.35	5.08	4.82	4.01
24F2606	KUP5D15	SPDT	12	5.35	5.08	4.82	4.01
24F2607	KUP5D15	SPDT	24	5.35	5.08	4.82	4.01
24F2608	KUP5D15	SPDT	110	6.15	5.84	5.54	4.61
24F2614	KUP11D15	DPDT	6	6.00	5.70	5.40	4.50
24F2615	KUP11D15	DPDT	12	6.00	5.70	5.40	4.50
24F2616	KUP11D15	DPDT	24	6.00	5.70	5.40	4.50
24F2617	KUP11D15	DPDT	110	6.80	6.46	6.12	5.10
67F1110	KUP11D11*	DPDT	24	5.90	5.61	5.31	4.43
24F2623	KUP14D15	3PDT	6	6.80	6.46	6.12	5.10
24F2624	KUP14D15	3PDT	12	6.80	6.46	6.12	5.10
24F2625	KUP14D15	3PDT	24	6.80	6.46	6.12	5.10
24F2626	KUP14D15	3PDT	110	7.60	7.22	6.84	5.70

AC VOLTS—15 AMPS

33F1575	KUMP11A18	DPDT	6				
33F1576	KUMP11A18	DPDT	12	7.45	7.08	6.71	5.59
33F1577	KUMP11A18	DPDT	24				
33F1578	KUMP11A18	DPDT	120				
33F1579	KUMP11A18	DPDT	240	8.15	7.74	7.34	6.11

DC VOLTS—15 AMPS

33F1580	KUMP11D18	DPDT	6				
33F1581	KUMP11D18	DPDT	12	6.80	6.46	6.12	5.10
33F1582	KUMP11D18	DPDT	24				
33F1583	KUMP11D18	DPDT	110	7.60	7.22	6.84	5.70

FLANGED TYPE

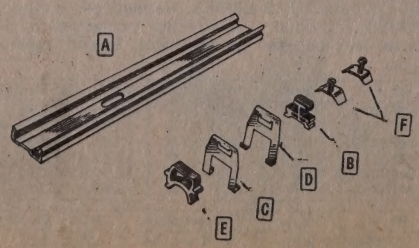
AC VOLTS—10 AMPS

Stock No.	Type	Action	Coil V	1-24	25-50	51-99	100-249
24F3264	KUP5A55	SPDT	120	5.65	5.37	5.09	4.24
24F3265	KUP11A55	DPDT	24	6.70	6.37	6.03	5.03
24F3266	KUP11A55	DPDT	120	6.70	6.37	6.03	5.03
24F3267	KUP14A55	3PDT	6	7.45	7.08	6.71	5.59
24F2891	KUP14A55	3PDT	12	7.45	7.08	6.71	5.59
24F2892	KUP14A55	3PDT	24	7.45	7.08	6.71	5.59
24F2893	KUP14A55	3PDT	120	7.45	7.08	6.71	5.59
24F3268	KUP14A55	3PDT	240	8.15	7.74	7.34	6.11

DC VOLTS—10 AMPS

24F3274	KUP5D55	SPDT	24	5.45	5.18	4.91	4.09
24F3275	KUP11D55	DPDT	6	6.10	5.80	5.49	4.58
24F3276	KUP11D55	DPDT	12	6.10	5.80	5.49	4.58
24F3277	KUP11D55	DPDT	24	6.10	5.80	5.49	4.58
24F3278	KUP11D55	DPDT	110	6.90	6.56	6.21	5.18
24F3279	KUP14D55	3PDT	6	6.90	6.56	6.21	5.18
24F2894	KUP14D55	3PDT	12	6.90	6.56	6.21	5.18
24F2895	KUP14D55	3PDT	24	6.90	6.56	6.21	5.18
24F2896	KUP14D55	3PDT	110	7.70	7.32	6.93	5.78

TRACK MOUNT SYSTEM FOR SOCKETS



(A)—Extruded aluminum, three foot section with slotted holes on 6" centers for #8 screws. **(B)**—Plastic clip for mounting sockets 27E122, 27E123. Two clips required per socket. **(F)**—steel mounting clip with #6-40 tapped hole for mounting sockets 27E121, 27E122, 27E123, and 27E166. Includes one #6-40x1 3/32" screw. Two retainers and screws required per socket. **(E)**—Plastic clip will mount 27E123 only. Two required per socket. **(C), (D)**—Stainless steel holddown clip restricts movement of relay mounted in socket 27E121. Two clips required per socket.

Stock No.	Type	Fig.	Description	Each
57F3418	24A064	A	Three Foot Section of Track	2.45
57F3421	24A072	B	Plastic Twist-Clip	.13
57F3420	24A071	F	Steel Mounting Clip	.08
57F3419	24A067	E	Plastic Mounting Clip	.12
57F3410	20C253	C-D	Stainless Steel Hold-down Clip	.11

KRP AND KRP-N SERIES GENERAL PURPOSE RELAYS

KRP Series. Versatile, multi-contact arrangement. Enclosed in clear polycarbonate dust cover. Standard 8 pin octal type plug for KRP5 and KRP11, 11 pin for KRP-14. Contacts: 5 amps are gold flashed silver, 10 amps are silver cadmium oxide. **KRP-N Series.** Indicator Lamp Relay incorporating a lamp to indicate current or voltage availability in power circuit. Mounting: standard octal plug. Contacts: Silver cadmium oxide rated 10 amps. Enclosed in clear polycarbonate dust cover. Approximate weight: 3 oz.

AC VOLTS 5 AMPS

Stock No.	Type	Input Volts	Action	1-24	25-50	51-99	100-249
24F522	KRP5A	6 V	SPDT	8.45	8.03	7.61	6.34
67F1113	KRP5A	12 V	SPDT				
24F524	KRP5A	24 V	SPDT				
24F520	KRP5A	120 V	SPDT				
24F548	KRP11A	6 V	DPDT	9.50	9.03	8.55	7.13
24F1223	KRP11A	12 V	DPDT				
24F525	KRP11A	24 V	DPDT				
24F518	KRP11A	120 V	DPDT				
24F1324	KRP11A	240 V	DPDT	10.10	9.60	9.09	7.58
24F1224	KRP14A	6 V	3PDT	11.80	11.21	10.62	8.85
24F1225	KRP14A	12 V	3PDT				
24F526	KRP14A	24 V	3PDT				
24F527	KRP14A	120 V	3PDT				
45F103	KRP14A	240 V	3PDT	12.35	11.73	11.12	9.26

AC VOLTS 10 AMPS

Stock No.	Type	Input Volts	Action	1-24	25-50	51-99	100-249
24F1330	KRP5AG	6 V	SPDT	8.80	8.36	7.92	6.60
67F1114	KRP5AG	12 V	SPDT				
24F1331	KRP5AG	24 V	SPDT				
24F1332	KRP5AG	120 V	SPDT				
24F1333	KRP11AG	6 V	DPDT	9.80	9.31	8.82	7.35
24F1334	KRP11AG	12 V	DPDT				
24F1335	KRP11AG	24 V	DPDT				
24F1336	KRP11AG	120 V	DPDT				
24F1696	KRP11AG	240 V	DPDT	10.45	9.93	9.41	7.84
24F1337	KRP14AG	6 V	3PDT	12.20	11.59	10.98	9.15
24F1338	KRP14AG	12 V	3PDT				
24F1339	KRP14AG	24 V	3PDT				
24F1340	KRP14AG	120 V	3PDT				
24F2947	KRP14AG	240 V	3PDT	12.85	12.21	11.57	9.64

AC VOLTS 10 AMPS WITH INDICATOR LAMP

Stock No.	Type	Input Volts	Action	1-24	25-50	51-99	100-249
24F1435	KRP11AN	6 V	DPDT	11.25	10.69	10.13	8.44
24F1436	KRP11AN	12 V	DPDT				
24F1437	KRP11AN	24 V	DPDT				
24F1438	KRP11AN	120 V	DPDT				
24F1439	KRP11AN	240 V	DPDT	11.85	11.26	10.67	8.89
62F3085	KRP14AN	6 V	3PDT	13.65	12.97	12.29	10.24
62F3086	KRP14AN	12 V	3PDT	13.65	12.97	12.29	10.24
62F3087	KRP14AN	24 V	3PDT	13.65	12.97	12.29	10.24
24F1329	KRP14AN	120 V	3PDT	13.65	12.97	12.29	10.24
62F3084	KRP14AN	240 V	3PDT	14.30	13.59	12.87	10.73

KCP-KRP HOLD DOWN SPRING

20C176 Fits all KCP and KRP plug-in relays. Steel spring can be moved aside for relay removal and installation. Mounting: 2⁹⁄₃₂" dia. holes on 1¹³⁄₁₆" centers. Wt. 3 oz. for 50.

Stk. No.	Type	1-24	25-50	51-99	100-249
57F3400	20C176	.22	.21	.20	.17

DC VOLTS 5 AMPS

Stock No.	Type	Input Volts	Action	1-24	25-50	51-99	100-249
24F1226	KRP5D	6 V	SPDT	8.40	7.98	7.56	6.30
24F1335	KRP5D	12 V	SPDT				
24F1227	KRP5D	24 V	SPDT				
24F1326	KRP5D	110 V	SPDT	9.45	8.98	8.51	7.09
24F680	KRP11D	6 V	DPDT				
24F683	KRP11D	12 V	DPDT				
24F528	KRP11D	24 V	DPDT				
67F1115	KRP11D	48 V	DPDT	9.90	9.41	8.91	7.43
24F682	KRP11D	110 V	DPDT	10.40	9.88	9.36	7.80
24F1228	KRP14D	6 V	3PDT	11.70	11.12	10.53	8.78
24F1229	KRP14D	12 V	3PDT	11.70	11.12	10.53	8.78
24F679	KRP14D	24 V	3PDT	11.70	11.12	10.53	8.78
67F1116	KRP14D	48 V	3PDT	12.15	11.54	10.94	9.11
24F1327	KRP14D	110 V	3PDT	12.55	11.92	11.30	9.41

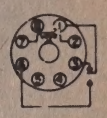
DC VOLTS 10 AMPS

62F3088	KRP5DG	6 V	SPDT	8.70	8.27	7.83	6.53
45F104	KRP5DG	12 V	SPDT	8.70	8.27	7.83	6.53
24F1343	KRP5DG	24 V	SPDT	8.70	8.27	7.83	6.53
24F1344	KRP5DG	110 V	SPDT	9.65	9.17	8.69	7.24
24F1345	KRP11DG	6 V	DPDT	9.75	9.26	8.78	7.31
24F1346	KRP11DG	12 V	DPDT				
24F1347	KRP11DG	24 V	DPDT				
67F1117	KRP11DG	48 V	DPDT	10.35	9.83	9.32	7.76
24F1348	KRP11DG	110 V	DPDT	10.70	10.17	9.63	8.03
24F1349	KRP14DG	6 V	3PDT	12.10	11.50	10.89	9.08
24F1350	KRP14DG	12 V	3PDT	12.10	11.50	10.89	9.08
24F1359	KRP14DG	24 V	3PDT	12.10	11.50	10.89	9.08
67F1118	KRP14DG	48 V	3PDT	12.65	12.02	11.39	9.49
24F1351	KRP14DG	110 V	3PDT	13.00	12.35	11.70	9.75

DC VOLTS 10 AMPS WITH INDICATOR LAMP

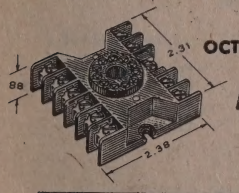
24F1440	KRP11DN	6 V	DPDT	11.10	10.55	9.99	8.33
24F1441	KRP11DN	12 V	DPDT				
24F1442	KRP11DN	24 V	DPDT				
24F1443	KRP11DN	110 V	DPDT	12.10	11.50	10.89	9.08
67F1119	KRP14DN	24 V	3PDT	13.50	12.83	12.15	10.13

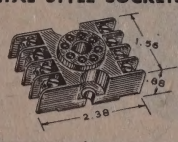
KRP5



KRP11

KRP14





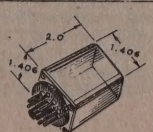
OCTAL STYLE SOCKETS

For KRP, KRF3-H, KAP, KBP, KCP, EBT and EBA relays; CD-21, CD-38, CH, CK, and CR time delays; and CS sensor.

Stock No.	Type	Term.	1-24	25-50	51-99	100-249
57F3431	27E122	8-pin	3.12	2.96	2.81	2.34
57F3432	27E123	11-pin	4.67	4.44	4.20	3.50

"P" CASE

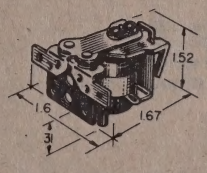
A clear polycarbonate case for mounting rectifiers, capacitors, or combinations (with octal type plug with 8 or 11 pins). Comes complete with 4 screws. 2x1.4x1.4". Av. Shpg. wt. 3 oz.



Stock No.	Type	Plugs	1-24	25-50	51-99	100-249
24F1322	35D070	8 pin	.88	.84	.79	.66
24F1323	35D072	11 pin	1.06	1.01	.95	.80

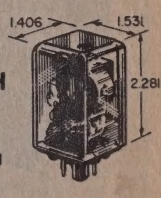
Hold-down spring for "P" Case, and KRP series relays. Will accommodate machine screws or rivets.

Stock No.	Type	1-24	25-50	51-99	100-249
57F3400	20C176	.22	.21	.20	.17



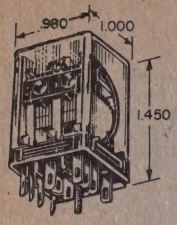
KR3-H AND KRP3-H COMPACT RELAYS

- **Used where limited space is a factor**
- **Weighs only 2 oz.**



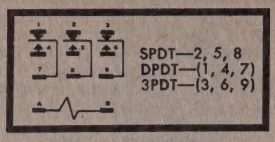
Heavy duty relay ideal for limited space. Copper alloy movable contact carrier has twin silver-cadmium oxide contacts rated 20 amps @ 120V AC 60 Hz resistive or 28V DC; 1 HP 120/240V 60 Hz. Contact arrangement is 1 Form X (SPST-NO-DM) only. Terminals suitable for .250" quick connect, also solder; for contacts: solder only for coil. Mtg.: one 6-32 stud and locating tab on .437" center. Size: 1.6"x1.671"x1.52". Seated height: 1.21". **KRP3-H Series.** As above except enclosed in clear polycarbonate dust cover with an octal plug-in case. 1.406x1.531x2.281".

Stock No.	Type	Contacts	Coil Input	Coil Ohms	1-24	25-50	51-99	100-249
62F3039	KR3AH	SPST-NO-DM	12 VAC	21	6.85	6.51	6.17	5.14
24F2630	KR3AH	SPST-NO-DM	24 VAC	85				
24F2631	KR3AH	SPST-NO-DM	120 VAC	2250				
62F3040	KRP3AH	SPST-NO-DM	12 VAC	21	9.90	9.41	8.91	7.43
24F2638	KRP3AH	SPST-NO-DM	24 VAC	85				
24F2639	KRP3AH	SPST-NO-DM	120 VAC	2250				
24F2633	KR3DH	SPST-NO-DM	12 VDC	120	6.55	6.22	5.90	4.91
24F2634	KR3DH	SPST-NO-DM	24 VDC	472	6.55	6.22	5.90	4.91
62F3041	KR3DH	SPST-NO-DM	110 VDC	10000	7.30	6.94	6.57	5.48
24F2641	KRP3DH	SPST-NO-DM	12 VDC	120	9.65	9.17	8.69	7.24
24F2642	KRP3DH	SPST-NO-DM	24 VDC	472	9.65	9.17	8.69	7.24
62F3042	KRP3DH	SPST-NO-DM	110 VDC	10000	10.60	10.07	9.54	7.95



KNP SERIES—COMPACT 3 AMP RELAYS

Small AC or DC General Purpose Relay



Recognized under the Component Program of UL and CSA for ratings of 1/10 HP @ 120 VAC; 3 amps @ 32 VDC resistive or 3 amps @ 240 VAC 80% PF. U/L File No. E22575. Contacts are fine silver cross bars for low resistance point contact. Terminals are .110" quick-connect/solder. Fit sockets below. **KNP-11 Series** has 6-32" tapped hole with locating tab for chassis mounting. **KNP-21 Series** has 3-48" stud for chassis mounting. Enclosed in clear polycarbonate dust cover. Size when seated 1.45" high max. Wt. 1.4 oz.

COIL DATA—KNP SERIES

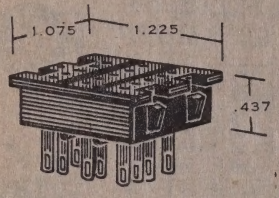
DC			AC		
Input	Ohms	Nom. Power	Input	Ohms	Nom. Power
6V	40	.9W			
12V	160	.9W	12V	43	1.2VA
24V	650	.9W	24V	160	1.2VA
110V	11000	.9W			
			120V	3900	1.2VA

AC VOLTS—3 AMPS

Stock No.	Type	Action	Coil	1-24	25-50	51-99	100-249
24F3333	KNP5A21	SPDT	12	7.00	6.65	6.30	5.25
24F3332	KNP5A21	SPDT	24				
24F3335	KNP5A21	SPDT	120				
67F1102	KNP11A11	DPDT	120	8.40	7.98	7.56	6.30
24F3338	KNP11A21	DPDT	24	8.30	7.89	7.47	6.23
24F3339	KNP11A21	DPDT	120				
24F3341	KNP14A21	3PDT	12	9.50	9.03	8.55	7.13
24F3342	KNP14A21	3PDT	24				
24F3343	KNP14A21	3PDT	120				

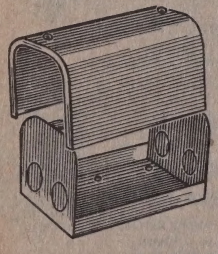
DC VOLTS—3 AMPS

Stock No.	Type	Action	Coil	1-24	25-50	51-99	100-249
24F3320	KNP5D21	SPDT	6	5.90	5.61	5.31	4.43
24F3321	KNP5D21	SPDT	12	5.90	5.61	5.31	4.43
24F3322	KNP5D21	SPDT	24	5.90	5.61	5.31	4.43
24F3323	KNP5D21	SPDT	110	7.00	6.65	6.30	5.25
67F1104	KNP11D11	DPDT	12	7.20	6.84	6.48	5.40
67F1105	KNP11D11	DPDT	24	7.20	6.84	6.48	5.40
24F3324	KNP11D21	DPDT	6	7.05	6.70	6.35	5.29
24F3325	KNP11D21	DPDT	12	7.05	6.70	6.35	5.29
24F3326	KNP11D21	DPDT	24	7.05	6.70	6.35	5.29
24F3329	KNP14D21	3PDT	12	8.30	7.89	7.47	6.23
24F3330	KNP14D21	3PDT	24	8.30	7.89	7.47	6.23



KNP SERIES SOCKETS

Stock No.	Type	Description	1-24	25-50	51-99	100-249
57F3428	27E118	SPDT/DPDT/3PDT solder terminal socket. No retainer spring required.	.85	.81	.77	.64
57F3429	27E119	SPDT/DPDT/3PDT printed circuit terminal socket.	.85	.81	.77	.64
57F3404	20C246	Hold-down spring.	.13	.12	.12	.10



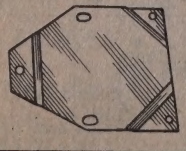
DUST COVERS

- Knockouts for ½" dia. conduit
- Sheet Metal Base
- Gray Hammertone Finish

Sheet metal base with knockouts for ½" dia. conduit. Alum. cover with two screws. Gray Hammertone Finish. Mounting: Three No. 10 holes on 1⅞x4⅛" ctrs.

Stock No.	Type	Material	Lgth.	Ht.	1-24	25-50	51-99	100-249
24F1289	35D227	PM Metal	5.313	3.812	6.68	6.35	6.01	5.01
24F1318	35D013	PRD Metal	5.312	3.125	5.51	5.23	4.96	4.13
51F3460	35D203	PM Plast.	5.313	3.812	1.17	1.11	1.05	.88

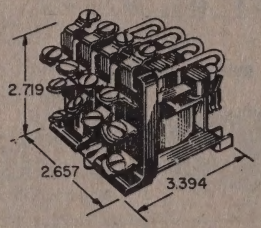
PM SERIES ADAPTOR PLATE



Adaptor plate for mounting PM on PR/PRD mounting holes.

Stock No.	Description	1-24	25-50	51-99	100-249
51F3462	Adaptor Plate 37B370	.45	.43	.41	.34

PM SERIES POWER RELAYS



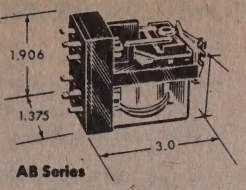
- For polyphase and Heavy Duty Switching
- UL and CSA listed Except 480 V.

Compact 4PDT power relay for polyphase and heavy duty switching applications. Screw terminals. Has silver-cadmium oxide contacts rated at 25 amps at 240 VAC 50/60 Hz resistive. 1 HP per movable arm at 120 V or 240 V, AC single phase. UL (File E22575) and CSA listed except 480V. Mounts by one front key hole and two rear channel slots for 8-32 screws on 2" x 2.5" triangular centers. Weight 14 oz. For enclosures see Dust Covers listed on this page.

Stock No.	Type	Coil Input	Coil Ohms	1-24	25-50	51-99	100-249
24F1430	PM17AY	6 VAC	.37	20.05	19.05	18.05	15.04
24F1431	PM17AY	12 VAC	1.4	20.05	19.05	18.05	15.04
24F1432	PM17AY	24 VAC	5	20.05	19.05	18.05	15.04
24F1433	PM17AY	120 VAC	120	20.05	19.05	18.05	15.04
24F1434	PM17AY	240 VAC	587	20.15	19.14	18.14	15.11
24F1426	PM17DY	6 VDC	8.2	17.55	16.67	15.80	13.16
24F1427	PM17DY	12 VDC	33	17.55	16.67	15.80	13.16
24F1428	PM17DY	24 VDC	132	17.55	16.67	15.80	13.16
24F1429	PM17DY	110 VDC	2760	18.95	18.00	17.06	14.21

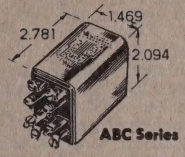
AB AND ABC SERIES MEDIUM POWER 10 AMP RELAYS

Equipped with terminals to fit snap-on connectors and may be applied to PC using dip soldering. Recognized under component program of UL and are CSA listed. Silver contacts.



AB Series

AB Series. For appliance and general purpose applications. Mtg.—Two 8-32 tapped holes on 1¼" centers. Wt. 5 oz.



ABC Series

ABC Series. Medium duty power relay with dust cover. For small motors, industrial control and similar applications. Mtg.—One 8-32 threaded stud ¾" long and locating tab on 0.562" centers. Wt. Approx. 7 oz.

DPDT AC TYPE

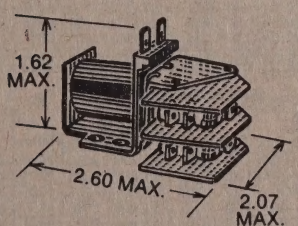
Stock No.	Type	Input Volts	Ohms	1-24	25-50	51-99	100-249
62F2962	AB11AY	24VAC	23	10.05	9.55	9.05	7.54
24F1121	AB11AY	120VAC	510	10.05	9.55	9.05	7.54
45F000	AB11AY	240VAC	2050	10.60	10.07	9.54	7.95
62F2964	ABC11AY	24VAC	23	11.05	10.50	9.95	8.29
24F1129	ABC11AY	120VAC	510	11.05	10.50	9.95	8.29
45F001	ABC11AY	240VAC	2050	11.60	11.02	10.44	8.70

DPDT DC TYPE

Stock No.	Type	Input Volts	Ohms	1-24	25-50	51-99	100-249
62F2965	AB11DY	12VDC	72	10.65	10.12	9.59	7.99
62F2966	AB11DY	24VDC	288	10.65	10.12	9.59	7.99
62F2967	AB11DY	110VDC	6050	11.15	10.59	10.04	8.36
62F2969	ABC11DY	12VDC	72	11.65	11.07	10.49	8.74
62F2970	ABC11DY	24VDC	288	11.65	11.07	10.49	8.74

S87R SERIES 20 AMP POWER RELAYS

- UL RECOGNIZED
- 1 MILLION OPERATIONS

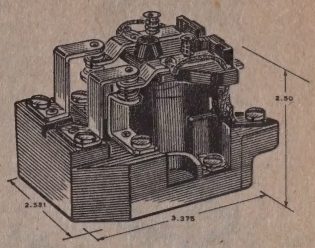


For use in vending machines, washing machines, machine-tool control systems, heating and air conditioning systems, and automated conveyor systems. UL recognized. Has a life expectancy of 50,000 operations at full load; 1 million operations, mechanical. Operating temp. range is −45 C to +65 C. Contacts are rated at 20 amps, 277VAC; 60 LRA, 12 FLA, 1 HP @ 125 VAC; 48 LRA, 8 FLA, 2HP @ 250VAC pilot duty; 360 VA, 125/250 VAC. Mounting is by one .166" dia. mounting hole and .160" dia. boss. Termination is .250" quick connect.

Stock No.	Type S87R	Coil			Con. Arr.	1-24	25-50	51-99	100-249
		Input	Ohms	Power					
20F765	5A2B1D1	24 V	34	5.4 VA	SPDT	4.45	4.23	4.01	3.34
20F766	5A2B1D1	120 V	850			4.45	4.23	4.01	3.34
20F767	5A2B1D1	240 V	3400			4.95	4.70	4.46	3.71
20F768	11A2B1D1	24 V	34	5.4 VA	DPDT	5.45	5.18	4.91	4.09
20F769	11A2B1D1	120 V	850			5.45	5.18	4.91	4.09
20F770	11A2B1D1	240 V	3400			5.95	5.65	5.36	4.46
20F771	5D2B1D1	12 V	50	2.9W	SPDT	4.10	3.90	3.69	3.08
20F772	5D2B1D1	24 V	200	2.9W	SPDT	4.10	3.90	3.69	3.08
20F773	11D2B1D1	24 V	200	2.9W	DPDT	5.10	4.85	4.59	3.83

PRD SERIES POWER RELAYS

- For high inrush current applications
- Protective Plastic Cover
- UL and CSA Listed



Heavy duty power relay. For high inrush current applications such as motor starting and incandescent lamp loads. Coil housed in protective plastic enclosure to min. possibility of damage. 100,000 operations @ full load. Directly interchangeable with the PR model. All PRD 1, 3, 5 models have contact ratings of 25 amps @ 277V AC, res. Models PRD 7, or 11 with AY and DY suffixes are rated 25 amps @ 240 V AC, 20 amps @ 277 V AC, res. Models 7, 11 with the suffix AG are rated 30 amps @ 240 V AC, 20 amps @ 277 V AC, res. Floating movable contact carrier provides excellent pressure and wipe between contact surfaces, thus keeping voltage drop to a minimum between mating contacts. UL and CSA listed.

AC VOLTS

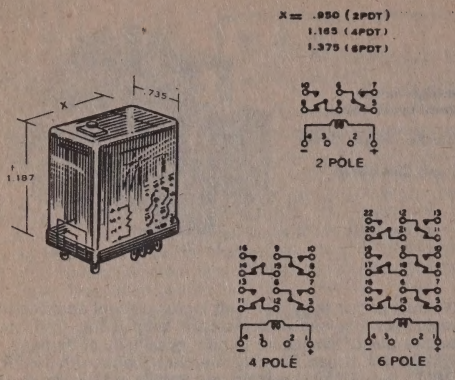
Stock No.	Type	Coil		Contacts	1-24	25-50	51-99	100-249
		Input	Ohms					
33F1503	PRD1AYO	24 V	12	SPST-NO	6.05	5.75	5.45	4.54
33F1504	PRD1AYO	120 V	290	SPST-NO	6.05	5.75	5.45	4.54
33F1505	PRD3AYO	6 V	.86	SPST-NO-DM	6.25	5.94	5.63	4.69
33F1506	PRD3AYO	12 V	3.2	SPST-NO-DM	6.25	5.94	5.63	4.69
33F1507	PRD3AYO	24 V	12	SPST-NO-DM	6.25	5.94	5.63	4.69
33F1508	PRD3AYO	120 V	290	SPST-NO-DM	6.25	5.94	5.63	4.69
33F1509	PRD3AYO	208 V	850	SPST-NO-DM	6.45	6.13	5.81	4.84
33F1510	PRD3AYO	240 V	1200	SPST-NO-DM	6.45	6.13	5.81	4.84
33F1515	PRD5AYO	6 V	.86	SPDT	6.95	6.60	6.26	5.21
33F1516	PRD5AYO	12 V	3.2	SPDT	6.95	6.60	6.26	5.21
33F1517	PRD5AYO	24 V	12	SPDT	6.95	6.60	6.26	5.21
33F1518	PRD5AYO	120 V	290	SPDT	6.95	6.60	6.26	5.21
33F1519	PRD5AYO	208 V	850	SPST	7.15	6.79	6.44	5.36
33F1520	PRD5AYO	240 V	1200	SPDT	7.15	6.79	6.44	5.36
33F1525	PRD7AGO	120 V	290	DPST-NO	7.90	7.51	7.11	5.93
33F1526	PRD7AYO	6 V	.86	DPST-NO	7.65	7.27	6.89	5.74
33F1527	PRD7AYO	12 V	3.2	DPST-NO	7.65	7.27	6.89	5.74
33F1528	PRD7AYO	24 V	12	DPST-NO	7.65	7.27	6.89	5.74
33F1529	PRD7AYO	120 V	290	DPST-NO	7.65	7.27	6.89	5.74
33F1530	PRD7AYO	208 V	850	DPST-NO	7.85	7.46	7.07	5.89
33F1531	PRD7AYO	240 V	1200	DPST-NO	7.85	7.46	7.07	5.89
33F1536	PRD11AGO	120 V	290	DPDT	10.20	9.69	9.18	7.65
33F1537	PRD11AYO	6 V	.86	DPDT	9.25	8.79	8.33	6.94
33F1538	PRD11AYO	12 V	3.2	DPDT	9.25	8.79	8.33	6.94
33F1539	PRD11AYO	24 V	12	DPDT	9.25	8.79	8.33	6.94
33F1540	PRD11AYO	120 V	290	DPDT	9.25	8.79	8.33	6.94
33F1541	PRD11AYO	208 V	850	DPDT	9.45	8.98	8.51	7.09
33F1542	PRD11AYO	240 V	1200	DPDT	9.45	8.98	8.51	7.09
33F1543	PRD11AYO	480 V	4500	DPDT	12.55	11.92	11.30	9.41
33F1548	PRDA11AYA	12 V	3.2	DPDT*	13.95	13.25	12.56	10.46
33F1549	PRDA11AYA	24 V	12	DPDT*	13.95	13.25	12.56	10.46
33F1550	PRDA11AYA	120 V	290	DPDT*	13.95	13.25	12.56	10.46
33F1633	PRDA11AYA	240 V	1200	DPDT*	14.15	13.44	12.74	10.61

*Has aux. SPDT, 5A, snap-action switch.

DC VOLTS

33F1511	PRD3DYO	6 V	18	SPST-NO-DM	6.00	5.70	5.40	4.50
33F1512	PRD3DYO	12 V	71	SPST-NO-DM	6.00	5.70	5.40	4.50
33F1513	PRD3DYO	24 V	288	SPST-NO-DM	6.00	5.70	5.40	4.50
33F1514	PRD3DYO	110 V	6050	SPST-NO-DM	6.85	6.51	6.17	5.14
33F1521	PRD5DYO	6 V	18	SPDT	6.50	6.18	5.85	4.88
33F1522	PRD5DYO	12 V	71	SPDT	6.50	6.18	5.85	4.88
33F1523	PRD5DYO	24 V	288	SPDT	6.50	6.18	5.85	4.88
33F1524	PRD5DYO	110 V	6050	SPDT	7.35	6.98	6.62	5.51
33F1532	PRD7DYO	6 V	18	SPDT	7.40	7.03	6.66	5.55
33F1533	PRD7DYO	12 V	71	SPDT	7.40	7.03	6.66	5.55
33F1534	PRD7DYO	24 V	288	SPDT	7.40	7.03	6.66	5.55
33F1535	PRD7DYO	110 V	6050	SPDT	8.25	7.84	7.43	6.19
33F1544	PRD11DYO	6 V	18	DPDT	9.00	8.55	8.10	6.75
33F1545	PRD11DYO	12 V	71	DPDT	9.00	8.55	8.10	6.75
33F1546	PRD11DYO	24 V	288	DPDT	9.00	8.55	8.10	6.75
33F1547	PRD11DYO	110 V	6050	DPDT	9.85	9.36	8.87	7.39

R10-E1 SERIES INDUSTRIAL RELAYS WITH SOLDER TERMINALS



- UL recognized
- CSA recognized up to 6PDT Models
- Contact life expectancy of 10 million mech. operations
- 1000V Initial Breakdown

UL recognized under File E42810 and E46750. Models to 6PDT have CSA recognition. Contact life expectancy for all series is 10 million operations, mechanical. Wiring connections should be made so that opposite polarity is not developed between adjacent contacts. Initial breakdown voltage of the gaps between contacts is 1000 V rms; 500 V rms between "Z" (bifurcated) contacts. Contact ratings shown are for use at 28V DC or 115V AC, resistive. "V" relays are DC voltage actuated. "J" relays are current actuated (DC). "SS" relays are sensitive DC voltage actuated. Voltages listed in "Input" col. are maximums. "EI" relays have .012" x .080" x .21" long solder terminals w/ #3-48 mounting stud. Pickup is approx. 75% of rated coil voltage. Max. pickup power of SPDT R10-SS1.0 and -SS220 is 20 mW DC @ 25° C. Wt. 0.8-1.4 oz.

9

2 AMP Typical/3 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
67F1071	R10-E1-Y1-SS1.0K	6 DC	1000	SPDT	5.20	4.68	4.16	3.64
67F1072	R10-E1-Y1-SS220	3 DC	220	SPDT	5.20	4.68	4.16	3.64
45F105	R10-E1-Y2-V52	6 DC	52	2PDT	4.25	3.83	3.40	2.98
45F106	R10-E1-Y2-V185	12 DC	185	2PDT	4.25	3.83	3.40	2.98
45F107	R10-E1-Y2-V700	24 DC	700	2PDT	4.25	3.83	3.40	2.98
62F3043	R10-E1-Y2-V2.5K	48 DC	2500	2PDT	4.25	3.83	3.40	2.98
45F108	R10-E1-Y4-V52	6 DC	52	4PDT	4.65	4.19	3.72	3.26
45F109	R10-E1-Y4-V185	12 DC	185	4PDT	4.65	4.19	3.72	3.26
45F110	R10-E1-Y4-V700	24 DC	700	4PDT	4.65	4.19	3.72	3.26
45F111	R10-E1-Y4-V2.5K	48 DC	2500	4PDT	4.65	4.19	3.72	3.26
45F112	R10-E1-Y4-V15K	115 DC	15000	4PDT	7.10	6.39	5.68	4.97
45F113	R10-E1-Y6V90	12 DC	90	6PDT	6.10	5.49	4.88	4.27
45F114	R10-E1-Y6-V430	24 DC	430	6PDT	6.10	5.49	4.88	4.27
60F3046	R10-E1-Y6-V1.5K	48 DC	1500	6PDT	6.10	5.49	4.88	4.27
60F3047	R10-E1-Y6-V9.0K	115 DC	9000	6PDT	7.20	6.48	5.76	5.04

5 AMP Typical/7½ Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
62F3048	R10-E1-X2-V52	6 DC	52	2PDT	4.40	3.96	3.52	3.08
45F115	R10-E1-X2-V185	12 DC	185	2PDT	4.40	3.96	3.52	3.08
45F116	R10-E1-X2-V700	24 DC	700	2PDT	4.40	3.96	3.52	3.08
62F3049	R10-E1-X2-V2.5K	48 DC	2500	2PDT	4.40	3.96	3.52	3.08
62F3050	R10-E1-X2-V15K	115 DC	15000	2PDT	6.85	6.17	5.48	4.80
45F117	R10-E1-X2-115VAC	115 AC	9.0K	2PDT	7.80	7.02	6.24	5.46
45F118	R10-E1-X4-V185	12 DC	185	4PDT	4.95	4.46	3.96	3.47
45F119	R10-E1-X4-V700	24 DC	700	4PDT	4.95	4.46	3.96	3.47
62F3052	R10-E1-X4-V2.5K	48 DC	2500	4PDT	4.95	4.46	3.96	3.47
62F3053	R10-E1-X4-V15K	115 DC	15000	4PDT	7.40	6.66	5.92	5.18
45F120	R10-E1-X4-115VAC	115 AC	9.0K	4PDT	9.45	8.51	7.56	6.62
62F3054	R10-E1-X6-V25	6 DC	25	6PDT	6.55	5.90	5.24	4.59
45F121	R10-E1-X6-V90	12 DC	90	6PDT	6.55	5.90	5.24	4.59
45F122	R10-E1-X6-V430	24 DC	430	6PDT	6.55	5.90	5.24	4.59
62F3055	R10-E1-X6-V1.5K	48 DC	1500	6PDT	6.55	5.90	5.24	4.59
62F3056	R10-E1-X6-V9.0K	115 DC	9000	6PDT	7.65	6.89	6.12	5.36

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
67F1073	R10-E1-X6-115VAC	115 AC	7.5K	6PDT	12.25	11.03	9.80	8.58
67F1074	R10-E1-X8-115VAC	115 AC	7.5K	8PDT	14.75	13.28	11.80	10.33

7½ AMP Typical/10 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
67F1075	R10-E1-W2-V185	12 DC	185	2PDT	5.05	4.55	4.04	3.54
67F1076	R10-E1-W2-V700	24 DC	700	2PDT	5.05	4.55	4.04	3.54
67F1077	R10-E1-W4-V700	24 DC	700	4PDT	6.15	5.54	4.92	4.31

BIFURCATED LOW LEVEL CONTACTS 100 MA Typ./2 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
62F3067	R10-E1-Z2-V52	6 DC	52	2PDT				
45F125	R10-E1-Z2-V185	12 DC	185	2PDT	4.70	4.23	3.76	3.29
45F126	R10-E1-Z2-V700	24 DC	700	2PDR				
62F3068	R10-E1-Z2-V2.5K	48 DC	2500	2PDT				
62F3069	R10-E1-Z2-V15.0K	115 DC	15000	2PDT	7.15	6.44	5.72	5.01
62F3070	R10-E1-Z4-V52	6 DC	52	4PDT				
45F127	R10-E1-Z4-V185	12 DC	185	4PDT	5.30	4.77	4.24	3.71
45F128	R10-E1-Z4-V700	24 DC	700	4PDT				
62F3072	R10-E1-Z4-V15.0K	115 DC	15000	4PDT	7.75	6.98	6.20	5.43
62F3073	R10-E1-Z6-V25	6 DC	25	6PDT				
45F129	R10-E1-Z6-V90	12 DC	90	6PDT	6.95	6.26	5.56	4.87
45F130	R10-E1-Z6-V430	24 DC	430	6PDT				
62F3074	R10-E1-Z6-V1.5K	48 DC	1500	6PDT				
62F3075	R10-E1-Z6-V9.0K	115 DC	9000	6PDT	8.05	7.25	6.44	5.64

SENSITIVE CURRENT 2 AMP Typ./3 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
45F131	R10-E1-Y2-J2.5K	5.8 mA	2500	2PDT	4.60	4.14	3.68	3.22
45F132	R10-E1-Y2-J5.0K	4.1 mA	5000	2PDT	5.25	4.73	4.20	3.68
62F3065	R10-E1-Y2-J10.0K	3.1 mA	10000	2PDT	5.65	5.09	4.52	3.96
45F133	R10-E1-Y4-J2.5K	8.4 mA	2500	4PDT	5.05	4.55	4.04	3.54
62F3066	R10-E1-Y4-J10.0K	4.5 mA	10000	4PDT	6.15	5.54	4.92	4.31

SENSITIVE CURRENT—BIFURCATED CONTACTS 100 MA Typ./2 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
45F135	R10-E1-Z4-J1.0K	12.0 mA	1000	4PDT	5.70	5.13	4.56	3.99
45F136	R10-E1-Z4-J2.5K	8.4 mA	2500	4PDT	5.70	5.13	4.56	3.99
45F137	R10-E1-Z4-J5.0K	6.2 mA	5000	4PDT	6.35	5.72	5.08	4.45

R10-E2 PRINTED CIRCUIT TERMINALS

2 AMP Typical/3 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
45F138	R10-E2-Y2-V185	12 DC	185	2PDT	4.25	3.83	3.40	2.98
45F139	R10-E2-Y2-V700	24 DC	700	2PDT	4.25	3.83	3.40	2.98
45F140	R10-E2-Y4-V185	12 DC	185	4PDT	4.65	4.19	3.72	3.26
45F141	R10-E2-Y4-V700	24 DC	700	4PDT	4.65	4.19	3.72	3.26
62F3057	R10-E2-Y6-V90	12 DC	90	6PDT	6.10	5.49	4.88	4.27
5 AMP Typical/7½ Amp Max.								
67F1078	R10-E2-X2-V700	24 DC	700	2PDT	4.40	3.96	3.52	3.08
7½ Amp Typical/10 Amp Max.								
67F1079	R10-E2-W2-V700	24 DC	700	DPDT	5.05	4.55	4.04	3.54

BIFURCATED CONTACTS 100 MA Typ./2 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
45F143	R10-E2-Z4-V700	24 DC	700	4PDT	5.30	4.77	4.24	3.71
62F3061	R10-E2-Z6-V430	24 DC	430	6PDT	6.95	6.26	5.56	4.87

SENSITIVE CURRENT-BIFURCATED CONTACTS 100 MA Typ./2 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
67F1081	R10-E2-Z4-J5.0K	6.2 mA	5000	4PDT	6.35	5.72	5.08	4.45

R10L SERIES HAS LIGHT EMITTING DIODE (LED)

SOLDER TERMINALS—2 AMP Typ./3 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
67F1082	R10L-E1-Y2-V52	6 DC	52	2PDT				
67F1083	R10L-E1-Y2-V185	12 DC	185	2PDT	8.15	7.34	6.52	5.71
67F1084	R10L-E1-Y2-V700	24 DC	700	2PDT				
67F1085	R10L-E1-Y2-V2.5K	48 DC	2500	2PDT				
67F1086	R10L-E1-Y4-V52	6 DC	52	4PDT	8.55	7.70	6.84	5.99
67F1087	R10L-E1-Y4-V185	12 DC	185	4PDT	8.55	7.70	6.84	5.99
67F1088	R10L-E1-Y4-V700	24 DC	700	4PDT	8.55	7.70	6.84	5.99
67F1089	R10L-E1-Y6-V430	24 DC	430	6PDT	10.00	9.00	8.00	7.00
BIFURCATED CONTACTS 100 MA Typ./2 Amp Max.								
67F1090	R10L-E1-Z4-V700	24 DC	700	4PDT	9.20	8.28	7.36	6.44
SOLDER TERMINALS—5 AMP Typ./7½ Amp Max.								
67F1091	R10L-E1-X2-V185	12 DC	185	2PDT	8.30	7.47	6.64	5.81
67F1092	R10L-E1-X2-V700	24 DC	700	2PDT	8.30	7.47	6.64	5.81
67F1093	R10L-E1-X4-V185	12 DC	185	4PDT	8.85	7.97	7.08	6.20
67F1094	R10L-E1-X4-V700	24 DC	700	4PDT	8.85	7.97	7.08	6.20
67F1095	R10L-E1-X4-V2.5K	48 DC	2500	4PDT	8.85	7.97	7.08	6.20
67F1096	R10L-E1-X6-V430	24 DC	430	6PDT	10.45	9.41	8.36	7.32

Has light emitting diode (LED) indicator. LED produces highly visible red light when coil is energized. LED has long operating life and high reliability. Other operating specs. same as standard R10 Series relays. Relays fit standard R10 Series sockets. Observe polarity when wiring R10L-with LED.

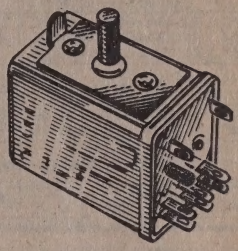
PC TERMINALS—2 AMP Typ./3 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
67F1097	R10L-E2-Y2-V185	12 DC	185	2PDT	8.15	7.34	6.52	5.71
67F1098	R10L-E2-Y4-V700	24 DC	700	4PDT	8.55	7.70	6.84	5.99

R10-E6 SERIES RELAYS

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
33F1625	R10-E6-X2-V52	6 DC	52	2PDT	4.75	4.28	3.80	3.33
33F1626	R10-E6-X2-V185	12 DC	185	2PDT	4.75	4.28	3.80	3.33
33F1627	R10-E6-X2-V700	24 DC	700	2PDT	4.75	4.28	3.80	3.33
33F1628	R10-E6-X2-115VAC	115 AC	9.0K	2PDT	8.15	7.34	6.52	5.71
33F1629	R10-E6-X4-V185	12 DC	185	4PDT	5.40	4.86	4.32	3.78
33F1630	R10-E6-X4-V700	24 DC	700	4PDT	5.40	4.86	4.32	3.78
33F1631	R10-E6-X4-115VAC	115 AC	9.0K	4PDT	9.90	8.91	7.92	6.93
33F1632	R10-E6-Y2-V185	12 DC	185	2PDT	4.60	4.14	3.68	3.22
33F1500	R10-E6-Y2-V700	24 DC	700	2PDT	4.60	4.14	3.68	3.22
33F1501	R10-E6-Y4-V185	12 DC	185	4PDT	5.10	4.59	4.08	3.57
33F1502	R10-E6-Y4-V700	24 DC	700	4PDT	5.10	4.59	4.08	3.57

Standard R10-E1 relays with solder terminals and fitted with a bracket on the narrow side of its case for chassis mounting. The bracket has one #6-32 x .375" stud and one locating tab on .437" centers.

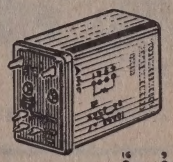


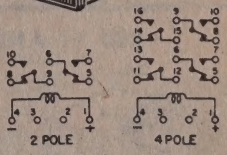
R10S GENERAL PURPOSE RELAYS

2 AMP Typ./3 Amp Max.

Stk. No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
54F046	R10S-E1-Y1-J1.0K	3.2mA	1,000	SPDT	4.80	4.32	3.84	3.36
54F047	R10S-E1-Y1-J2.5K	2.0mA	2,500	SPDT	4.80	4.32	3.84	3.36
54F048	R10S-E1-Y1-J5.0K	1.4mA	5,000	SPDT	5.90	5.31	4.72	4.13
54F049	R10S-E1-Y2-J1.0K	4.5mA	1,000	2PDT	5.60	5.04	4.48	3.92
54F050	R10S-E1-Y2-J2.5K	2.9mA	2,500	2PDT	5.60	5.04	4.48	3.92
54F051	R10S-E1-Y2-J5.0K	2.0mA	5,000	2PDT	6.70	6.03	5.36	4.69
54F052	R10S-E1-Y4-J1.0K	6.5mA	1,000	4PDT	6.00	5.40	4.80	4.20
54F053	R10S-E2-Y1-J1.0K	3.2mA	1,000	SPDT	4.80	4.32	3.84	3.36
54F054	R10S-E2-Y1-J2.5K	2.0mA	2,500	SPDT	4.80	4.32	3.84	3.36
54F055	R10S-E2-Y1-J5.0K	1.4mA	5,000	SPDT	5.90	5.31	4.72	4.13
54F056	R10S-E2-Y2-J2.5K	2.9mA	2,500	2PDT	5.60	5.04	4.48	3.92
54F057	R10S-E2-Y4-J1.0K	6.5mA	1,000	4PDT	6.00	5.40	4.80	4.20

R10S series relays are very sensitive, current actuated DC relays for direct drive by DTL, TTL, ECL, and HTL. Available in solder (E1), and pc board (E2) termination. Maximum pickup is listed in "Input" column. Weight: 0.8 to 1.4 oz.

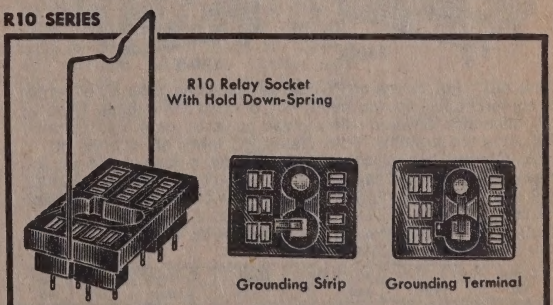




SOCKETS FOR R10 SERIES

Stk. No.	Part No.	No. of Poles	Terminal	Gnd. Type	Hold down Spring*	1-9	10-49	50-99	100-499
57F3433	27E125	2	Solder	Strip	20C249	.65	.59	.52	.46
57F3434	27E126	4	Solder	Strip	20C250	.83	.75	.66	.58
57F3435	27E127	6	Solder	Strip	20C251	1.06	.95	.85	.74
57F3451	27E211	8	Solder	Strip	20C266	1.63	1.47	1.30	1.14
57F3444	27E162	2	Solder	None	20C249	.65	.59	.52	.46
57F3445	27E163	4	Solder	None	20C250	.83	.75	.66	.58
57F3446	27E164	6	Solder	None	20C251	1.01	.91	.81	.71
57F3436	27E128	2	P/C	Strip	20C249	.65	.59	.52	.46
57F3437	27E129	4	P/C	Strip	20C250	.83	.75	.66	.58
57F3438	27E130	6	P/C	Strip	20C251	1.28	1.15	1.02	.90
57F3453	27E254	8	P/C	Strip	20C266	1.63	1.47	1.30	1.14
57F3448	27E193	2	P/C	Term.	20C249	.65	.59	.52	.46
57F3449	27E194	4	P/C	Term.	20C250	.83	.75	.66	.58
57F3450	27E195	6	P/C	Term.	20C251	1.28	1.15	1.02	.90
57F3443	27E152	4	**	Strip	20C250	1.17	1.05	.94	.82

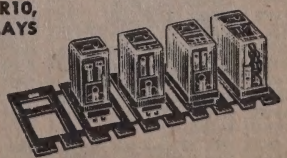
(*) Not included with socket.
**Solder/Bkt. Mt.



RELAY RETAINERS

Stk. No.	Part No.	No. of Poles	Description	1-9	10-49	50-99	100-499
57F3406	20C249	2	Wire Hold Down Spring	.07	.06	.06	.05
57F3407	20C250	4	Wire Hold Down Spring	.07	.06	.06	.05
57F3408	20C251	6	Wire Hold Down Spring	.07	.06	.06	.05
57F3412	20C266	8	Wire Hold Down Spring	.07	.06	.06	.05
57F3411	20C259	All	Wire Hold Down Strap (P/C only)	.07	.06	.06	.05
57F3413	20C300		Wire Hold Down Spring for 2 Pole R10S only.	.09	.08	.07	.06
57F3414	20C301		Wire Hold Down Spring for 4 Pole R10S only.	.09	.08	.07	.06

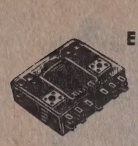
MOUNTING STRIP FOR R10, R12, R13, R14, R15 RELAYS

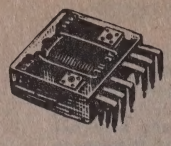


10 pre-punched break-away mounting plates stamped from .064" aluminum. Designed to simplify mounting one or more relays on chassis or racks. Each plate accepts 2, 4, 6 or 8 pole solder terminal relay or socket. 37D645. Mounting strip, R10P126.
57F3463. NET Each.....1.43

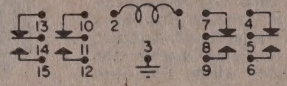
Potter & Brumfield General Purpose Relays

R40 SERIES—SLIMLINE® DC OPERATED RELAY





- For PC Boards
- UL Component Recog.
- Only 0.43" High



4 PDT. Allows easy circuit board layout and 6" board mounting centers. Nominal power 720 mW. Mechanical life: 50 million operations. Contact ratings for 115 V AC or 28 V DC, resistive.

R40-E3 MOUNTED FLAT ON PRINTED CIRCUIT BOARD
2 AMP TYP., 3 AMP MAX.

Stock No.	Type	Volts	1-9	10-49	50-99	100-499
45F163	R40-E3-Y4-V200	12 DC	8.20	7.38	6.56	5.74
45F164	R40-E3-Y4-V800	24 DC				
45F165	R40-E3-Y4-V3.2K	48 DC				
5 AMP TYP., 7.5 AMP MAX.						
45F166	R40-E3-X4-V200	12 DC	8.50	7.65	6.80	5.95
45F167	R40-E3-X4-V800	24 DC				
DRY CIRCUIT/CROSSBAR—500 μA TYP., 250 mA MAX.						
45F171	R40-E3-L4-V200	12 DC	10.95	9.86	8.76	7.67
45F172	R40-E3-L4-V800	24 DC				

R40-E1 SOLDER TERMINALS OR PLUG IN SOCKET MFG.
2 AMP TYP., 3 AMP MAX.

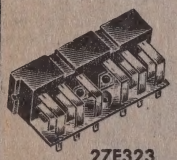
Stock No.	Type	Volts	1-9	10-49	50-99	100-499
45F144	R40-E1-Y4-V50	6 DC	7.65	6.89	6.12	5.36
45F145	R40-E1-Y4-V200	12 DC				
45F146	R40-E1-Y4-V800	24 DC				
45F147	R40-E1-Y4-V3.2K	48 DC				
5 AMP TYP., 7.5 AMP MAX.						
45F148	R40-E1-X4-V200	12 DC	7.95	7.16	6.36	5.57
45F149	R40-E1-X4-V800	24 DC				
BIFURCATED CONTACTS—0.1A TYP., 2A MAX.						
45F150	R40-E1-Z4-V200	12 DC	8.35	7.52	6.68	5.85
45F151	R40-E1-Z4-V800	24 DC				
DRY CIRCUIT/CROSSBAR—500 μA TYP., 250 mA MAX.						
45F152	R40-E1-L4-V200	12 DC	10.40	9.36	8.32	7.28
45F153	R40-E1-L4-V800	24 DC				

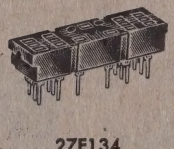
R40-E2 PC TERMINAL VERTICAL MTG.
2 AMP TYP., 3 AMP MAX.

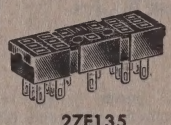
Stock No.	Type	Volts	1-9	10-49	50-99	100-499
45F155	R40-E2-Y4-V200	12 DC	7.65	6.89	6.12	5.36
45F156	R40-E2-Y4-V800	24 DC				
5 AMP TYP., 7.5 AMP MAX.						
45F157	R40-E2-X4-V50	6 DC	7.95	7.16	6.36	5.57
45F158	R40-E2-X4-V200	12 DC				
45F159	R40-E2-X4-V800	24 DC				

9

R40 SOCKETS

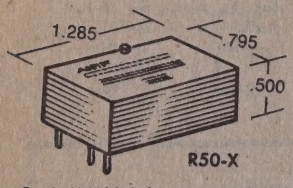






Stk. No.	Type	Terminals	1-9	10-49	50-99	100-499
57F3454	27E323	Rt. angle PC	1.72	1.55	1.38	1.20
57F3441	27E134	Vertical PC	1.23	1.11	.98	.86
57F3442	27E135	Chassis mount solder	1.28	1.15	1.02	.90
57F3409	20C252	Hold down spring	.07	.06	.06	.05

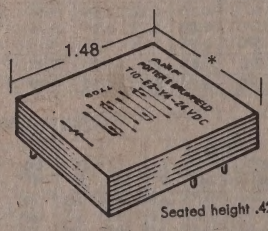
R50 Y1 AND Y2 RELAYS



Seat .425" high for use on PC boards spaced as close as .6" center to center. Pickup approximately 75% of rated coil voltage. Dropout 5% minimum. Covered with molded polyester case. Epoxy sealed for wave solderability. Gold plated PC terminals spaced on .1" grid. Contact life expectancy: 500,000 operations minimum. UL recognized. Nominal pickup power: R50-Y1, 330 mW DC; R50-Y2, 410 mW DC; R50S-Y2, 290 mW DC; R50-X1, 450 to 562 mW DC; R50S-Y1, 160 mW DC. Contact rating: R50, 2 amps @ 28V DC or 1 amp @ 120 AC resistive. R50-X1 5 amps @ 28 V DC or 2.5 amps @ 120 AC resistive. U.L. Recognized.

Stock No.	Type	Input	Res. Ω	Contacts	Current Rating	1-9	10-49
67F1185	R50-E2-Y1	6V	47	SPDT	2A	3.00	2.70
67F1186	R50-E2-Y1	12V	200	SPDT	2A	3.00	2.70
67F1187	R50-E2-Y1	24V	950	SPDT	2A	3.20	2.88
24F2494	R50-E2-Y2	5V	32	DPDT	2A	4.00	3.60
24F2495	R50-E2-Y2	6V	45	DPDT	2A	4.00	3.60
24F2496	R50-E2-Y2	12V	170	DPDT	2A	4.00	3.60
24F2497	R50-E2-Y2	24V	670	DPDT	2A	4.10	3.69
24F2498	R50-E2-Y2	48V	2500	DPDT	2A	4.80	4.32
33F1621	R50-E2-X1	5V	25	SPDT	5A	3.55	3.20
33F1622	R50-E2-X1	6V	37	SPDT	5A	3.55	3.20
33F1623	R50-E2-X1	12V	125	SPDT	5A	3.55	3.20
33F1551	R50S-E2-Y1	5V	64	SPDT	1A	2.90	2.61
33F1552	R50S-E2-Y1	6V	66	SPDT	1A	2.90	2.61
33F1553	R50S-E2-Y1	12V	330	SPDT	1A	2.90	2.61
33F1554	R50S-E2-Y1	24V	950	SPDT	1A	3.10	2.79
33F1555	R50S-E2-Y2	5V	42	DPDT	1A	3.80	3.42
33F1556	R50S-E2-Y2	6V	60	DPDT	1A	3.80	3.42
33F1557	R50S-E2-Y2	12V	260	DPDT	1A	3.80	3.42

T10 SERIES RELAYS



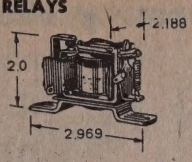
(*) 2PDT-1.24 4PDT-1.54
6PDT-1.84

- General Purpose
- Low Bounce
- Long Life

Only .425" high. PC boards can be mounted on 0.6" centers. Permissive-make contacts. Operate and release times are each 15 ms, including bounce. Y2, Y4, Y6 gold-clad silver, single-button contacts rated to 3 amps @ 28V DC or 120V AC, resistive. Z2, Z4, Z6 gold-clad silver, bifurcated contacts rated from low level to 1 amp @ 60V DC or 120V AC, resistive. Epoxy-sealed for wave solderability. Snap-on polyester cover bonded to relay base but not hermetically sealed allowing cleaning by immersion. Cleaning time must not exceed two minutes. U.L. Recognized.

Stock No.	Type	Input	Res. Ω	Contacts	Current Rating	1-9	10-49
24F2499	T10-E2-Y2	6V	77	DPDT	3A	4.50	4.05
24F2500	T10-E2-Y2	12V	310	DPDT	3A	4.50	4.05
24F2501	T10-E2-Y2	24V	1200	DPDT	3A	4.50	4.05
24F2502	T10-E2-Y2	48V	4800	DPDT	3A	5.25	4.73
24F2503	T10-E2-Z2	6V	77	DPDT	1A	5.00	4.50
24F2506	T10-E2-Z2	48V	4800	DPDT	1A	5.75	5.18
33F1593	T10-E2-Y4	12V	190	4PDT	3A	5.15	4.64
33F1594	T10-E2-Y4	24V	769	4PDT	3A	5.15	4.64
24F2507	T10-E2-Z4	6V	48	4PDT	1A	5.85	5.27
24F2508	T10-E2-Z4	12V	190	4PDT	1A	5.85	5.27
24F2510	T10-E2-Z4	48V	3050	4PDT	1A	6.50	5.85
24F2511	T10-E2-Y6	6V	31	6PDT	3A	6.95	6.26
24F2512	T10-E2-Y6	12V	122	6PDT	3A	6.95	6.26
24F2514	T10-E2-Y6	48V	1900	6PDT	3A	8.50	7.65
24F2515	T10-E2-Z6	6V	31	6PDT	1A	7.85	7.07
24F2516	T10-E2-Z6	12V	122	6PDT	1A	7.85	7.07
24F2517	T10-E2-Z6	24V	480	6PDT	1A	7.85	7.07
24F2518	T10-E2-Z6	48V	1900	6PDT	1A	9.40	8.46

MR SERIES MEDIUM POWER RELAYS



Open frame type. Can handle small motors, transmitters, and many other similar power equipment applications. Mtg: two .156" dia. holes on 2.250" centers for MR3 and 11; 2.625" centers for MR5 and 14. Silver contacts. MR3 has contacts rated 10 amps; all others, 8 amps, 120 VAC, 28 VDC resistive. Life expectancy is 5 million mechanical operation. Insulating material—phenolic. Weight; 4 oz. For dust covers, see MS series below.

COIL DATA FOR MR SERIES

DC COILS			AC COILS (50/60 HZ)		
Volts	Resistance	Average DC Current Milliamps	Volts	DC Resistance	Ave. AC Current Milliamps
6	24	250	6	2.7	550
12	96	125	12	13.2	268
24	360	67	24	60	134
110	8000	14.4	120	1250	28
			240	4600	14

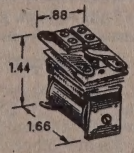
AC TYPE

Stk. No.	Type	Action	Input Volts	1-24	25-50	51-99	100-249
24F1158	MR3A	SPST-NO-DM	24	8.15	7.74	7.34	6.11
24F506	MR3A	SPST-NO-DM	120				
24F541	MR5A	SPDT	6	7.15	6.79	6.44	5.36
45F002	MR5A	SPDT	12				
24F1159	MR5A	SPDT	24				
24F509	MR5A	SPDT	120				
24F534	MR5A	SPDT	240	7.85	7.46	7.07	5.89
24F543	MR11A	DPDT	6	9.45	8.98	8.51	7.09
24F1160	MR11A	DPDT	24				
24F511	MR11A	DPDT	120				
24F535	MR11A	DPDT	240	10.25	9.74	9.23	7.69
62F3006	MR14A	3PDT	6	12.45	11.83	11.21	9.34
62F3007	MR14A	3PDT	12				
45F004	MR14A	3PDT	24				
24F536	MR14A	3PDT	120				

DC TYPE

Stk. No.	Type	Action	Input Volts	1-24	25-50	51-99	100-249
45F006	MR3D	SPST-NO-DM	12	8.40	7.98	7.56	6.30
24F1166	MR3D	SPST-NO-DM	24				
24F550	MR5D	SPDT	6	7.20	6.84	6.48	5.40
24F1167	MR5D	SPDT	12				
24F1168	MR5D	SPDT	24				
62F3008	MR5D	SPDT	110	7.90	7.51	7.11	5.93
24F551	MR11D	DPDT	6	9.50	9.03	8.55	7.13
24F1169	MR11D	DPDT	12				
24F1170	MR11D	DPDT	24				
24F1315	MR11D	DPDT	110	10.35	9.83	9.32	7.76
62F3010	MR14D	3PDT	12	12.40	11.78	11.16	9.30
45F007	MR14D	3PDT	24				
24F1316	MR14D	3PDT	110	13.20	12.54	11.88	9.90

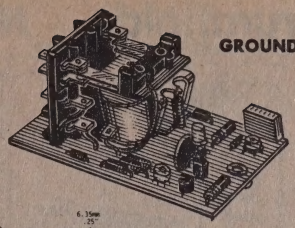
MB MINIATURE TELEPHONE RELAYS



MB Series

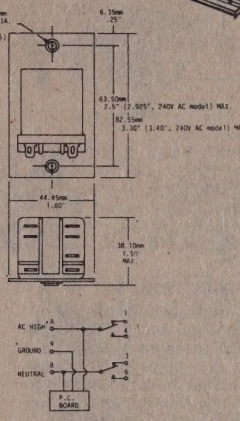
MB SERIES. Designed for very high current applications, 60 A @ 28 VDC res. Contact arms; stationary, heavy brass, silver contacts pierced solder terminals. Movable silver bar SPST-NO-DM contacts. Mtg. four 3—48 holes on .375" x .375" centers. Wt. 2 oz.

Stock No.	Type	Coil Input	Coil Ohms	1-24	25-50	51-99	100-249
24F612	MB3D	12VDC	62.3	12.30	11.69	11.07	9.23
24F613	MB3D	24VDC	245				
24F614	MB3D	110VDC	5000	13.20	12.54	11.88	9.90



GROUND LINE INTEGRITY MONITOR

- **Useful for adherence to requirements of UL-544**
- **Automatically disconnects motor or equipment from line voltage**

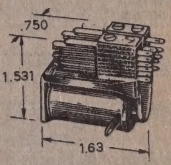


CZS-01 Ground Line Integrity Monitor intended to detect inordinate ground leakage currents from motors and other equipment. Should such currents develop, CZS-01 automatically disconnects motor equipment from line voltage. If fault is not corrected, removal and reapplication of power will not energize relay. Contact: DPDT. Power drain: 3VA when output relay energized. Ground line current: 10μ amps max. Input voltage: 120 VAC, 240VAC (single phase). Sensing voltage: Output contacts transfer to normally closed position when potential between ground and neutral exceeds the actual transfer range of 8-15V rms. Operating temp: 0°C to +55°C. Storage temp; −40°C to +85°C. Termination: .187 quick connect and solder lugs.

Stk. No.	Type	Line Volt.	Contact Rating†	1-9	10-24	25-49	50-99
23F5674	CZS-01-70000	120V	•10 amps at 120V	32.35	30.73	29.12	25.88
23F5675	CZS-01-80000	*240V	10 amps at 240V	40.95	38.90	36.86	32.76
23F5676	CZS-01-70001	120V	•15 amps at 120V	33.35	31.68	30.02	26.68
23F5677	CZS-01-80001	*240V	15 amps at 240V	43.70	41.52	39.33	34.96

*Single phase only. †50/60 hz. • **UL Recognized**

MH SERIES MINIATURE TELEPHONE RELAYS



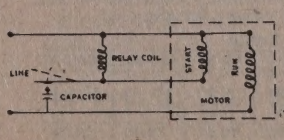
MH SERIES MINIATURE TYPE

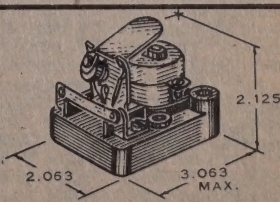
Ideal for applications where space and weight are factors. Contact rating 120 VAC, res. Rating—5 amps, except (†) 3 amps. Gold flashed silver contacts. **OPEN—MH11L:** one 6—32 threaded stud. .344" long plus locating boss. All others four 3—48 holes on .375" x .375" centers. **SEALED (**)**—three 6—32 NC 2 threaded studs on 1.250" x .50" centers except **MH23DD** three 6—32 threaded studs on 1.188" x .938" centers. All sealed models have hook solder terminals. Weight: open models 2.25 oz. maximum. Sealed models 5 oz. maximum.

Stk. No.	Type	Coil Input	Coil Ohms	1-24	25-50	51-99	100-249
24F115	MH11L†	10.0K	10000	15.05	14.30	13.55	11.29
24F113	MH17D	6VDC	23	16.25	15.44	14.63	12.19
24F620	MH17D	24VDC	365	16.25	15.44	14.63	12.19
24F622	MH17DM**	24VDC	365	32.45	30.83	29.21	24.34
62F3034	MH23D	12VDC	62.3	22.55	21.42	20.30	16.91
62F3036	MH23DD**	24VDC	245	43.70	41.52	39.33	32.78

MS SERIES MOTOR STARTING RELAYS

Disconnects capacitor on capacitor start, induction run motors. Operates on back EMF of start winding. Armature gap can be altered to change pick-up. UL recognized. Mounting: two .156" dia. holes on 1.563" centers. Contacts: ¾ HP, fine silver; 3 HP, silver cadmium.





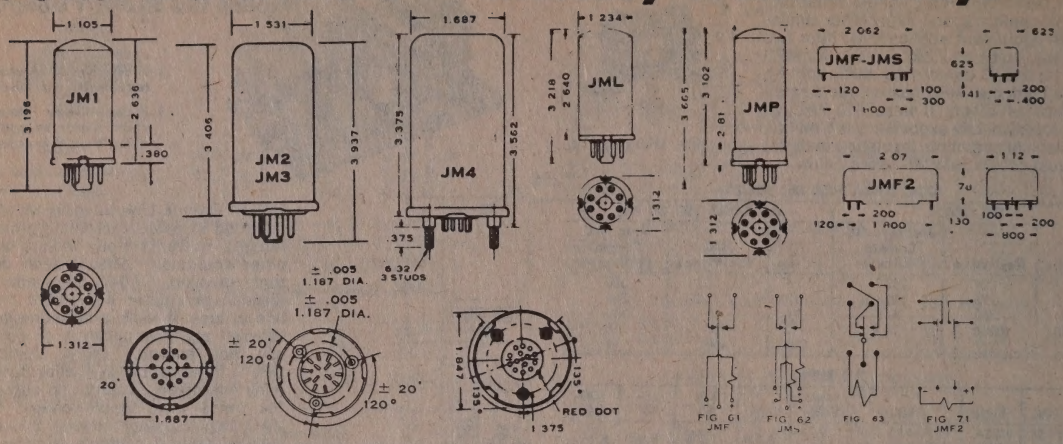
Stock No.	Type	Input	Res. Ω	Contacts	Rating	1-24	25-50	51-99	100-249
25F775	MS2AY	120V	530	SPST-NC	¾ HP	9.25	8.79	8.33	6.94
25F776	MS2AY	240V	2100		¾ HP	9.35	8.88	8.42	7.01
25F777	MS4AY	120V	530	SPST-NC-DB	3 HP	10.20	9.69	9.18	7.65
25F778	MS4AY	240V	2100		3 HP	10.30	9.79	9.27	7.73

MS/MR SERIES DUST COVER

Metal dust cover.

Stock No.	Type	1-24	25-50	51-99	100-249
25F779	35D130	3.68	3.50	3.31	2.76

Potter & Brumfield Mercury Wetted Relays



JM MERCURY-WETTED CONTACT RELAYS

Rare long life, high speed and unvarying dependability are the results of this hermetically sealed glass capsule, which contains a small reservoir of mercury sealed in a high pressure hydrogen atmosphere. Will handle contact loads up to 5 Amps @ 500V with operating time as short as 3ms. Contacts utilize the standard bridging Form D make-before-break arrangement, allowing single capsule SPDT, 2 capsule DPDT, 3 capsule 3PDT and 4-capsule 4PDT construction. Mounting position: Upright mtg. req'd, but deviation from upright to 30 causes only minor deviation in operating characteristics.

SINGLE CAPSULE-SINGLE COIL-SPDT

Stk. No.	Type	Ohms	1-9	10-24	25-99	100-249
62F2950	JM1-106-12	40				
24F1680	JM1-109-12	130				
24F1681	JM1-112-11	500	24.20	18.05	15.37	13.92
24F1682	JM1-114-11	700				
24F1683	JM1-114-12	700				
24F1684	JM1-118-11	2500	23.55	17.57	14.95	13.54
24F1685	JM1-119-11	4000	11.80	11.80	11.80	11.80
24F1686	JM1-120-11	7000	24.45	18.24	15.53	14.06
24F1687	JM1-121-11	11000	24.45	18.24	15.53	14.06
24F1688	JM1-123-11	25000	24.45	18.24	15.53	14.06

4PDT-SINGLE COIL

62F2953	JM4-110-41	390	62.90	46.92	39.94	36.17

SPDT-SINGLE COIL

62F2955	JMD-1090-63	450	19.30	14.40	12.26	11.10

DOUBLE CAPSULE—SINGLE COIL—DPDT

24F2157	JM2-104-22	50				
24F2158	JM2-109-22	315				
24F2159	JM2-110-22	500	37.70	28.12	23.94	21.68
24F1690	JM2-111-22	700				
24F2160	JM2-112-22	1250				
24F2162	JM2-115-21	5000				
24F1691	JM2-115-22	5000				

THREE CAPSULE-SINGLE COIL

62F2951	JM3-110-31	500				
45F018	JM3-109-31	315	48.70	36.33	30.92	28.00
24F2168	JM3-115-31	5000				

JML NON-BRIDGING MERCURY-WETTED CONTACT RELAYS

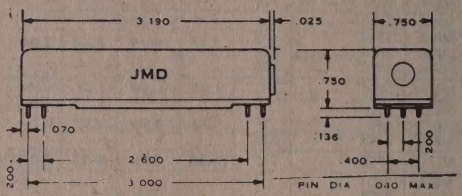
Employs a Form C non-bridging contact arrangement. They provide greater sensitivity, faster operation than JMP relays. Speeds from 3ms to 1.1 ms are possible, depending upon coil power. Contacts are rated 2 amps max., 500V max. with contact protection. All JML relays mount in Amphenol 77-MIP-8 sockets. Weight: 4-oz.

SINGLE-SIDE-STABLE

Stk. No.	Type	Ohms	1-9	10-24	25-99	100-249
24F2189	JML1061-81	40				
24F2190	JML1110-81	350	19.20	14.32	12.19	11.04
24F2191	JML1160-81	1000				
24F2192	JML1190-81	2500	20.55	15.53	13.05	11.82
24F2193	JML1200-81	4000	20.55	15.53	13.05	11.82
45F3019	JML1240-81	1100	20.55	15.53	13.05	11.82
24F2194	JML1260-81	25000	21.40	15.96	13.59	12.31

BI-STABLE

24F2197	JML5200-81	4000	20.55	15.53	13.05	11.82
62F2957	JML5430-82	1100	21.35	15.93	13.56	12.28



TERMINATIONS

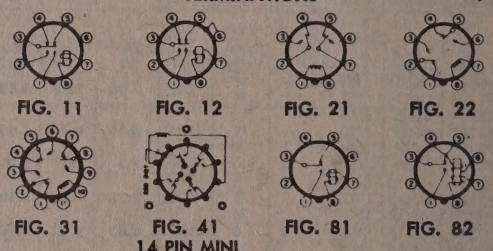


FIG. 11 FIG. 12 FIG. 21 FIG. 22

FIG. 31 FIG. 41 14 PIN MINI PLUG FIG. 81 FIG. 82

Last Two Digits in Type Number Indicates Termination Fig. No.

JM MERCURY WETTED CONTACT RELAYS

JMF JMF2 (dual capsule*) and JMS relays have SPDT break-before-make (Form C) non-bridging contacts. JMP relays have SPDT break-before-make (Form D) bridging contacts. All contacts rated 500 volts at 2 amps except JMP which are rated 500 volts at 5 amps. Weight: JMF and JMS, 1¼ oz.; JMF2 and JMP, 3¼ oz.

JMF PRINTED CIRCUIT MODULE RELAYS

Single Side Stable

Stk. No.	Type	Ohms	1-9	10-24	25-99	100-249
24F2552	JMF1080-61	675				
24F2553	JMF1120-61	1425	17.15	12.79	10.89	9.86
24F2554	JMF1150-61	2400				
24F2555	JMF1160-61	4000	18.00	13.43	11.43	10.35

JMF2 PRINTED CIRCUIT MODULE RELAYS

62F2977	JMF21001-71*	520	30.50	22.75	19.37	17.54
62F2978	JMF21002-71*	2200				

JMS SENSITIVE NON-BRIDGING RELAYS

Single-side-stable, single-wound coil

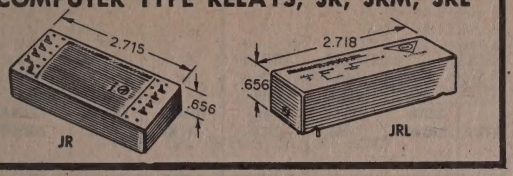
62F2981	JMS1070-61	34	17.75	13.24	11.27	10.21
62F2982	JMS1130-61	620	17.80	13.28	11.30	10.24
62F2983	JMS1160-61	2430	18.05	13.47	11.46	10.38

JMP POLARIZED FORM D BRIDGING RELAYS

Single-side-stable

62F2985	JMP1160-11	1000	24.60	18.35	15.62	14.15

COMPUTER TYPE RELAYS, JR, JRM, JRL



JR and JRM. Glass supported nylon insulated. 500 volts rms 60 Hz, between insulated points. 275 volts rms 60 Hz, between open contacts. **JR** Operate time: 3ms. @ nom. coil volt @ 25°C. Size 2.715 x .656" H max. **JRM** is 1.125" long, .468" high; width varies with contact arrangement. Oper. time: 1ms. Release time: 1 ms. Pick-up: 75% or less nom. @ 25°C. Rating: 10 watts. **JRL.** Standard latching relay. 1 Form A and 2 Form A contacts rated 15 watts, resistive. Operate time at 25°C is 1.0ms (including bounce). Wt. 2 oz.

JR STANDARD

Stock No.	Type JR	No. Cav	Coil VDC	Coil Ohms	Con. Arr.	Reed Watts	1-9	10-24	25-99	100-249
24F2860	1000	1	6	150	1A	15	5.50	4.10	3.49	3.16
24F2861	1001	2	6	100	2A	15	7.40	5.52	4.70	4.26
24F2864	1040	1	6	150	1C	10	11.75	8.77	7.46	6.76
24F3300	1041	2	6	100	2C	10	12.70	9.47	8.06	7.30
24F2867	1005	1	12	600	1A	15	5.75	4.29	3.65	3.31
24F2872	1025	1	12	600	1A	50	7.30	5.45	4.64	4.20
24F2868	1006	2	12	400	2A	15	7.45	5.56	4.73	4.28
62F2989	1008	4	12	150	4A	15	11.00	8.21	6.99	6.33
24F2871	1045	1	12	600	1C	10	11.75	8.77	7.46	6.76
24F3301	1046	2	12	400	2C	10	15.45	11.53	9.81	8.88
24F2874	1010	1	24	2400	1A	15	6.20	4.63	3.94	3.57
24F2879	1030	1	24	2400	1A	50	7.80	5.82	4.95	4.49
24F2875	1011	2	24	1600	2A	15	7.75	5.78	4.92	4.46
62F2992	1066	2	24	1600	1B	15	7.65	5.71	4.86	4.40
24F2878	1050	1	24	2400	1C	10	11.70	8.73	7.43	6.73
62F2991	1051	2	24	1600	2C	10	13.05	9.74	8.29	7.50

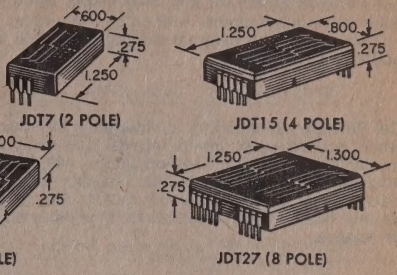
JRL LATCHING

24F3309	1000	2	6	400	1A	15	8.60	6.42	5.46	4.95
24F3310	1001	2	12	1600	1A	15	9.25	6.90	5.87	5.32
24F3311	1002	2	24	6400	1A	15	9.35	6.98	5.94	5.38
24F3312	1012	3	6	300	2A	15	11.65	8.69	7.40	6.70
24F3313	1013	3	12	1200	2A	15	11.75	8.77	7.46	6.76

JRM MINIATURE

Stock No.	Type JRM	No. Cav	Coil VDC	Coil Ohms	Con. Arr.	W In.	Wt. Oz.	1-9	10-24	25-99	100-249
24F3303	1000	1	6	200	1A	.432	.366	5.65	4.21	3.59	3.25
24F3304	1001	2	6	130	2A	.562	.395	7.75	5.78	4.92	4.46
62F2994	1003	4	6	67	4A	.813	.620	12.30	9.18	7.81	7.07
62F2995	1036	2	6	130	1B	.562	.395	6.95	5.18	4.41	4.00
62F2997	1048	3	6	86	1A+1B	.968	.781	8.90	6.64	5.65	5.12
24F2909	1006	1	12	800	1A	.432	.366	5.50	4.10	3.49	3.16
24F2910	1007	2	12	520	2A	.557	.395	7.75	5.78	4.92	4.46
24F3305	1009	4	12	268	4A	.813	.620	12.30	9.18	7.81	7.07
24F2919	1040	2	12	520	1B	.557	.395	7.05	5.26	4.48	4.05
24F2923	1050	3	12	344	1A+2B	.698	.530	8.95	6.68	5.68	5.15
24F3306	1051	5	12	200	2A+2B	.968	.781	14.10	10.52	8.95	8.11
24F2912	1012	1	24	3200	1A	.432	.366	6.10	4.55	3.87	3.51
24F2913	1013	2	24	2080	2A	.557	.395	8.00	5.97	5.08	4.60
24F2914	1015	4	24	1072	4A	.808	.620	12.45	9.29	7.91	7.16
24F2921	1044	2	24	2080	1B	.557	.395	7.10	5.30	4.51	4.08
24F3307	1045	3	24	1376	2B	.703	.530	9.55	7.12	6.06	5.49
24F2925	1052	3	24	1376	1A+1B	.698	.530	9.05	6.75	5.75	5.20
24F3308	1053	5	24	800	2A+2B	.968	.781	14.10	10.52	8.95	8.11

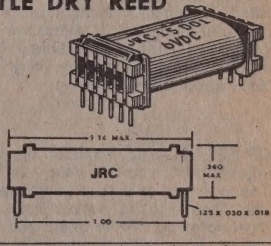
SERIES JDT DUAL THIN LINE RELAYS



Ideal for high density packaging applications. Reed relays have low profile (only 0.275" max. height). Hermetically sealed glass capsules are completely encapsulated in epoxy. Terminals are on .100" grid centers for ease of printed circuit board mounting and layout. Operate time is 3.5 milliseconds including bounce. Release time is 3.5 milliseconds maximum. Weight: ½ to ¾ oz. max.

Stock No.	Type JDT	No. Cav	Coil VDC	Coil Ohms	Con. Arr.	Reed Watts	1-9	10-24	25-99	100-249
62F3000	7DA1	2	6	115	2A	10	8.85	6.60	5.62	5.09
62F3001	7DA1	2	12	460	2A	10	8.85	6.60	5.62	5.09
24F3315	15DB1	4	6	115	4A	10	11.50	8.58	7.30	6.61
24F3316	15DB1	4	12	460	4A	10	11.50	8.58	7.30	6.61
24F3317	15DB1	4	24	1840	4A	10	12.15	9.06	7.72	6.99
62F3003	21DC1	6	6	100	6A	10	15.60	11.64	9.91	8.97
62F3004	21DC1	6	12	400	6A	10	15.60	11.64	9.91	8.97
62F3005	21DC1	6	24	1600	6A	10	15.85	11.82	10.06	9.11
24F3318	27DD1	8	6	60	8A	10	18.15	13.54	11.53	10.44
24F3319	27DD1	8	12	240	8A	10	18.15	13.54	11.53	10.44
24F3366	27DD1	8	24	960	8A	10	19.40	14.47	12.32	11.16

JRC OPEN STYLE DRY REED



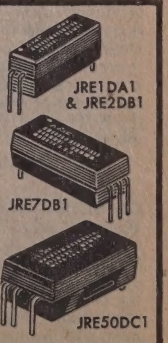
Have P/C terminals arranged to fit popular 100 x 1.00 grid layout. Rhodium is standard contact material rated 10 watts max. .5 amp max. and 125 volts max. for DC resistive loads. Typical operate speeds are 1 ms (including bounce) for pick-up and .05 ms for drop-out. Approx. weight: .3 to 1.0 oz.

Stock No.	Type JRC	No. Cav	Coil VDC	Coil Ohms	Con. Arr.	Reed Watts	1-24	25-49	50-74	75-99
67F1034	1DA1	1	6	240	1A	10	6.00	5.40	5.10	4.80
67F1035	1DA1	1	12	960	1A	10				
67F1036	1DA1	1	24	3840	1A	10				
67F1037	7DB1	2	6	155	2A	10	7.25	6.53	6.16	5.80
67F1038	7DB1	2	12	625	2A	10				
67F1039	7DB1	2	24	2500	2A	10				
67F1041	15DD1	4	12	320	4A	10	10.15	9.14	8.63	8.12
67F1044	2DB1	2	12	625	1B	10	7.10	6.39	6.04	5.68
67F1045	2DB1	2	24	2500	1B	10	7.10	6.39	6.04	5.68
67F1047	50DD1	4	12	320	1A+1B	10	8.50	7.65	7.23	6.80
67F1048	50DD1	4	24	1280	1A+1B	10	8.50	7.65	7.23	6.80

JRE SERIES—SEALED DRY REED RELAYS

Stock No.	Type JRE	No. Cav.	VDC	Ohms	Con. Arr.	1-24	25-49	50-74	75-99
23F5660	1DA1		5	200		4.35	3.92	3.70	3.48
23F5661	1DA1		6	200		4.35	3.92	3.70	3.48
23F5662	1DA1	1	12	1264	1A	4.45	4.01	3.78	3.56
23F5663	1DA1		15	1264		4.45	4.01	3.78	3.56
23F5664	1DA1		24	5056		5.20	4.68	4.42	4.16
23F5665	2DB1		5	210		5.60	5.04	4.76	4.48
23F5666	2DB1	2	12	880	1B	5.65	5.09	4.80	4.52
23F5667	2DB1		24	3600		5.95	5.36	5.06	4.76
23F5668	7DB1		5	118		4.95	4.46	4.21	3.96
23F5669	7DB1	2	12	555	2A	4.95	4.46	4.21	3.96
23F5670	7DB1		24	2250		4.95	4.46	4.21	3.96
23F5671	50DC1		5	52		6.85	6.17	5.82	5.48
23F5672	50DC1	3	12	330	1A+1B	6.85	6.17	5.82	5.48
23F5673	50DC1		24	1320		6.85	6.17	5.82	5.48

- **10 WATT REED RATING**
- **1 millisec Operate time for 1 form A**
- **Will accept direct drive from TTL**



Will pick up at 75% or less of rated coil voltage. Operate time, including bounce, is 1.0 msec. Each reed contact will switch a load of 10 watts, 200VDC or 10VA, 140VAC. Maximum contact rating is 500mA DC and 350mA AC. Mounted height is .360" with PC board spacing on .6" centers. Terminals are spaced on a 1.0" x 0.1" grid. All package lengths are: .950", package widths are: 1DA1—.310" 7DB1—.400" 2DB1—.400" 50DC1—.550". JRE1DA1 and JRE2DB1 each require 25mA and will accept direct drive from TTL @ 25°C.

Potter & Brumfield

Time Delay Relays

CD SERIES—Remarkably dependable, accurate and flexible, offers an unusually wide selection of operational configurations, all with accurate time delay values, fast reset time and excellent repeatability. It is available in two types: Knob-adjustable in two versions, one with the relay in the same enclosure as the solid state unit, the other with an auxiliary relay. A second type is adjustable with an external resistor. Available for time delay on operate or on release.

CH SERIES—Intended for a wide range of industrial applications where economy is of greater interest than non-false operation. It is available in two types: Knob-adjustable with the relay in the same enclosure as the solid state unit. The second type has a fixed time delay period that is set at the factory and cannot be modified; its case has no knob. Available for time delay on either operate or on release.

CJ SERIES—Time delay dry reed relays have high sensitivity and low power requirements. CJH external resistor provides adjustable time delay on operate.

CK SERIES—Similar to the CH with the exception that they do not have timing cycle interrupt transfer and will time as low as 0.1 second. These time delays include an internally mounted DPDT KR relay rated 10 amperes to form a compact and convenient assembly. Enclosed in white nylon dust covers, CK relays are available in three types: fixed, resistor adjustable and knob adjustable for AC or DC operation. Mounting convenience is provided by plug-in octal type terminals.

9

CL SERIES—Designed for delay on operate the CL Series is similar to the CU with the exception that they don't have timing cycle interrupt transfer and will time to 0.1 second. These solid state time delays are ideal for AC or DC applications. A DPDT KU relay rated 10 amperes is mounted in the same enclosure, forming a compact assembly. CL relays are enclosed in yellow polycarbonate dust covers and are available in three types: fixed, resistor adjustable and knob adjustable. Plug-in/quick-connect terminals facilitate handling and hook-up.

CR SERIES—Recycle timer has two independent control knobs for adjusting ON and OFF delays in 5 models from 0.1 to 180 seconds. The recycling sequence is initiated by applying power to the terminals. When the first preset delay is complete, the contacts transfer from normally OFF to energized ON, at which time the ON delay begins. If power is removed during any part of the operate cycle, the CR will revert to its OFF state (contacts open).

CU SERIES—An outstanding value in solid state time delay relays. The low cost CU Series is designed for delay on operate application in machines, process controls, copiers, office equipment, coin-operated machines, process controls and many others. Relays are available in three types: Fixed time delay that is set at the factory and cannot be modified, adjustable with an external resistor, and knob-adjustable with a reference scale. For minimum time (on external resistor types), two terminals, 2 and 5 must be shorted; for maximum time, the listed external resistor must be added between terminals 2 and 5. For intermediate times select a lesser value resistor or use a potentiometer. Either fixed or resistor adjustable models can be furnished in two types of enclosures with the relay mounted in the same case as the solid state circuit. The CUB series knob-adjustable time delay is offered in a slightly taller enclosure. All CU series time delays have an internal DPDT 10 amp relay of the KUP series. The cases for the CU and KUP are dimensionally the same.

CG SERIES—Available in time delay on operate or interval on. Feature C/MOS integrated circuit controlling DPDT relay having contacts rated 10 amps @ 120 VAC, or 5 amps @ 240 VAC resistive. Repeatability, including first cycle of operation, typically .1% for DC units, .1% for AC units. Delay time provided by IC network not normally affected by voltage transients encountered in industrial applications. Relay contacts will not transfer if timing cycle is momentarily interrupted.

COMPARISON OF GENERAL SPECIFICATIONS OF TIME DELAY RELAYS

TYPE	TEMP. RANGE	TOLERANCE AND DELTA TIME	TRANSIENT PROTECTION	FALSE OPR.	RECYCLE AND RELEASE TIME	REPEATABILITY
CD	−40° to +55°	± 5% Delta Time: ± 5%	1000V (on all 120V AC models)	None	CD-38 45 Milliseconds typical	CD-38 ± 1% Others ± 2% (AC UNITS ADD ±1 cycle 60Hz)
CH	−10°C to +40°C	±5% Delta Time: ±10%	1000V (on all 120V AC models)	Contacts may transfer momentarily if timing interval is interrupted	125 milliseconds typical	±2% (AC UNITS ADD ±1 cycle 60 Hz)
CJ	−10° to +55°C	Fixed ±5% Adjust ±10% Delta Time: ±10%		None	50 milliseconds typical	±2%
CK	−10°C to +55°C	±5% Delta Time: ±10%	1000V (on all 120V AC models)	None	60 milliseconds typical	±2% (AC UNITS ADD ±1 cycle 60 Hz)
CL	−10°C to +40°C	Fixed ±5% Adjust ±10%	1,000 V on AC units	None	100 milliseconds typical	3% (AC UNITS ADD ±1 cycle 60 Hz)
CR	−40°C to +55°C	Adjust ±20% Delta Time: ±10%	Twice rated input voltage for 1 ms.	None	60 milliseconds typical	2% (AC UNITS ADD ±1 cycle 60 Hz)
CU	−10°C to +40°C	Fixed ±5% Adjustable ±10%	1,000 V on AC units	Contacts may transfer momentarily if timing interval is interrupted	150 milliseconds typical	±3% (AC UNITS ADD ±1 cycle 60 Hz)
CG	−10°C to +55°C	Both ±5%	1000V (on all 120/240 VAC models)	None	30-40 milliseconds typical	0.5% AC 0.1% DC incl. first cycle

Time Delay Relays

Potter & Brumfield

DELAY ON OPERATE—24 VAC

Stock No.	Type	Delay (sec)	Control Method	Foot-notes	1-9	10-24	25-49
67F1154	CDB38-30001	0.1-10	Knob	1	57.10	54.25	51.39
24F3363	CKB38-30010	0.1-10	Knob	1	29.65	28.17	26.69
24F3354	CLB51-30010	0.1-10	Knob	1†	27.05	25.70	24.35
24F2881	CHB38-30001	1.0-10	Knob	1	25.75	24.46	23.18
24F2946	CUF42-30010	1.0-10	Res.	200K*†	19.45	18.48	17.51
24F2881	CHB38-30003	1.0-180	Knob	1	25.75	24.46	23.18

DELAY ON OPERATE—120 VAC

Stock No.	Type	Delay (sec)	Control Method	Foot-notes	1-9	10-24	25-49
67F1156	CDB38-70001	0.1-1	Knob	1	57.10	54.25	51.39
67F1157	CDB38-70002	0.1-5	Knob	1	57.10	54.25	51.39
24F1881	CDB21-70003	0.1-10	Knob	2	50.50	47.98	45.45
24F1875	CDB38-70003	0.1-10	Knob	1	57.10	54.25	51.39
24F3364	CKB38-70010	0.1-10	Knob	1	29.65	28.17	26.69
24F3361	CKF38-70010	0.1-10	Res.	1&8*	28.50	27.08	25.65
24F3355	CLB51-70010	0.1-10	Knob	1†	26.50	25.18	23.85
24F3357	CLF41-70010	0.1-10	Res.	200K*†	24.40	23.18	21.96
67F1142	CLF42-70010	0.1-10	Res.	200K*	24.40	23.18	21.96
33F1664	CDB38-70006	0.3-30	Knob	1	57.10	54.25	51.39
24F1876	CDB38-70004	0.6-60	Knob	1	57.10	54.25	51.39
67F1158	CKB38-70060	0.6-60	Knob	1‡	29.65	28.17	26.69
24F2883	CHB38-70001	1.0-10	Knob	1	25.75	24.46	23.18
33F1597	CGB38-70010M	1.0-10**	Knob	1	64.35	61.13	57.92
24F3350	CUB51-70010	1.0-10	Knob	1†	22.25	21.14	20.03
24F2937	CUF41-70010	1.0-10	Res.	200K*†	19.45	18.48	17.51
24F2942	CUF42-70010	1.0-10	Res.	200K*†	19.45	18.48	17.51
67F1143	CUF41-70030	1.0-30	Res.	600K*†	20.05	19.05	18.05
67F1159	CHB38-70002	1.0-60	Knob	1‡	25.75	24.46	23.18
24F3351	CUB51-70120	1.0-120	Knob	1	23.10	21.95	20.79
24F2938	CUF41-70120	1.0-120	Res.	2.4M*†	21.10	20.05	18.99
24F2943	CUF42-70120	1.0-120	Res.	2.4M*†	21.10	20.05	18.99
24F2884	CHB38-70003	1.0-180	Knob	1‡	25.75	24.46	23.18
24F3365	CKB38-70120	1.2-120	Knob	1	29.65	28.17	26.69
24F3356	CLB51-70120	1.2-120	Knob	1†	27.50	26.13	24.75
24F1882	CDB21-70001	1.8-180	Knob	2	50.50	47.98	45.45
24F1877	CDB38-70005	1.8-180	Knob	1	57.10	54.25	51.39
67F1137	CUA41-70001	1.0	Fixed	1†	18.45	17.53	16.61
67F1144	CDF38-70001	1 max	Res.	1&9*	53.15	50.49	47.84
33F1665	CUA41-70005	5	Fixed	1	18.45	17.53	16.61
33F1598	CGB38-70050M	5.0-50**	Knob	1	64.35	61.13	57.92
67F1145	CDF38-70002	5 max	Res.	1&10*	53.15	50.49	47.84
67F1146	CDF31-70003	10 max	Res.	11&12*	50.75	48.21	45.21
67F1147	CDF38-70003	10 max	Res.	1&12*	53.15	50.49	47.84
33F1597	CGB38-70100M	10-100**	Knob	1	64.35	61.13	57.92
67F1138	CHA38-70001	10	Fixed	1‡	24.45	23.23	22.01
24F2927	CUA41-70010	10	Fixed	1†	18.45	17.53	16.61
24F2942	CUA42-70010	10	Fixed	1†	18.45	17.53	16.61
24F2928	CUA41-70120	120	Fixed	1†	20.40	19.38	18.36
24F2933	CUA42-70120	120	Fixed	1†	20.40	19.38	18.36

DELAY ON OPERATE—240 VAC

67F1160	CHB38-80001	1.0-10	Knob	1	27.20	25.84	24.48

DELAY ON OPERATE—12 VDC

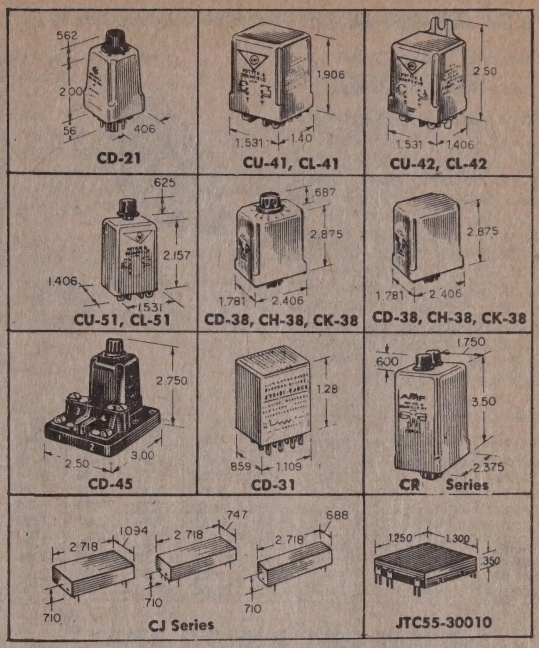
45F094	CJH01-20010	0.1-10	Res.	750K*	25.55	24.27	23.00
45F098	CJH03-20010	0.1-10	Res.	750K*	28.05	26.65	25.25
67F1161	CKD38-20010	0.1-10	Knob	1	28.40	26.98	25.56
45F095	CJH01-20120	1.0-120	Res.	1.8M*	29.15	27.69	26.24

DELAY ON OPERATE—24VDC

24F1878	CDD38-30003	0.1-10	Knob	1	54.20	51.49	48.78
24F3362	CKH38-30010	0.1-10	Res.	1&8	27.25	25.89	24.53
45F096	CJH01-30010	0.1-10	Res.	750K*	25.55	24.27	23.00
45F100	CJH03-30010	0.1-10	Res.	750K*	28.05	26.65	25.25
24F3358	CIH41-30010	0.1-10	Res.	160K*†	24.40	23.18	21.96
24F1879	CDD38-30004	0.6-60	Knob	1	54.20	51.49	48.78
33F1600	CGD38-30010M	1.0-10**	Knob	1	61.05	58.00	54.95
24F2885	CHD38-30001	1.0-10	Knob	1	24.50	23.28	22.05
24F2939	CUH41-30010	1.0-10	Res.	160K*†	19.45	18.48	17.51
24F2944	CUH42-30010	1.0-10	Res.	160K*†	19.45	18.48	17.51
24F2940	CUH41-30120	1.0-120	Res.	2M*†	21.10	20.05	18.99
24F2886	CHD38-30003	1.0-180	Knob	1	24.50	23.28	22.05
24F1884	CDD21-30001	1.8-180	Knob	3	50.10	47.60	45.09
24F1880	CDD38-30005	1.8-180	Knob	1	54.20	51.49	48.78
24F2929	CUC41-30010	10	Fixed	1†	18.45	17.53	16.61
24F2930	CUC41-30120	120	Fixed	1†	20.40	19.38	18.36

DELAY ON OPERATE—48 VDC

67F1162	CDD38-40002	0.6-60	Knob	1	54.20	51.49	48.78



INTERVAL ON—120 VAC

Stock No.	Type	Delay (sec)	Control Method	Foot-notes	1-9	10-24	25-49
33F1603	CGB38-79010M	1.0-10**	Knob	1	64.35	61.13	57.92
67F1172	CHB38-70021	1.0-10	Knob	1‡	31.00	29.45	27.90
67F1173	CHB38-70022	1.0-60	Knob	1‡	32.65	31.02	29.39
67F1174	CHB38-70023	1.0-180	Knob	1‡	64.35	61.13	57.92
33F1604	CGB38-79050M	5-50**	Knob	1	64.35	61.13	57.92
33F1605	CGB38-79100M	10-100**	Knob	1	64.35	61.13	57.92

INTERVAL ON—24 VDC

67F1175	CHD38-30021	1-10	Knob	1	32.55	30.92	29.30
33F1607	CGD38-39050M	5-50**	Knob	1	61.05	58.00	54.95
33F1608	CGD38-39100M	10-100**	Knob	1	61.05	58.00	54.95

DELAY ON RELEASE—24 VAC

67F1163	CHB38-30011	1-10	Knob	1&13	33.85	32.16	30.47

DELAY ON RELEASE—120 VAC

24F3260	CHB38-78010	0.1-10	Knob	1	37.55	35.67	33.80
24F1887	CDB38-70012	0.6-60	Knob	1	68.25	64.84	61.43
67F1164	CDB38-70014	0.1-10	Knob	1	68.25	64.84	61.43
67F1165	CDB38-70015	1.8-180	Knob	1	68.25	64.84	61.43
24F2887	CHB38-70011	1-10	Knob	1&13‡	32.15	30.54	28.94
67F1166	CHB38-70012	1-60	Knob	1&13‡	33.00	31.35	29.70
24F2888	CHB38-70013	1-180	Knob	1&13‡	32.50	30.88	29.25

DELAY ON RELEASE—24 VDC

24F1888	CDD38-30012	0.6-60	Knob	1	64.40	61.18	57.96
67F1167	CDD38-30014	0.1-10	Knob	1	64.40	61.18	57.96
67F1168	CDD38-30008	1.8-180	Knob	1	64.40	61.18	57.96
24F2889	CHD38-30011	1-10	Knob	1&13	33.75	32.06	30.38
24F2890	CHD38-30013	1-180	Knob	1&13	33.00	31.35	29.70

RECYCLE TIMER DELAY ON OP./RELEASE

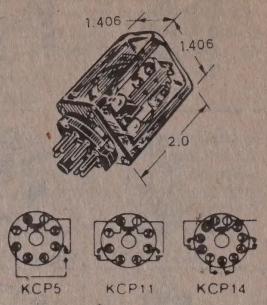
Stock No.	Type	Delay (sec)	Input Volts	Foot-notes	1-9	10-24	25-49
67F1169	CRB48-30180	1.8-180	24 VAC	1	55.85	53.06	50.27
33F1668	CRB48-70010	0.1-10	120 VAC	1	55.85	53.06	50.27
67F1170	CRB48-70180	1.8-180	120 VAC	1	55.85	53.06	50.27
67F1171	CRD48-30180	1.8-180	24 VDC	1	54.50	51.78	49.05

FOOTNOTES:—**M** = Minutes (†) UL. (*) Ext. resistor, not supplied, for max. time. Recommend ¼ watt min. resistor. **1)** Int. relay w DPDT contacts; 10 Amps, 120 VAC. **2)** Use with relay KRP5AG-120 VAC, KRP11AG-120VAC, or KRP14AG-120VAC. **3)** Use with KRP5DG-24VDC, KRP11DG-24VDC, or KRP14DG-24VDC relay. **4)** Use with KHP17D11-24VDC relay. **6)** Use with PRD11AY-120VAC relay. **8)** 750K resistor for max. time. **9)** 33K resistor for ½ max. time. **10)** 200K resistor for ½ max. time. **12)** 400K resistor for ½ max. time. **13)** Ext. switch or relay required. **14)** 1.6 meg. resistor for ½ max. time. (**) Indicates delay in minutes. (‡) Not recommended for continuous duty.

Potter & Brumfield

KCP SERIES—SENSITIVE ENCLOSED RELAYS

- **Low cost**
- **Standard octal plug-in type**
- **Gold flashed silver contacts**



Low cost DC sensitive relay enclosed in clear polycarbonate cover. Sensitivity: 125 mw single pole; 250 mw double pole; 375 mw three pole. Mounting: standard octal plug-in type. Eight pin for KCP5 and KCP11. Eleven pin for KCP14. Contacts: Gold flashed silver, 2A. Use KRP hold down spring when vibration is a factor or when using inverted or horizontal mounting. Weight: Approximately 3 oz.

Stk. No.	Type	Action	Input	Ohms	1-24	25-50	51-99	100-249
24F489	KCP5	SPDT	7.2mA	2500	9.15	8.69	8.24	6.86
24F490	KCP5	SPDT	5.0mA	5000	9.25	8.79	8.33	6.94
24F491	KCP5	SPDT	3.6mA	10,000	9.85	9.36	8.87	7.39
24F492	KCP11	DPDT	10.0mA	2500	9.70	9.22	8.73	7.28
24F496	KCP11	DPDT	7.2mA	5000	9.85	9.36	8.87	7.39
24F497	KCP11	DPDT	5.0mA	10,000	10.55	10.02	9.50	7.91
24F493	KCP14	3PDT	12.3mA	2500	11.95	11.35	10.76	8.96
24F494	KCP14	3PDT	8.7mA	5000	12.15	11.54	10.94	9.11
24F495	KCP14	3PDT	6.1mA	10,000	12.80	12.16	11.52	9.60

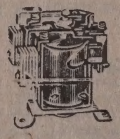
LB LOW COST SENSITIVE RELAY

Current sensitive relays designed to operate on a few milliwatts DC. Sensitivity 200 milliwatts. Silver contacts rated at 5 amps. Two 3/16" holes on 2 1/32" centers. 2 21/32x1 1/4x1 3/8". Weight 2 oz.

Stk. No.	Type	Action	Input	Ohms	1-24	25-50	51-99	100-249
24F570	LB5	SPDT	9.0mA	2500	6.20	5.89	5.58	4.65
24F571	LB5	SPDT	6.3mA	5000	6.70	6.37	6.03	5.03
24F572	LB5	SPDT	4.5mA	10,000	7.20	6.84	6.48	5.40

LM SENSITIVITY RELAY

- **DC only**
- **Silver contacts rated @ 5 amps**



Operates on only 100 mwDC per pole. Medium cost high quality relay with silver contacts rated at 5 amps. Pick-up adjustable by tail spring adjusting screw. Mounting: Two No. 6-32 holes on 1 13/16" centers. DC only. (See KL for voltage actuated models.) 2 3/16x2 1/4x2 1/2". Weight: 5 oz.

Stk. No.	Type	Action	Input	Ohms	1-24	25-50	51-99	100-249
24F562	LM5	SPDT	6.3mA	2,500	9.05	8.60	8.15	6.79
24F563	LM5	SPDT	4.5mA	5,000	9.15	8.69	8.24	6.86
24F564	LM5	SPDT	3.2mA	10,000	10.00	9.50	9.00	7.50
24F567	LM11	DPDT	9.0mA	2,500	13.15	12.49	11.84	9.86
24F568	LM11	DPDT	6.3mA	5,000	13.30	12.64	11.97	9.98
24F569	LM11	DPDT	4.5mA	10,000	14.10	13.40	12.69	10.58

RS LIGHT WEIGHT SENSITIVE RELAY

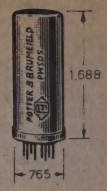
- **Low cost**
- **Palladium contacts rated @ 2 amps**

Low cost, sensitive relay for current or voltage applications. Mountings: Two No. 4-40 holes on 3/4"x3/8" diagonal centers. SPDT bar palladium contacts rated at 2 amps. Size: 1x1 11/16x 15/16" high. Av. Shpg. wt. 1 1/2 oz.

Stk. No.	Type	Input	Ohms	1-24	25-50	51-99	100-249
24F1173	RS5D	6 VDC	335	7.65	7.27	6.89	5.74
24F1198	RS5D	12 VDC	1350	7.65	7.27	6.89	5.74
24F1174	RS5D	5.0mA	2500	7.75	7.36	6.98	5.81
24F1175	RS5D	3.5mA	5000	8.10	7.70	7.29	6.08
24F1176	RS5D	2.5mA	10,000	8.80	8.36	7.92	6.60

Sensitive Relays

PW SERIES SENSITIVE HERMETICALLY SEALED



A miniature tube sensitive relay available in voltage or current actuated models. Sensitivity: Voltage: 180 mw; current; 40 mw. Precision, light weight relay with 10g vibration to 500 Hz. Silver SPDT contacts rated at 2 amps. Mounting Standard 7-pin miniature tube base. Weight: 1 oz. Size: 1 1/16" high above socket, .765" dia.

Stk. No.	Type	Input	Ohms	1-24	25-50	51-99	100-249
24F556	PW5DS	6 VDC	202	25.05	23.80	22.55	18.79
24F555	PW5DS	12 VDC	810	25.05	23.80	22.55	18.79
24F557	PW5DS	24 VDC	3240	25.05	23.80	22.55	18.79
24F558	PW5LS	2.8mA	5000	25.60	24.32	23.04	19.20
24F559	PW5LS	2.0mA	10,000	26.35	25.03	23.72	19.76

BU BUZZER

Dependable AC operated buzzer. Spring steel armature buzzes when coil is energized. UL recognized. CSA listed. Mounting: 6-32 tapped core. Weight 1 5/8 oz.

Stk. No.	Type	Volts	1-24	25-50	51-99	100-249
24F2483	BU 6	6 VAC	2.70	2.57	2.43	2.03
24F2484	BU 12	12 VAC				
24F2485	BU 24	24 VAC				
24F2486	BU 120	120 VAC				

ML SERIES

Small telephone type relay with excellent sensitivity and switching capabilities. Has 1/4" dia. gold-flashed silver contacts rated at 3 amps for 100,000 operations. Pierced solder terminals. Mounting: 4 No. 3-48 holes, on 3/8" centers. Wt. 2.5 oz.

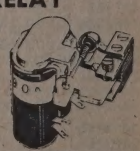
Stk. No.	Type	Action	Input	Ohms	1-24	25-50	51-99	100-249
45F052	ML11D	DPDT	4.0 mA	2500	16.85	16.01	15.17	12.64
45F053	ML11D	DPDT	2.83mA	5000	16.90	16.06	15.21	12.68
45F054	ML11D	DPDT	2.0 mA	10000	18.60	17.67	16.74	13.95
45F055	ML17D	4PDT	5.65mA	2500	19.30	18.34	17.37	14.48
45F056	ML17D	4PDT	4.0 mA	5000	20.65	19.62	18.59	15.49
45F057	ML17D	4PDT	2.83mA	10000	22.30	21.19	20.07	16.73

KT ANTENNA SWITCHING RELAY

Glass base insulation to minimize RF losses. Used to switch common transmitter-receiver antenna using 300-ohm line. DPDT silver contacts rated at 5 amps or 500 W. RF. Mounting: 6-32 stud. Weight: 1.5 oz. Size: 1 5/8"Lx1 5/16"Wx1 1/16"H.

Stk. No.	Type	Coil V.	1-24	25-50	51-99	100-249
45F068	KT11A	6 AC	7.10	6.75	6.39	5.33
24F1275	KT11A	120 AC	7.10	6.75	6.39	5.33
45F069	KT11D	6 DC	6.80	6.46	6.12	5.10
24F1277	KT11D	12 DC	6.80	6.46	6.12	5.10

SUPER SENSITIVE SPOT RELAY



Model SS5D. 10 mw. sensitivity. Dual coils with balanced armature on needle-point bearings for precision instruments and bridge circuits. May be used as a differential relay. SPDT silver contacts rated at 2 amps. Coil 10,000 ohms 1 ma. Mounting: Two No. 6-32 holes on 23/32" centers. Size: 1 3/4 x 1 5/16 x 1 1/16. Wt. 3 1/2 oz.

Stk. No.	Type	1-24	25-50	51-99	100-249
24F609	SS5D	28.15	26.74	25.34	21.11

NEWARK stocks new items as they are released for your immediate availability. Make NEWARK the one stop source for all your industrial electronic needs.

9

R12, R14, R15, R16, R52 SERIES SOLID-STATE TIME DELAY ON OPERATE RELAYS

R12 SERIES VARIABLE TIME DELAY

Small DC variable relays combine field proved R10 basic relay with high quality delay circuit. Do not have timing cycle interrupt "transfer." DPDT contacts rated 5 amps. Solder terminals. Mtg: 3-48 stud or sockets with solder or PC terminals.

R14-R15 SERIES TIMING RESISTOR

The resistor values shown are for maximum delay time. For minimum time, short together the external resistor terminals.

Max. Time Delay	Resistance
2 sec.	1.32M
10 sec.	4.34K
30 sec.	1.32M
120 sec.	1.32M
300 sec.	1.65M
600 sec.	1.32M

R14 SERIES FIXED OR ADJUSTABLE

Externally resistor adjustable DC operated time delay relay. Accuracy: Externally adjustable to within ±25%. Repeatability: ±3%. Temp.: −10°C to +55°C. No timing cycle interrupt "transfer." Reverse polarity protection. **R14A is an interval timer.**

R15 SERIES

AC operated externally resistor adjustable time delay relay. Accuracy: to within ±25%. Temp: −10°C to +55°C. Repeatability: ±3%. Momentary timing cycle interrupt "transfer." **R15A is an interval timer.**

R16 SERIES

Time delay on operate. Potentiometer sets timing value in range of 2.0-30 seconds. Contact life expectancy of 10 million operations, mechanical and at least 100,000 op. @ full load @ 28V DC.

R52 SOLID STATE TIMING MODULE

Makes time-delays of all but a few of the P&B 5, 6, 12, and 24V DC relays. Connects in series w/one of two coil terms. and pos. side of input line. Conducts 350 mA at voltages from 4.5 to 30V DC. Resistor adjustable.

SOCKET WITH HOLD-DOWN SPRING

R12 SERIES SOCKETS

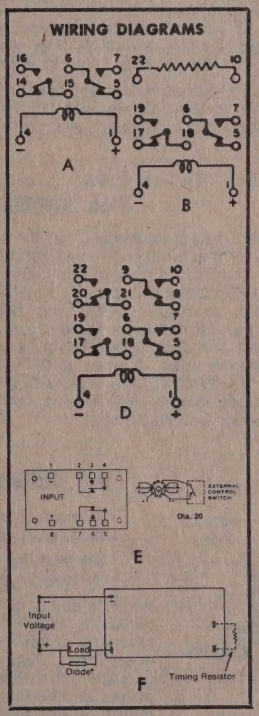
Stock No.	Type	Description	1-9	10-49	50-99	100-499
57F3439	27E131	DPDT sol.	1.06	.95	.85	.74
57F3408	20C251	Hold down Spring for above	.07	.06	.06	.05
57F3452	27E238	4PDT sol.	1.63	1.47	1.30	1.14
57F3412	20C266	Hold down Spring for above	.07	.06	.06	.05

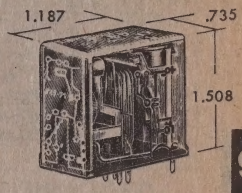
R14-R15 SERIES SOCKETS

Stock No.	Type	Description	1-9	10-49	50-99	100-499
57F3455	27E328	DPDT and 4PDT sol.	1.63	1.47	1.30	1.14
57F3412	20C266	Hold down Spring for above	.07	.06	.06	.05

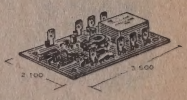
Stock No.	Type	Delay Sec.	Input Volts	Action	Amp Rtg.	Dia. No.	1-9	10-49	50-99
45F081	R12-2-12-X2-E1	0.1-2	12 VDC	DPDT	5	A	25.30	22.77	20.24
45F082	R12-2-24-X2-E1	0.1-2	24 VDC	DPDT	5	A	25.30	22.77	20.24
45F083	R12-30-12-X2-E1	1.0-30	12 VDC	DPDT	5	A	25.95	23.36	20.76
45F084	R12-30-24-X2-E1	1.0-30	24 VDC	DPDT	5	A	25.95	23.36	20.76
45F085	R12-120-12-X2-E1	5.0-120	12 VDC	DPDT	5	A	28.05	25.25	22.44
45F086	R12-120-24-X2-E1	5.0-120	24 VDC	DPDT	5	A	28.05	25.25	22.44
67F1033	R14-2A-12-X2-E1	.02-2	12 VDC	DPDT	5	B	20.25	18.23	16.20
67F1000	R14-2A-12-X4-E1	.02-2	12 VDC	4PDT	5	D	21.95	19.76	17.56
67F1001	R14-30A-24-X2-E1	0.3-30	24 VDC	DPDT	5	B	21.30	19.17	17.04
67F1002	R14-30A-24-X4-E1	0.5-30	24 VDC	4PDT	5	D	23.00	20.70	18.40
67F1003	R14-120A-24-X2E1	1.0-120	24 VDC	DPDT	5	B	22.35	20.12	17.88
67F1004	R14-120A-24-X4E1	1.0-120	24 VDC	4PDT	5	D	23.90	21.51	19.12
67F1005	R14A-30A-24-X4E1	0.5-30	24 VDC	4PDT	5	D	24.25	21.83	19.40
67F1006	R14A-300A-12X4E1	10-300	12 VDC	4PDT	5	D	26.65	23.99	21.32
67F1007	R14A-300A-24X4E1	10-300	24 VDC	4PDT	5	D	26.65	23.99	21.32
67F1008	R14A-600A-24X4E1	30-600	24 VDC	4PDT	5	D	27.95	25.16	22.36
67F1009	R15-10A-24-W2-E1	0.5-10	24 VAC	DPDT	10	B	23.00	20.70	18.40
67F1010	R15-10A-24-W4-E1	0.5-10	24 VAC	4PDT	10	D	25.10	22.59	20.08
67F1011	R15-30A-115-X2E1	0.5-30	115 VAC	DPDT	5	B	23.10	20.79	18.48
67F1012	R15-30A-115-X4E1	0.5-30	115 VAC	4PDT	5	D	24.60	22.14	19.68
67F1013	R15-60A-115-Y2E1	1.0-60	115 VAC	DPDT	2	B	22.95	20.66	18.36
67F1014	R15-60A-115-Y4E1	1.0-60	115 VAC	4PDT	2	D	24.30	21.87	19.44
67F1015	R15A-30A-24-X4E1	0.5-30	24 VAC	4PDT	5	D	25.80	23.22	20.64
67F1016	R15A-300A-115X4E1	10-300	115 VAC	4PDT	5	D	29.30	26.37	23.44
33F1609	R16-30A-24A-Y2	2-30	24 VAC	DPDT	2	E	12.20	10.98	9.76
33F1610	R16-30A-120A-Y2	2-30	120 VAC	DPDT	2	E	13.25	11.93	10.60
24F498	R52-2B-1E1	.2-2	4.5-30VDC	SPST-NO	350mA	F	6.60	5.94	5.28
24F499	R52-30B-1E1	2-30	4.5-30VDC	SPST-NO	350mA		6.60	5.94	5.28
24F501	R52-100B-1E1	5-100	4.5-30VDC	SPST-NO	350mA		7.10	6.39	5.68

WIRING DIAGRAMS

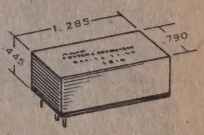




R12, R14, R15



R16

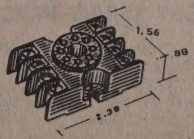


R52

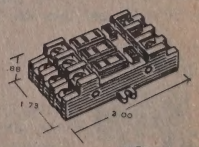
SOCKETS

CJ Series Relays do not use sockets.

Stock No.	Type	Relay Description	1-24	25-50	51-99	100-249
57F3430	27E121	CU, CL Series	4.95	4.70	4.46	3.71
57F3431	27E122	All delay on operate and interval on relays	3.12	2.96	2.81	2.34
57F3432	27E123	All delay on release relays	4.67	4.44	4.20	3.50



27E122



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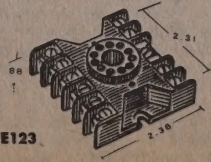
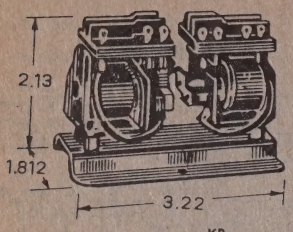
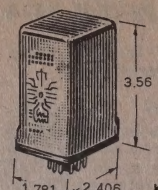


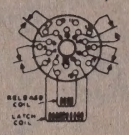
27E123

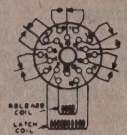
Potter & Brumfield — Special Purpose Relays

KB and KBP SERIES DUAL COIL LATCHING RELAYS









- For Memory Work and Overload Applications
- Fast Acting
- Positive Latching

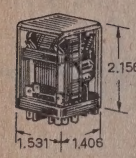
Stock No.	Mfr's Type	Action	Coil Volts	1-24	25-50	51-99	100-249
24F629	KB17AY	4PDT	6 AC				
24F617	KB17AY	4PDT	12 AC	15.75	14.96	14.18	11.81
45F209	KB17AY	4PDT	24 AC				
24F631	KB17AY	4PDT	120 AC				
62F3022	KB17AY	4PDT	240 AC	17.60	16.72	15.84	13.20
24F3290	KB17AG	4PDT	6 AC*				
24F3291	KB17AG	4PDT	12 AC*	16.40	15.58	14.76	12.30
24F1249	KB17AG	4PDT	24 AC*				
24F1250	KB17AG	4PDT	120 AC*				
62F3023	KB17AG	4PDT	240 AC*	17.60	16.72	15.84	13.20
24F632	KB17D	4PDT	6 DC				
24F618	KB17D	4PDT	12 DC	16.35	15.53	14.72	12.26
24F633	KB17D	4PDT	24 DC				
24F619	KB17D	4PDT	110 DC	16.70	15.87	15.03	12.53
24F3292	KB17DG	4PDT	6 DC*	16.15	15.34	14.54	12.11
45F064	KB17DG	4PDT	12 DC*	16.15	15.34	14.54	12.11
24F1355	KB17DG	4PDT	24 DC*	16.15	15.34	14.54	12.11
62F3024	KB17DG	4PDT	110 DC*	16.70	15.87	15.03	12.53
24F3293	KB23AY	6PDT	24 AC	21.20	20.14	19.08	15.90
24F3294	KB23AY	6PDT	120 AC	21.20	20.14	19.08	15.90
24F3295	KB23AG	6PDT	24 AC*	21.10	20.05	18.99	15.83
24F3296	KB23AG	6PDT	120 AC*	21.10	20.05	18.99	15.83
24F3297	KB23D	6PDT	24 DC	20.75	19.71	18.68	15.56
24F3298	KB23DG	6PDT	24 DC*	20.50	19.48	18.45	15.38
24F3299	KB23DG	6PDT	110 DC*	20.85	19.81	18.77	15.64
67F1120	KBP11A	DPDT	120 AC	22.40	21.28	20.16	16.80
67F1121	KBP11AG	DPDT	120 AC*	22.55	21.42	20.30	16.91
24F2900	KBP17A	4PDT	120 AC	27.80	26.41	25.02	20.85
24F2901	KBP17AG	4PDT	120 AC*	28.10	26.70	25.29	21.08
24F2902	KBP17D	4PDT	24 DC	28.00	26.60	25.20	21.00
24F2903	KBP17DG	4PDT	12 DC*	28.45	27.03	25.61	21.34
24F2904	KBP17DG	4PDT	24 DC*	28.45	27.03	25.61	21.34
24F2905	KBP20A	5PDT	120 AC	33.55	31.87	30.20	25.16
24F2906	KBP20AG	5PDT	120 AC*	33.95	32.25	30.56	25.46
62F3025	KBP20DG	5PDT	12 DC*	33.95	32.25	30.56	25.46
24F2908	KBP20DG	5PDT	24 DC*	33.95	32.25	30.56	25.46

KB SERIES. Both release and trip coils must be for the same voltage. One coil operates relay to set latch and other releases it. Ideal for memory work and overload applications. Operates on momentary impulse to either coil. Mounting: two 0.156" dia. holes on 1.375" centers. Contacts: Silver, rated 5 amps. 120VAC 80% pF. *G Suffix indicates silver cadmium oxide contacts on movables rated 10 amps. 120VAC 80% pF AC relays with 5 amp contacts are recognized under component program of UL (File 29244) and are CSA listed. AC coil for intermittent duty only. Wt. 6 oz.

KBP SERIES. Similar to KB Series except enclosed in translucent polypropylene dust cover and furnished with 20 pin octal type plugs for socket mounting. UL component recognition does not apply. Wt. 8 oz.

9

KUL SERIES MAGNETIC LATCHING RELAY

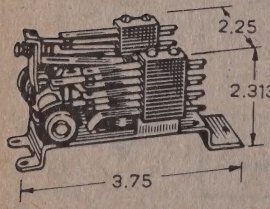


Requires approximately half the space needed for mechanical latching relays. Designed for continuous duty in applications demanding good memory stability. Ideal for machine tools, process controls and business machines. UL recognized under component program and CSA listed. Silver-cadmium oxide contacts rated 10 amps @ 28 VDC, resistive or 120 VAC, 80% pF. All AC DPDT relays include diodes inside clear polycarbonate dust cover. Wt. 3.4 oz.

Stock No.	Type	Action	Coil V.	1-24	25-50	51-99	100-249
24F3250	KUL5A15S	SPDT	120 AC	9.25	8.79	8.33	6.94
24F3251	KUL5D15S	SPDT	24 DC	7.25	6.89	6.53	5.44
24F3252	KUL11A15S	DPDT	12 AC	10.30	9.79	9.27	7.73
24F3253	KUL11A15S	DPDT	24 AC	10.30	9.79	9.27	7.73
24F3254	KUL11A15S	DPDT	120 AC	10.30	9.79	9.27	7.73
67F1122	KUL11D15D	DPDT	24 DC*	12.45	11.83	11.21	9.34
24F3255	KUL11D15S	DPDT	12 DC	8.05	7.65	7.25	6.04
24F3256	KUL11D15S	DPDT	24 DC	8.05	7.65	7.25	6.04

(*) 350 ohms

AP SERIES RATCHET IMPULSE RELAYS



- Intermittent Operation
- Reliable and Compact
- Operates on Impulses as Short as 60 ms.

Reliable compact unit for applications requiring on-off or reversing action on alternate operations. Positive ratchet operation at all speeds on impulses as short as 60 ms. Intermittent coil operation only. Mounting: Three 0.156" dia. holes on 3.375" x 0.875" triangular centers. Contacts: Silver. 5 amps @ 120VAC, resistive. Wt. 7 oz.

Stock No.	Mfr's Type	Action	Coil Volts	1-24	25-50	51-99	100-249
24F1231	AP11A	DPDT	6 VAC	21.80	20.71	19.62	16.35
62F3018	AP11A	DPDT	12 VAC	21.80	20.71	19.62	16.35
24F1233	AP11A	DPDT	24 VAC	21.80	20.71	19.62	16.35
24F1234	AP11A	DPDT	120 VAC	21.80	20.71	19.62	16.35
62F3019	AP11A	DPDT	240 VAC	21.90	20.81	19.71	16.43
24F1238	AP17A	4PDT	24 VAC	29.55	28.07	26.60	22.16
24F1239	AP17A	4PDT	120 VAC	29.55	28.07	26.60	22.16
24F1241	AP11D	DPDT	6 VDC	21.80	20.71	19.62	16.35
62F3021	AP11D	DPDT	12 VDC	21.80	20.71	19.62	16.35
24F1243	AP11D	DPDT	24 VDC	21.80	20.71	19.62	16.35
62F3020	AP11D	DPDT	110 VDC	22.10	21.00	19.89	16.58
67F1124	AP17D	4PDT	12 VDC	28.45	27.03	25.61	21.34
24F1247	AP17D	4PDT	24 VDC	28.45	27.03	25.61	21.34
24F1248	AP17D	4PDT	110 VDC	28.75	27.31	25.88	21.56

GM SERIES IMPULSE SEQUENCE RELAYS

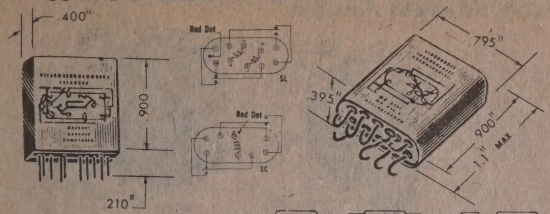
GM

GMIN

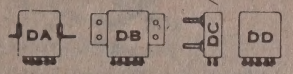
Unusually versatile switching makes this relay especially suitable for single coil latching. Adaptable to automatic vending equipment, coin counting devices, remote television set controls, self-interrupting and homing circuits and many other applications. 2 Form C contact arrangement is switched alternately by cam action during drop-out of armature. AC version operates on 50% coil duty cycle (5 min. max.) Mountings: 8-32 tapped core with location boss. Suffix L (*) indicates an additional 2 Form C auxiliary contact and weighs 4¾ oz. Wt. w/0 aux. contacts 4 oz.

Stock No.	Type	Action	Coil Volts	1-24	25-50	51-99	100-249
24F2470	GM11A	DPDT	24 AC	21.30	20.24	19.17	15.98
24F2471	GM11A	DPDT	120 AC	21.30	20.24	19.17	15.98
24F2473	GM11AL11	DPDT*	120 AC	26.75	25.41	24.08	20.06
24F2474	GM11D	DPDT	12 DC	19.95	18.95	17.96	14.96
24F2475	GM11D	DPDT	24 DC	19.95	18.95	17.96	14.96
24F2476	GM11D	DPDT	110 DC	20.20	19.19	18.18	15.15
45F058	GM1N10A	SP-10 pos.	120 AC	19.10	18.15	17.19	14.33
45F059	GM1N12A	SP-12 pos.	120 AC	18.55	17.62	16.70	13.91
45F060	GM1N10D	SP-10 pos.	24 DC	19.05	18.10	17.15	14.29
45F061	GM1N12D	SP-12 pos.	24 DC	18.20	17.29	16.38	13.65

SC AND SL SERIES MAGNETIC LATCHING RELAYS



- For high shock and high vibration applications
- Temp. Range: −65° to +125C.



SC SERIES. Miniature permanent magnet relay. 200g shock, 30g vibration to 2000 Hz with no contact opening. Pickup: Approximately 260 mW @ 25°C. Operate time: 3 ms. max: @ nominal voltage @ +25°C. Drop out: 2.5 ms. max. @ nominal voltage @ +25°C. Terminals: Hook end solder, 3" flexible or plug-in pins. Contacts: DPDT triclad plated. Rated load: 2 amps. @ 30 VDC; 1 amp. @ 120V 60 Hz resistive, 100,000 operations minimum. SCG11D rectangular header with terminals on 0.2" grid. SC7141 meets MIL-R-5757 10C-141 or RY4NA3B3L01. All DPDT. Wt. 3/4 oz.

SL Series. Dual coil miniature magnetic latching relay with same specs and mountings as SC Series above except coils may be connected in series for polar operation. Wt. 5 oz.

SC SERIES

Stk. No.	Type	Ohms	VDC	1-24	25-50	51-99	100-249
24F1361	SC11D	135	12	39.70	37.72	35.73	29.78
24F128	SC11D	550	24	39.70	37.72	35.73	29.78
24F1364	SC11DA	135	12	41.10	39.05	36.99	30.83
24F1281	SC11DA	550	24	41.10	39.05	36.99	30.83
62F3027	SC11DB	35	6	40.65	38.62	36.59	30.49
45F210	SC11DB	135	12	40.65	38.62	36.59	30.49
24F1282	SC11DB	550	24	40.65	38.62	36.59	30.49
24F1386	SC11DC	550	24	41.00	38.95	36.90	30.75
24F1387	SC11DD	550	24	40.00	38.00	36.00	30.00
45F211	SCG11D	550	24	45.70	43.42	41.13	34.28
62F3028	SC7141	.....	26.5	47.15	44.79	42.44	35.36

SL SERIES

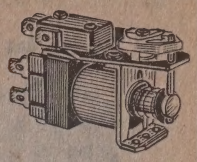
Stk. No.	Type	Ohms	VDC	1-24	25-50	51-99	100-249
62F2958	SL11D	35	6	41.60	39.52	37.44	31.20
45F212	SL11D	160	12	41.60	39.52	37.44	31.20
24F1283	SL11D	630	24	41.60	39.52	37.44	31.20
24F1284	SL11DA	630	24	42.80	40.66	38.52	32.10
62F2960	SL11DB	40	6	42.35	40.23	38.12	31.76
24F1380	SL11DB	160	12	42.35	40.23	38.12	31.76
24F1285	SL11DB	630	24	42.35	40.23	38.12	31.76
24F1388	SL11DC	630	24	42.70	40.57	38.43	32.03
45F213	SLG11D	630	24	43.20	41.04	38.88	32.40

SPECIAL PURPOSE KM SUBMINIATURE RELAYS

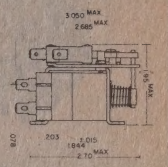
Subminiature relay for use where size and weight are critical factors. Silver contacts rated at 2 amps. @ 28 VDC/120 VAC res. Terminals are solder lug type. Mounting: No. 2-56 tapped core with locating boss. Size: 1⅛" Lx1⅛" Wx⅝" H. Wt. 1 oz.

Stk. No.	Type	VDC	Contacts	1-24	25-50	51-99	100-249
45F065	KM5D	6	SPDT	9.50	9.03	8.55	7.13
45F066	KM5D	12	SPDT				
45F067	KM5D	24	SPDT				
24F1268	KM11D	6	DPDT	11.10	10.55	9.99	8.33
24F1269	KM11D	12	DPDT				
24F1270	KM11D	24	DPDT				
24F1271	KM14D	6	3PDT	31.60	12.92	12.24	10.20
24F1272	KM14D	12	3PDT				
24F1273	KM14D	24	3PDT				

SERIES S89R LOW COST LATCHING RELAY



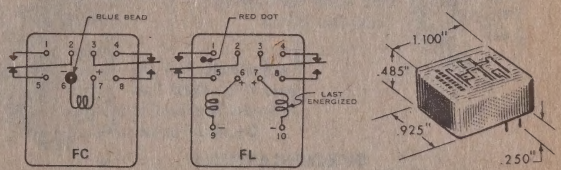
Bistable impulse relay that effects savings of power in applications where load is on long periods of time. To set relay, a 30ms (min.) pulse is required. To release requires a second pulse. Time between pulses should be no less than 100ms. Contact rating, 15 amps, ½ HP, 125/250V AC; 5 amps, 125V AC inductive load; ½ amp, 125V DC. Life expectancy at full load, 100,000 operations minimum; 250,000 mechanical. Operating temp. range −40° to +60°C. Mounting is by two #8-32 tapped holes on 1.844" centers. Termination is .250" quick connect.



IMPULSE AND LATCHING RELAYS

Stock Number	Type	Input	Ohms	Contacts	1-24	25-50	51-99	100-249
20F755	S89R5ABD1	24V AC	8.7	SPDT	6.40	6.08	5.76	4.80
20F756	S89R5ABD1	120V AC	220	SPDT	6.40	6.08	5.76	4.80
20F757	S89R5ABD1	240V AC	870	SPDT	6.55	6.22	5.90	4.91
20F758	S89R11ABD1	24V AC	8.7	DPDT	7.35	6.98	6.62	5.51
20F759	S89R11ABD1	120V AC	220	DPDT	7.35	6.98	6.62	5.51
20F760	S89R11ABD1	240V AC	870	DPDT	7.50	7.13	6.75	5.63
20F761	S89R5DBD1	12V DC	28.5	SPDT	5.90	5.61	5.31	4.43
20F762	S89R5DBD1	24V DC	115	SPDT	5.90	5.61	5.31	4.43
20F763	S89R11DBD1	12V DC	28.5	DPDT	6.85	6.51	6.17	5.14
20F764	S89R11DBD1	24V DC	115	DPDT	6.85	6.51	6.17	5.14

FC AND FL SERIES MINIATURE LATCHING RELAYS



FC Series. Lies flat on PC board. DPDT. Meets MIL-R-5757 and MSFC-SPEC-339. Rated 3 amps. .65W. ¾ oz.

FL Series. Hermetically sealed. For PC applications. Terminals are plug-in pins to afford fast interchangeability. Transfer time is approx. 0.5 millisecond. Terminals are arranged in a grid layout of multiples of 0.1". DPDT, silver contacts rated at 3 amps @ 28 VDC. Size 1.1x.925x.485". Wt. .75 oz.

FC SERIES

Stock No.	Coils Type	Coils Volt.	Coils Ohms	1-24	25-50	51-99	100-249
24F2487	FC11D	24VDC	60	39.20	37.24	35.28	29.40
24F2488	FC11D	12 VDC	210				
24F2489	FC11D	24 VDC	900				

FL SERIES

Stk. No.	Type	Volts	Ohms	1-24	25-50	51-99	100-249
24F1286	FL11D	6 VDC	67.5	39.80	37.81	35.82	29.85
24F1287	FL11D	12 VDC	230				
24F1288	FL11D	24 VDC	1000				

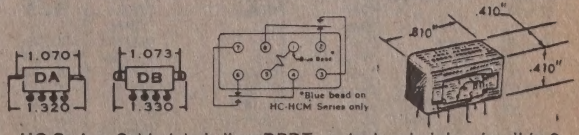
HC AND HCM SERIES NON-LATCHING, NON-POLARIZED RELAYS

HC SERIES

Stock No.	Type	Description	1-24	25-50	51-99	100-249
24F2596	HC11D-24V	plug-in case hook-	38.60	36.67	34.74	29.85
24F2597	HC11DA-24V	end sold. term.	39.95	37.95	35.96	29.96
24F2598	HC11DB-24V	flat mtg. plate	39.95	37.95	35.96	29.96

HCM SERIES

Stk. No.	Type	1-24	25-50	51-99	100-249
45F203	HCM11D-24V	29.50	28.03	26.55	22.13
45F204	HCM11DA-24V	30.80	29.26	27.72	23.10
45F205	HCM11DB-24V	30.65	29.12	27.59	22.99

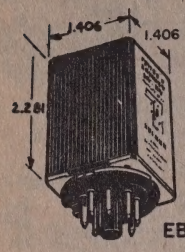


HC Series. Gold plated silver DPDT contacts rated dry circuit to 2 amps @ 28 VDC resistive. Range: −65° to 125°C. Meets or exceeds all applicable sections of MIL-R-5757 and complies with MSFC-SPEC-339. HC11DA has hook-end solder terminals and shoulder bracket. HC11D has plug-in plain case. HC11DB has hook-end solder terminals with 2 holes. HC11D has plug-in plain case. HC11DB has hood-end solder terminals with 2 holes HC11D. Size, Plain case .8x.4x.4, (seated. Wt. ½ oz.) **HCM SERIES.** Military version of HC Series. Meets MIL-R-5757.

9

SOLID STATE HYBRID RELAYS SOLVE SWITCHING PROBLEMS

EBT SERIES REED/TRIAC

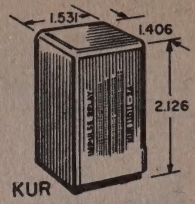


EBT

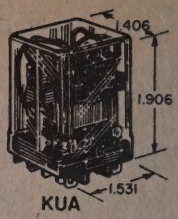
- Operate directly from logic IC's such as CMOS, TTL, I^2L, ECL and HTL
- Bounce free
- Solid state/Hybrid

Combines input/output isolation of reed relay with inrush switching capabilities, long life of triac switch. Switches 7 amps, 60 Hz @ 25°C ambient with nominal load voltage of 120 VAC. Rated 5 amps rms 60 Hz @ 55°C ambient. Minimum operating current: 200 mA, 60 Hz. Expected life greater than 10 million operations. Bounce free. Operate time: 2 msec. maximum. Release time: 10 msec. maximum. Typical "Closed contact" voltage drop is 1.1 V. UL File E22575 Octal terminals fit standard 8 pin socket. Wt. approx. 5.5 oz.

Stock No.	Type	Coil Input	Coil Ohms	Action	1-9	10-24	25-49	50-99
67F1180	EBT1DA52	12V	500	SPST	19.30	18.34	17.37	15.44
67F1181	EBT1DA52	24V	2000	SPST	19.30	18.34	17.37	15.44



KUR



KUA

KUR DIRECT-ACTION DPDT IMPULSE RELAY

Designed for applications requiring on-off operation or alternate energizing of two loads. Operation is based on permanent memory function of electromagnetic latching relay. Remains latched during complete loss of power. 5A at 28 volts DC, resistive, or 120 volts AC, 80% P.F. Weight: 3½ oz.

Stk. No.	Type	Coil V	1-9	10-24	25-49	50-99
24F3261	KUR11D11	24DC	23.90	22.71	21.51	19.12

KUA SOLID STATE AMPLIFIER-DRIVEN RELAY

Operates from low power signals associated with integrated circuits. Nominal voltage of 24V DC. Polarity protection is built-in feature. Power requirement is approx. 1.14 watts. Sensitivity is 60 microwatts. Contacts are DPDT 5 Amps., gold-flashed fine silver rated 1/10 HP 120 V 60 Hz, ¼ HP 240 V 60 Hz, 5A at 28V DC. Fit standard KU Series sockets. Wt. 3½ oz.

Stk. No.	Type	Coil V	1-9	10-24	25-49	50-99
24F3262	KUA5G11	24DC	15.45	14.68	13.91	12.36
24F3263	KUA11G11	24DC	15.95	15.15	14.36	12.76

9

CS SERIES SOLID STATE VOLTAGE SENSORS

Fixed Pick-Up And Adjustable Drop-Out. One Knob For Setting Drop-Out Value

Adjustable Pick-Up And Drop-Out. Two Knobs For Setting Desired Values

SPECIFICATIONS

Load Switching Relay: Arrangement—2 Form C (DPDT) rated 10 amps @ 28VDC resistive or 120VAC resistive.
Temperature Range: −10°C to +55°C
Temperature Coefficient: 0.16%/°C (max.)
Repeatability: ±1% (max.)
Duty Cycle: Continuous
Reverse Polarity Protection: Yes (on DC types)
Enclosure: Nylon dust cover
Mounting: Octal plug **Approximate Weight:** 8 ozs.

Designed to energize and de-energize its internal relay at predetermined voltages. Desired levels are either fixed or knob adjust. Voltage sensors consist of sensing circuit that turns on or off solid state switch, energizing or de-energizing internal relay. Relay is DPDT. Enclosed in molded nylon dust cover. 2 Form C (DPDT) rated 10 amps @ 28 VDC resistive or 120 VAC resistive. Continuous duty. Mtg. Octal plug. Approx. wt. 8 oz.

ADJUSTABLE PICK-UP AND DROP-OUT

50-60 Hz AC except (*) DC

Stock No.	Type	Pick-Up Range Volts	Drop-Out Range Volts	1-9	10-24	25-49	50-99
24F2951	CSJ38-30010	20-30	18-28	37.85	35.96	34.07	30.28
24F2952	CSJ38-70010	92-140	90-138	41.35	39.28	37.22	33.08
24F2953	CSL38-30010*	20-30	18-28	33.05	31.40	29.75	26.44
67F1021	CSL38-60010*	92-140	90-138	37.85	35.96	34.07	30.28

FIXED PICK-UP AND ADJUSTABLE DROP-OUT

24F2954	CSJ38-71010	105	90-103	36.60	34.77	32.94	29.28
24F2955	CSL38-31010*	22	16-21	29.00	27.55	26.10	23.20

ACCESSORY REFERENCE CHART

Socket	Hold-Down Spring	Socket Retainer	Page	For Use With
	20C206*		.....	KAP-KRP3
27E006		24A032	293	Note 2
27E007			293	Note 2
	20C217		293	Note 2
		24A032	293	KHU
27E043			294	Note 4
27E046			294	Note 4
	20C228		294	Note 4
27E062		24A051	293	Note 1
27E067			294	Note 4
27E118			296	KNP
27E119			296	KNP
	20C246		296	KNP
	20C176		295	KC/KR
27E121			294, 307	Note 4
		24A071	294	Note 5
		24A067	294	Note 4
27E122			290, 292, 295, 307	Note 3
27E123			290, 292, 295, 307	Note 3
		24A072	294	KRP
	20C253		294	Note 4
	20C247*		.....	KUL/CU/CL
27E125	20C249		299	R10/2P
27E126	20C250		299	R10/4P
27E127	20C251		299	R10/6P

Socket	Hold-Down Spring	Page	For Use With
27E128	20C249	299	R10/2P
27E129	20C250	299	R10/4P
27E130	20C251	299	R10/6P
27E131	20C251	307	R12
27E132*	20C251	307	R12
27E134	20C252	300	R40/4P
27E135	20C252	300	R40/4P
27E152	20C250	299	R10/4P
27E162	20C249	299	R10/2P
27E163	20C250	299	R10/4P
27E164	20C251	299	R10/6P
27E166		293	Note 2
27E169*	20C251	299	R10/6P
PC only	20C259	299	All R10s
27E193	20C249	299	R10/PC/2P
27E194	20C250	299	R10/PC/4P
27E195	20C251	299	R10/PC/6P
27E211	20C266	299	R10/8P
27E212*	20C249	299	R10/2P
27E213*	20C251	299	R10/4P
27E215*	20C249	299	R10/PC
27E216*	20C250	299	R10/PC
27E238	20C266	307	R13/4P
27E254	20C266	299, 307	R10/PC/8P
27E271*	20C251	299	R10/6P
27E317*	20C249	299	R10/2P
27E323	20C252	300	R40/4P
27E328	20C266	307	R14-R15
27E396	20C254	294	KU

Socket	Hold-Down Spring	Page	For Use With
27E396	20C255	294	KUL
27E400	20C254*	294	KU
27E400	20C255*	294	KUL

Enclosure	Page	For Use With
35D203	296	PM
35D013	296	PRO
35D070	295	"P" Case
35D072	295	"P" Case
35D130	301	MS/MR
35D227	296	PM
37D632	294	KU
37F633	294	KH

Adaptor Plate	Page	For Use With
37B370	296	PM

Mounting Strip	Page	For Use With
37D645	299	R10-R15
24A064	294	Note-5

Hold-Down Spring	Page	For Use With
20C176	295	"P" Case
20C176	295	"p" Case

1. For HP, HPS, and HCM.
2. For KHS, KHU and CD-31.
3. For EBA, EBT, KAP, KBP, KCP, KRP, KRP3-H, CD21, CD38, CH, CK, CR, CS38.
4. For KUP-KUMP, KUA, KUL, KUR, CU and CL.
5. For sockets 27E121, 27E122, 27E123, and 27E166.

(*) Special order.

Solid-State Relays

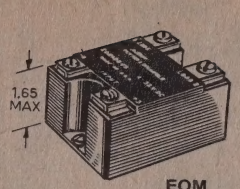
Potter & Brumfield

EOM-EOT SERIES

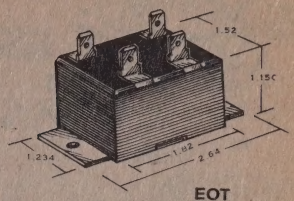
Solid-state controlled, isolated by optoelectronic coupler. Both feature zero voltage turn on and zero current turn off. Life expectancy greater than 100 million operations at rated values. Current rating is 25°C, 120 VAC, 50/60 Hz. Maximum load current derating is linear between 25°C and 55°C ambient. Can be driven directly by TTL, DTL, ECL, HTL, or MOS logic. EOM has screw terminals. EOT has .250" quick-connect terminals; non-hermetically sealed.

		Input		Triac-Switch SPST-No				
Stk. No.	Type	VDC	mA	VAC	Amps	1-9	10-24	25-49
28F1400	EOM1DB22	4-32	15	120	2,*4	24.75	23.51	22.28
28F1401	EOM1DB72	4-32	15	120	7,*20	38.10	36.20	34.29
28F1402	EOM1DB24	4-32	15	240	2,*4	26.45	25.13	23.81
28F1403	EOM1DB74	4-32	15	240	7,*20	39.00	37.05	35.10
28F1404	EOM1DB22	5	11	120	2,*4	21.60	20.52	19.44
28F1405	EOM1DB72	5	11	120	7,*20	34.45	32.73	31.01
28F1406	EOM1DB24	5	11	240	2,*4	23.20	22.04	20.88
28F1407	EOM1DB74	5	11	240	7,*20	35.25	33.49	31.73
28F1408	EOM1DB22	12	11	120	2,*4	21.60	20.52	19.44
28F1409	EOM1DB72	12	11	120	7,*20	34.45	32.73	31.01
28F1410	EOM1DB24	12	11	240	2,*4	23.20	22.04	20.88
28F1411	EOM1DB74	12	11	240	7,*20	35.25	33.49	31.73
28F1412	EOM1DB22	24	11	120	2,*4	21.60	20.52	19.44
28F1413	EOM1DB72	24	11	120	7,*20	34.45	32.73	31.01
28F1414	EOM1DB24	24	11	240	2,*4	23.20	22.04	20.88
28F1415	EOM1DB74	24	11	240	7,*20	35.25	33.49	31.73
35F1584	EOT1DB22	4-32	15	120	2,*4	24.05	21.65	19.96
35F1585	EOT1DB42	4-32	15	120	4,*8	27.35	24.62	22.70
35F1586	EOT1DB52	4-32	15	120	5,*12	34.05	30.65	28.26
35F1587	EOT1DB72	4-32	15	120	7,*20	37.40	33.66	31.04
28F1416	EOT1DC22	4-32	15	120	2,*4	24.05	21.65	19.96
28F1417	EOT1DC72	4-32	15	120	7,*20	37.40	33.66	31.04
28F1418	EOT1DC24	4-32	15	240	2,*4	25.75	23.18	21.37
28F1419	EOT1DC74	4-32	15	240	7,*20	38.35	34.52	31.83
28F1420	EOT1DC22	5	11	120	2,*4	20.85	18.77	17.31
28F1421	EOT1DC72	5	11	120	7,*20	33.75	30.38	28.01
28F1422	EOT1DC24	5	11	240	2,*4	22.45	20.21	18.63
28F1423	EOT1DC74	5	11	240	7,*20	34.50	31.05	28.64
28F1424	EOT1DC22	12	11	120	2,*4	20.85	18.77	17.31
28F1425	EOT1DC72	12	11	120	7,*20	33.75	30.38	28.01
28F1426	EOT1DC24	12	11	240	2,*4	22.45	20.21	18.63
28F1427	EOT1DC74	12	11	240	7,*20	34.50	31.05	28.64
28F1428	EOT1DC22	24	11	120	2,*4	20.85	18.77	17.31
28F1429	EOT1DC72	24	11	120	7,*20	33.75	30.38	28.01
28F1430	EOT1DC24	24	11	240	2,*4	22.45	20.21	18.63
28F1431	EOT1DC74	24	11	240	7,*20	34.50	31.05	28.64

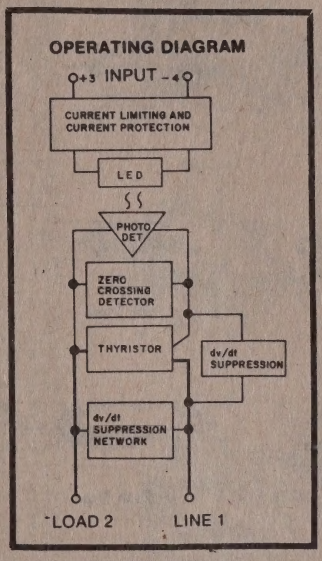
(*) w/ 10"x10"x.062" alum. heatsink and silicon grease.

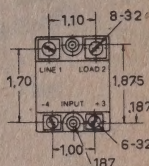


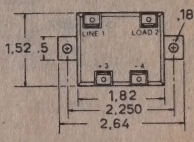
EOM

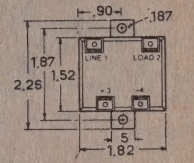


EOT

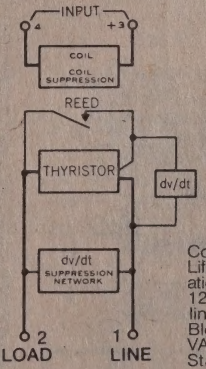


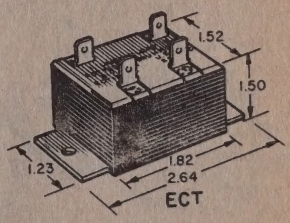






ECT OPERATING DIAGRAM





ECT

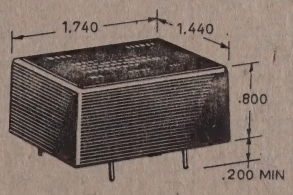
Controlled and isolated by reed relay. Life expectancy: excess 10 million operations. Operate time: 2 ms. Release time: 12 ms. Maximum load current derating: linear between 25°C and 55°C ambient. Blocking voltage: ± 200V peak @ 120 VAC and ± 400V peak @ 240VAC. Standard models with .250" quick-connect terminals.

		Input		Trial Switch SPST-No				
Stk. No.	Type	Volts	Ohms	mA	VAC	Amps	1-9	10-24
28F1432	ECT1AC22	120 AC	—	6.2	120	2,*4	14.95	14.20
28F1433	ECT1AC72	120 AC	—	6.9	120	7,*20	20.90	19.86
28F1434	ECT1AC24	120 AC	—	9.5	240	2,*4	15.90	15.11
28F1435	ECT1AC74	120 AC	—	9.5	240	7,*20	22.35	21.23
67F1184	ECT1DB44	24 DC	2000	12	120	4,*8	16.35	15.53
28F1436	ECT1DC22	5 DC	87	57	120	2,*4	12.45	11.83
67F1183	ECT1DC72	5 DC	87	57	120	7,*20	17.65	16.77
28F1437	ECT1DC22	12 DC	500	24	120	2,*4	12.45	11.83
28F1438	ECT1DC72	12 DC	500	24	120	7,*20	17.65	16.77
28F1439	ECT1DC22	24 DC	2000	12	120	2,*4	12.45	11.83
28F1440	ECT1DC72	24 DC	2000	12	120	7,*20	17.65	16.77
28F1441	ECT1DC24	5 DC	56	89	240	2,*4	13.35	12.68
28F1442	ECT1DC74	5 DC	56	89	240	7,*20	22.35	21.23
28F1443	ECT1DC24	12 AC	320	37.5	240	2,*4	13.35	12.68
28F1444	ECT1DC74	12 DC	320	37.5	240	7,*20	22.35	21.23
28F1445	ECT1DC24	24 DC	1280	18.8	240	2,*4	13.35	12.68

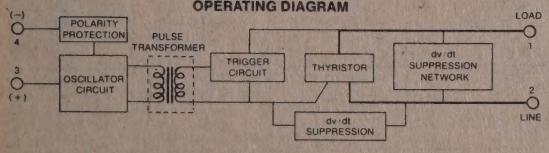
(*) w/10" x 10" x .062" alum. heatsink and silicon grease.

EAX SERIES

- TTL, MOS, I²L compatible
- 1.2 amp load current
- 100 million operations



OPERATING DIAGRAM

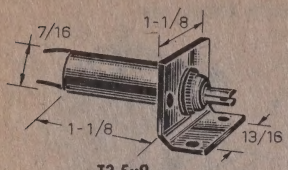


Consists of solid-state switch; controlled and isolated by toroidal transformer driven by pulse circuit. Compatible with TTL, MOS, and I²L logic. Input current: 12 mA, max. at all input voltages. Load current 1.2 amp, 120 Vac, 50/60 Hz., +25°C, derated linearly between +25°C and +55°C to a value .75 amp. Operate time: .5 ms, max. Release time: 10 ms @ 60 Hz. Operating ambient: −10°C to +55°C. Operating life expectancy: 100 million operations, min. Approximate weight: 1 oz.

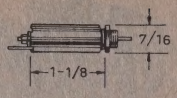
		Input		Triac-Switch SPST-No				
Stk. No.	Type	VDC	mA	VAC	Amps	1-9	10-24	25-49
28F1446	EAXIDA12-5	5	12	120	1.2	13.20	12.54	11.88
28F1447	EAXIDA12-12	12	12	120	1.2	13.20	12.54	11.88
28F1448	EAXIDA12-24	24	12	120	1.2	13.20	12.54	11.88

9

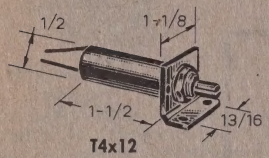
Tubular Solenoids



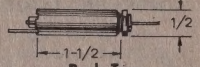
T3.5x9



Push Type



T4x12



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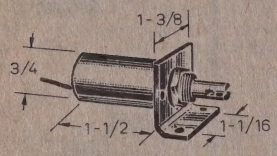
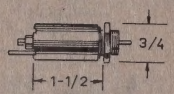


T6x12



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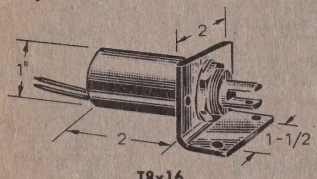
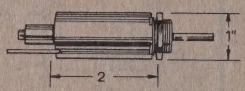


T8x16



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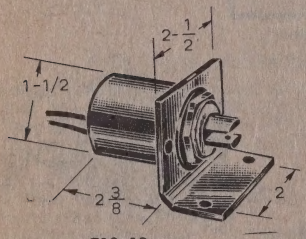
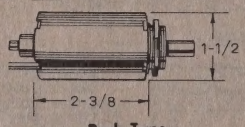


T12x19



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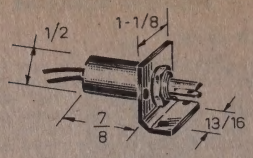
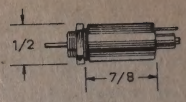


T4x7



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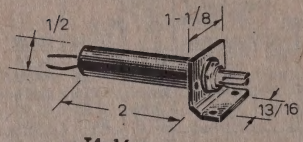

T4x16

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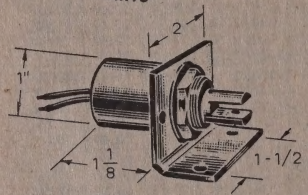

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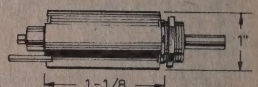

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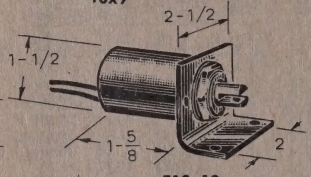
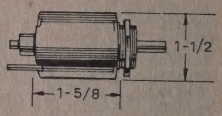


T12x13

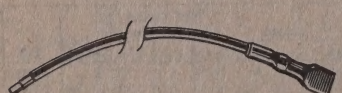


Push Type

TUBULAR 24 VDC, except where indicated 12v.
TP Denotes Push Type (*) UL Model

Stk. No.	Type	Duty	Typical Lifts and Strokes Minimum	Maximum	Ohms	Watts	1-	25-
24F2971	T3.5x9*	Inter.	8.5 oz. at 1/32"	1 oz. at 1/2"	57	10	5.81	5.52
24F298C	T3.5x9*	Cont.	5.5 oz. at 1/32"	.75 oz. at 1/16"	260	2	5.81	5.52
67F5608	T3.5x9*(12V)	Inter.	8.5 oz. at 1/32"	1 oz. at 1/2"	14	10	5.81	5.52
67F5609	T3.5x9*(12V)	Cont.	5.5 oz. at 1/32"	.75 oz. at 5/16"	80	2	5.81	5.52
24F3434	TP3.5x9	Inter.	6.8 oz. at 1/32"	.96 oz. at 1/2"	57	10	7.15	6.79
24F3438	TP3.5x9	Cont.	4.4 oz. at 1/32"	.6 oz. at 1/4"	260	2	7.15	6.79
24F2972	T4x7*	Inter.	12 oz. at 1/32"	8 oz. at 1/4"	80	7	5.97	5.67
24F2981	T4x7*	Cont.	6 oz. at 1/32"	1 oz. at 5/16"	240	2.4	5.97	5.67
67F5610	TP4x7	Inter.	9.6 oz. at 1/32"	.64 oz. at 3/8"	80	7	7.31	6.94
67F5611	TP4x7	Cont.	4.8 oz. at 1/32"	.8 oz. at 3/16"	240	2.4	7.31	6.94
24F2973	T4x12*	Inter.	14 oz. at 1/32"	1.5 oz. at 7/8"	38	15	6.18	5.87
24F2982	T4x12*	Cont.	7 oz. at 1/32"	1.5 oz. at 1/4"	160	3.5	6.18	5.87
24F3435	TP4x12	Inter.	12 oz. at 1/32"	1.2 oz. at 7/8"	38	15	7.36	6.99
24F3439	TP4x12	Cont.	6 oz. at 1/32"	1.2 oz. at 1/4"	160	3.5	7.36	6.99
24F2974	T4x16*	Inter.	7 oz. at 1/32"	4 oz. at 1"	24	20	6.67	6.34
24F2983	T4x16*	Cont.	6.5 oz. at 1/32"	1.5 oz. at 7/8"	145	4	6.67	6.34
67F5612	T4x16*(12V)	Inter.	7 oz. at 1/32"	4 oz. at 1"	6	20	6.67	6.34
67F5613	T4x16*(12V)	Cont.	6.5 oz. at 1/32"	1.5 oz. at 7/8"	36	4	6.67	6.34
24F3436	TP4x16	Inter.	5.6 oz. at 1/32"	3.2 oz. at 1"	24	20	8.06	7.66
24F3440	TP4x16	Cont.	5.2 oz. at 1/32"	1.2 oz. at 7/8"	145	4	8.06	7.66
24F2975	T6x12*	Inter.	30 oz. at 1/16"	4 oz. at 1/16"	25	22	6.45	6.13
24F2984	T6x12*	Cont.	12 oz. at 1/16"	1 oz. at 3/4"	165	3.5	6.45	6.13
67F5614	T6x12*(12V)	Inter.	30 oz. at 1/16"	4 oz. at 1/16"	6.5	22	6.45	6.13
67F5615	T6x12*(12V)	Cont.	12 oz. at 1/16"	1 oz. at 3/4"	41	3.5	6.45	6.13
24F3437	TP6x12	Inter.	24 oz. at 1/16"	3.2 oz. at 3/4"	25	22	7.31	6.94
24F3441	TP6x12	Cont.	9.6 oz. at 1/16"	.8 oz. at 3/4"	165	3.5	7.31	6.94
24F2976	T8x9*	Inter.	52 oz. at 1/16"	6 oz. at 7/16"	30	19	7.20	6.84
24F2985	T8x9*	Cont.	23 oz. at 1/16"	3 oz. at 7/16"	145	4	7.20	6.84
67F5616	TP8x9	Inter.	42 oz. at 1/16"	4.8 oz. at 7/16"	30	19	9.03	8.58
67F5617	TP8x9	Cont.	18.4 oz. at 1/16"	2.4 oz. at 7/16"	145	4	9.03	8.58
24F2977	T8x16*	Inter.	80 oz. at 1/16"	14 oz. at 7/8"	15	38	7.79	7.40
24F2986	T8x16*	Cont.	35 oz. at 3/8"	5.5 oz. at 7/8"	105	5.5	7.79	7.40
67F5618	T8x16*(12V)	Inter.	80 oz. at 1/16"	14 oz. at 7/8"	2.7	38	7.79	7.40
67F5619	T8x16*(12V)	Cont.	35 oz. at 1/16"	5.5 oz. at 7/8"	26	5.5	7.79	7.40
24F2978	T12x13*	Inter.	150 oz. at 1/8"	14 oz. at 3/4"	14	40	10.54	10.01
24F2987	T12x13*	Cont.	50 oz. at 1/8"	4 oz. at 3/4"	85	6.6	10.54	10.01
67F5620	TP12x13	Inter.	120 oz. at 1/8"	11.2 oz. at 3/4"	14	40	11.45	10.88
67F5621	TP12x13	Cont.	40 oz. at 1/8"	3.2 oz. at 3/4"	85	7	11.45	10.88
24F2979	T12x19*	Inter.	150 oz. at 1/8"	12 oz. at 1 1/2"	9.5	60	11.28	10.72
24F2988	T12x19*	Cont.	80 oz. at 1/8"	5 oz. at 1 1/2"	59	10	11.28	10.72
67F5622	TP12x19	Inter.	120 oz. at 1/8"	9.6 oz. at 1 1/2"	9.5	60	12.90	12.26
67F5623	TP12x19	Cont.	64 oz. at 1/8"	4 oz. at 1 1/2"	59	10	12.90	12.26

UNI-GUARD II LEADS



Lead wire adapters designed for use with Guardian's new Uni-Guard II coil construction which features QC lug termination. Each lead has a min. length of 6" and made of 22 gauge wire (U/L style 1015 w/temp. rating of 105°C). Termination at one end is in choice of .187" or .110" insulated female QC lug. Wire at other end stripped ¼" min. Two lead wire adptrs. required for conversion of each solenoid from QC to lead termination.

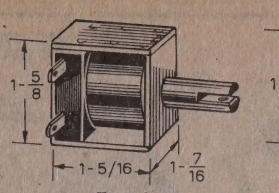
Stk. No.	Type	Lug Size	Package of 50
67F5691	LW-22.187	.187"	4.20
67F5692	LW-22.110	.110"	4.20

Solenoids

GUARDIAN

RECOGNIZED BY UNDERWRITER'S LABORATORIES
except types marked with (*)

Stock No.	Type	Volts	Duty	Ohms	Lifts and Strokes Oz. at in. (Min.)	Lifts and Strokes Oz. at in. (Max.)	1-24	25-49
24F078	2	120AC	Inter.	60	45 oz. @ 1/8"	11 oz. @ 7/8"	6.56	6.23
24F079	2	120AC	Cont.	166	14 oz. @ 1/8"	3 oz. @ 7/8"	6.56	6.23
62F1897	2HD	120AC	Inter.	36	70 oz. @ 1/8"	16 oz. @ 3/4"	9.14	8.68
62F1898	2HD	120AC	Cont.	113	25 oz. @ 1/8"	6 oz. @ 3/4"	9.14	8.68
62F1899	2HD	24DC	Inter.	20	96 oz. @ 1/8"	10 oz. @ 3/4"	9.45	8.98
62F1900	2HD	24DC	Cont.	64	48 oz. @ 1/8"	6 oz. @ 3/4"	9.45	8.98
24F872	4	120AC	Inter.	37	36 oz. @ 1/8"	26 oz. @ 1"	7.88	7.49
24F873	4	120AC	Cont.	133	8 oz. @ 1/8"	7 oz. @ 1"	7.88	7.49
24F885	4	24DC	Inter.	15	115 oz. @ 1/8"	16 oz. @ 1"	7.77	7.38
24F886	4	24DC	Cont.	54	63 oz. @ 1/8"	6 oz. @ 7/8"	7.77	7.38
24F887	4	110DC	Inter.	346	115 oz. @ 1/8"	16 oz. @ 1"	7.98	7.58
24F888	4	110DC	Cont.	1300	63 oz. @ 1/8"	6 oz. @ 7/8"	7.98	7.58
62F1901	4HD	24DC	Inter.	15	145 oz. @ 1/8"	23 oz. @ 3/4"	7.88	7.49
62F1902	4HD	24DC	Cont.	50	75 oz. @ 1/8"	8 oz. @ 3/4"	7.88	7.49
62F1903	4HD	110DC	Inter.	350	145 oz. @ 1/8"	23 oz. @ 3/4"	8.03	7.63
62F1904	4HD	110DC	Cont.	1200	75 oz. @ 1/8"	8 oz. @ 3/4"	8.03	7.63
67F5600	9*	120AC	Inter.	220	18 oz. @ 1/8"	7 oz. @ 1/2"	6.04	5.74
67F5601	9*	120AC	Cont.	350	11 oz. @ 1/8"	2 oz. @ 1/2"	6.04	5.74
67F5604	10*	120AC	Inter.	74	42 oz. @ 1/8"	25 oz. @ 1/2"	6.14	5.83
67F5605	10*	120AC	Cont.	172	15 oz. @ 1/8"	7 oz. @ 1/2"	6.14	5.83
24F081	11	120AC	Inter.	85	21 oz. @ 1/8"	11 oz. @ 3/4"	4.83	4.59
24F082	11	120AC	Cont.	200	12 oz. @ 1/8"	6 oz. @ 3/4"	4.83	4.59
24F889	11	6DC	Inter.	2	40 oz. @ 1/8"	6 oz. @ 3/4"	4.78	4.54
24F083	11	6DC	Cont.	4.5	24 oz. @ 1/8"	3 oz. @ 3/4"	4.78	4.54
24F891	11	24DC	Inter.	31	40 oz. @ 1/8"	6 oz. @ 3/4"	4.78	4.54
24F084	11	24DC	Cont.	72	24 oz. @ 1/8"	3 oz. @ 3/4"	4.78	4.54
28F1350	11HD	120AC	Inter.	75	25 oz. @ 1/8"	7 1/2 oz. @ 1"	5.50	5.23
28F1351	11HD	120AC	Cont.	165	12 oz. @ 1/8"	3 1/2 oz. @ 1"	5.50	5.23
28F1352	11HD	24DC	Inter.	29	60 oz. @ 1/8"	5 oz. @ 7/8"	5.40	5.13
28F1353	11HD	24DC	Cont.	68	30 oz. @ 1/8"	2 1/2 oz. @ 5/8"	5.40	5.13
24F3443	11P	120AC	Inter.	85	16.8 oz. @ 1/8"	8.8 oz. @ 3/4"	5.78	5.49
24F3454	11P	120AC	Cont.	200	9.6 oz. @ 1/8"	4.8 oz. @ 3/4"	5.78	5.49
24F3444	11P	6DC	Inter.	2	32 oz. @ 1/8"	4.8 oz. @ 3/4"	5.50	5.23
24F3455	11P	6DC	Cont.	4.5	19.2 oz. @ 1/8"	2.4 oz. @ 3/4"	5.50	5.23
24F3445	11P	24DC	Inter.	31	32 oz. @ 1/8"	4.8 oz. @ 3/4"	5.50	5.23
24F3456	11P	24DC	Cont.	72	19.2 oz. @ 1/8"	2.4 oz. @ 3/4"	5.50	5.23
24F086	12	120AC	Inter.	100	48 oz. @ 1/8"	9 oz. @ 7/8"	7.96	7.56
24F087	12	120AC	Cont.	150	28 oz. @ 1/8"	6 oz. @ 7/8"	7.96	7.56
24F874	14	120AC	Inter.	11	108 oz. @ 1/8"	56 oz. @ 1 1/2"	12.90	12.26
24F875	14	120AC	Cont.	18	75 oz. @ 1/8"	40 oz. @ 1 1/2"	12.90	12.26
24F090	16	120AC	Inter.	41	110 oz. @ 1/8"	28 oz. @ 3/4"	7.14	6.78
24F876	16	120AC	Cont.	85	63 oz. @ 1/8"	15 oz. @ 3/4"	7.14	6.78
24F892	16	240AC	Inter.	200	110 oz. @ 1/8"	28 oz. @ 3/4"	7.19	6.83
24F893	16	240AC	Cont.	350	63 oz. @ 1/8"	15 oz. @ 3/4"	7.19	6.83
24F3446	16P	120AC	Inter.	41	88 oz. @ 1/8"	22.5 oz. @ 3/4"	8.53	8.10
24F3457	16P	120AC	Cont.	85	50.5 oz. @ 1/8"	12 oz. @ 3/4"	8.53	8.10
24F092	18	120AC	Inter.	8.8	350 oz. @ 1/8"	208 oz. @ 7/8"	11.22	10.66
24F093	18	120AC	Cont.	19.7	152 oz. @ 1/8"	100 oz. @ 7/8"	11.22	10.66
24F894	18	240AC	Inter.	45	350 oz. @ 1/8"	208 oz. @ 2 7/8"	11.28	10.72
24F895	18	240AC	Cont.	78	152 oz. @ 1/8"	100 oz. @ 2 7/8"	11.28	10.72
24F3447	18P	120AC	Inter.	8.8	315 oz. @ 1/8"	187 oz. @ 7/8"	13.75	13.06
24F3458	18P	120AC	Cont.	19.7	137 oz. @ 1/8"	90 oz. @ 7/8"	13.75	13.06
24F756	22	6DC	Inter.	4	20 oz. @ 1/16"	20 oz. @ 3/8"	3.15	2.99
24F757	22	6DC	Cont.	9	12 oz. @ 1/16"	1.7 oz. @ 3/8"	3.15	2.99
24F758	22	24DC	Inter.	60	20 oz. @ 1/16"	2 oz. @ 3/8"	3.20	3.04
24F759	22	24DC	Cont.	144	12 oz. @ 1/16"	1.7 oz. @ 3/8"	3.20	3.04
24F754	24	120AC	Inter.	310	17 oz. @ 1/16"	4 oz. @ 5/8"	4.20	3.99
24F755	24	120AC	Cont.	500	10 oz. @ 1/16"	2 oz. @ 5/8"	4.20	3.99
24F177	28	24AC	Cont.	17.4	24 oz. @ 1/16"	5 oz. @ 5/8"	4.52	4.29
24F178	28	120AC	Inter.	220	40 oz. @ 1/16"	7 oz. @ 1/2"	4.57	4.34
24F179	28	120AC	Cont.	400	24 oz. @ 1/16"	5 oz. @ 1/2"	4.57	4.34
24F218	28	6DC	Inter.	3.3	40 oz. @ 1/16"	3 oz. @ 2 1/2"	4.46	4.24
24F219	28	6DC	Cont.	7.7	25 oz. @ 1/16"	2 oz. @ 1/2"	4.46	4.24
24F220	28	12DC	Inter.	13	40 oz. @ 1/16"	3 oz. @ 1/2"	4.46	4.24
24F221	28	12DC	Cont.	27	25 oz. @ 1/16"	2 oz. @ 2 1/2"	4.46	4.24
24F222	28	24DC	Inter.	50	40 oz. @ 1/16"	3 oz. @ 1/2"	4.46	4.24
24F223	28	24DC	Cont.	104	25 oz. @ 2 1/16"	2 oz. @ 1/2"	4.46	4.24
28F1354	28HD	120AC	Inter.	200	30 oz. @ 1/16"	3 1/2 oz. @ 1/2"	5.60	5.32
28F1355	28HD	120AC	Cont.	370	20 oz. @ 1/16"	2 oz. @ 1/2"	5.60	5.32
28F1356	28HD	24DC	Inter.	50	20 oz. @ 1/8"	3 1/2 oz. @ 3/8"	5.45	5.18
28F1357	28HD	24DC	Cont.	90	12 oz. @ 1/8"	2 oz. @ 3/8"	5.45	5.18
62F1905	34	120AC	Inter.	400	18 oz. @ 1/16"	4.5 oz. @ 3/8"	3.94	3.74
62F1906	34	120AC	Cont.	865	9 oz. @ 1/16"	1.5 oz. @ 3/8"	3.94	3.74
28F1358	42	12DC	Inter.	—	1/2 oz. @ 1/8"	2 1/2 oz. @ 1/32"	2.90	2.76
28F1359	42	12DC	Cont.	—	1/4 oz. @ 1/8"	1 1/2 oz. @ 1/32"	2.90	2.76
28F1360	42	24DC	Inter.	—	1/2 oz. @ 1/8"	2 1/2 oz. @ 1/32"	3.10	2.95
28F1361	42	24DC	Cont.	—	1/4 oz. @ 1/8"	1 1/2 oz. @ 1/32"	3.10	2.95



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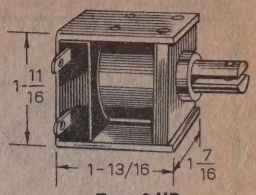

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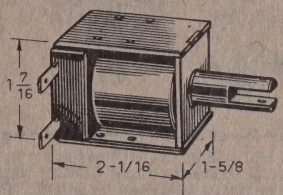

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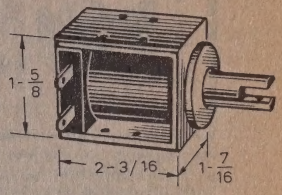

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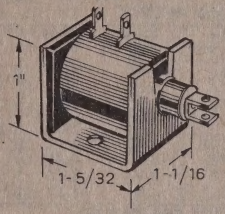

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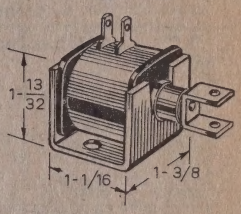

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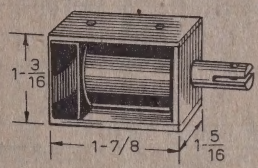

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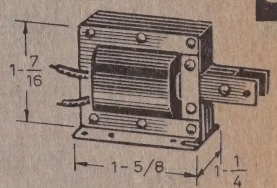

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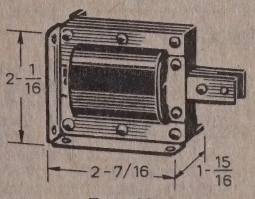

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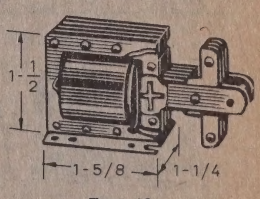

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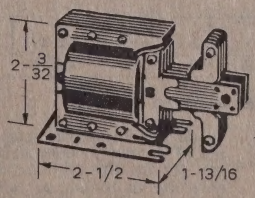

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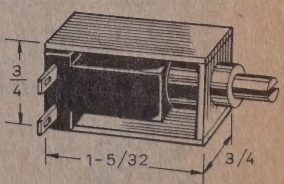

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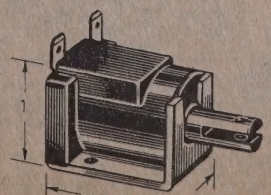

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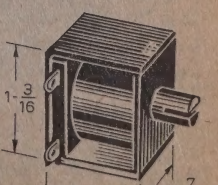
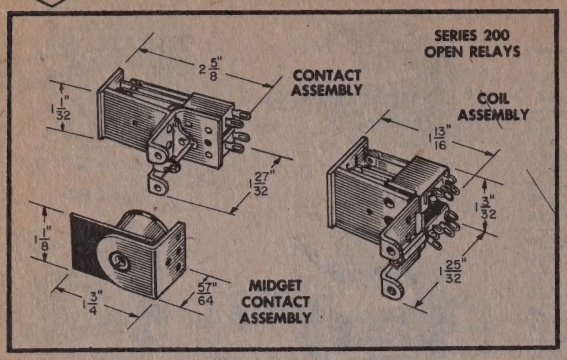


Type 28

9

Guardian



Coil consists of coil and field piece. Contact assembly consists of blades, armature, spring & bracket. Midget Contact Assembly interchangeable with Series 200. Available with SPDT, DPDT or 4PDT switch assembly. Use with any AC or DC coil.

SERIES 200 RELAYS

Stk. No.	Type	Volts	1-24	25-49	50-99
24F810	200-6A	6AC	3.16	3.00	2.84
24F811	200-12A	12AC	3.16	3.00	2.84
24F812	200-24A	24AC	3.16	3.00	2.84
24F813	200-120A	120AC	3.70	2.52	3.33
24F814	200-240A	240AC	4.88	4.64	4.39
24F820	200-6D	6DC	3.43	3.26	3.09
24F821	200-12D	12DC	3.43	3.26	3.09
24F822	200-24D	24DC	3.43	3.26	3.09
24F824	200-110D	110DC	4.54	4.31	4.09

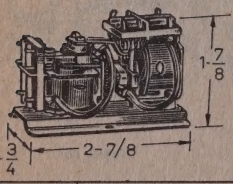
CONTACT SWITCH ASSEMBLIES

Stk. No.	Type	Cont. Amps.	Cont. Comb.	1-24	25-49	50-99
24F800	200-1	8	SPDT	2.90	2.76	2.61
23F801	200-2	8	DPDT	3.80	3.61	3.42
24F802	200-4	12.5	DPDT	4.27	4.06	3.84
24F805	200-5	8	4PDT	6.69	6.36	6.02
24F803	200-M1	10	SPDT	2.74	2.60	2.47
24F804	200-M2	10	DPDT	3.34	3.17	3.01
24F806	200-M5	8	4PDT	5.42	5.15	4.88

CONTACT SWITCH PARTS

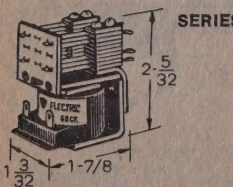
Stk. No.	Type	Desc.	1-24	25-49	50-99
24F830	200-3	Standard	2.89	2.75	2.60
24F831	200-M3	Midget	2.89	2.75	2.60

INTERLOCKING RELAY SERIES 1200/1200



Two interlocking AC relays in sturdy metal frame bracket. Used to maintain circuits without coil power consumption. Electrically pulse operated with mechanical hold and electrical release. Rated for 10 amps @ 60 Hz, 12VAC, non-inductive load. Coil resistance is 1,100 ohms. Shpg. wt., 5.5 oz.

Stk. No.	Type	Cont. Comb.	1-24	25-49	50-99
24F868	1200/1200-4C-120A	4PDT	15.54	14.76	13.99



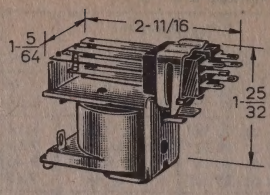
SERIES 640U—10 AMPERE

All purpose economy relay. Capable of unusually heavy power control for its size. All are AC with selection of contact combinations. Contacts ratings at 60 Hz. 120V non-inductive load. 8/32 single screw, ctr. hole mtg. Shpg. wt., 3.5 oz. U/L recognized.

Stk. No.	Type 640U-	Coil Res.	VAC	Cont. Comb.	1-24	25-49	50-99
24F004	A-24A	24	24	SPST	3.98	3.78	3.58
24F005	C-24A	24	24	SPDT	4.95	4.70	4.46
24F006	2C-24A	24	24	DPDT	6.61	6.28	5.95
24F007	4C-24A	24	24	4PDT	9.35	8.88	8.42
24F008	A-120A	550	120	SPST	4.09	3.89	3.68
24F009	C-120A	550	120	SPDT	5.05	4.80	4.55
24F010	2C-120A	550	120	DPDT	6.77	6.43	6.09
24F011	4C-120A	550	120	4PDT	9.46	8.99	8.51
24F012	2C-240A	2950	240	DPDT	7.20	6.84	6.48

Open Relays

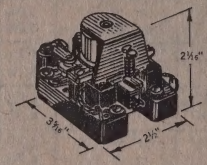
900-905/910-915 DPDT 10 AMP RELAYS



Number of parts and assembly time reduced by 50%. Eliminates cold flow while maintaining accurate adjustments. 1-piece switch mounting clip and return spring. Resistive load 120 VAC. Single screw mounting. Unitary field and core, no gap between core and field piece. Contacts: DPDT can control up to 10 amps. Mechanical life in excess of 1,000,000 operations. Size 2 11/16" x 1 25/32" x 1 13/64". Shipping Weight: 6 oz. U/L recognized, CSA approved.

Stk. No.	Type & Coil Volts	Stk. No.	Type & Coil Volts	1-24	25-up
62F1875	900-2C-24VAC	24F2444	910-2C-24AC		
62F1876	900-2C-120VAC	24F2445	910-2C-120AC		
62F1877	900-2C-240VAC	24F2446	910-2C-240AC		
62F1878	905-2C-6VDC	24F2447	915-2C-6DC	**2.90**	**2.63**
62F1879	905-2C-12VDC	24F2448	915-2C-12DC		
62F1880	905-2C-24VDC	24F2449	915-2C-24DC		

SERIES 2600/2620 25-AMP POWER RELAYS



Protects from mechanical damage or electrical shorting. Series **2600U** and **2605U** are DPDT, series **2620U and 2625U** are DPST. Convenient manual circuit testing. Two .196" dia. Mntg. holes in base. Shpg. wt. 8 oz. Auxiliary switch has solder lug blade tails rated for 10 amp operation. Easy conversion. U/L recognized, CSA approved.

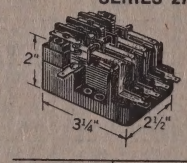
DPDT

Stock No.	Type	Volts	1-24	25-49	50-99
24F3415	2600U-DPDT-24A	24AC	12.39	11.77	11.15
24F3416	2600U-DPDT-120A	120AC	12.39	11.77	11.15
24F3417	2600U-DPDT-240A	240AC	12.76	12.12	11.48
24F3418	2605U-DPDT-12D	12DC	12.39	11.77	11.15
24F3419	2605U-DPDT-24D	24DC	12.39	11.77	11.15

DPST

24F3421	2620U-DPST-24A	24AC	11.76	11.17	10.58
24F3422	2620U-DPST-120A	120AC	11.76	11.17	10.58
24F3423	2620U-DPST-240A	240AC	12.11	11.50	10.90
24F3424	2625U-DPST-24D	24DC	11.76	11.17	10.58
24F3426	2600U-SPDT-Aux.-SW	.....	2.28	2.17	2.05

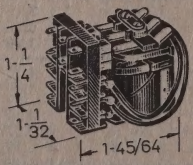
SERIES 2700/2705 25-AMP POWER RELAYS



4PDT with 25A resistive cont. rtng. at 120VAC or 28VDC; 15A at up to 240VAC. Input power is 10VA AC or 3WDC. Screw type or ¼" quick connect terminals. Load carrying members meet U/L requirements for up to 240VAC. Space for P.C. board. 2 slotted mntg. holes .290" x .177" on 2 1/32" centers, and two .177" dia. holes on 1⅞" centers.

Stk. No.	Type	Coil Volts	1-24	25-49	50-99
23F5490	2700-4C-12A	12AC	17.50	16.62	15.75
23F5491	2700-4C-24A	24AC	17.50	16.62	15.75
23F5492	2700-4C-120A	120AC	17.50	16.62	15.75
23F5493	2705-4C-12D	12DC	17.50	16.62	15.75
23F5494	2705-4C-24D	24DC	17.50	16.62	15.75
23F5495	2705-4C-110D	110DC	17.50	16.62	15.75

1240/1245 SERIES 10 AMP MEDIUM POWER AC/DC RELAY



Efficient for communications. Solder lug type terminals, molded in phenolic panel block. Contacts rated 10 amps at 60 cycles. 120 VAC, non-inductive load. Mtg: Single mounting hole, 6-32 tap. Size: 1 45/64 x 1¼ x 1 1/32". Shpg wt: 2.5 oz. U/L recognized, CSA apvd.

TYPE 1240 AC VOLTS

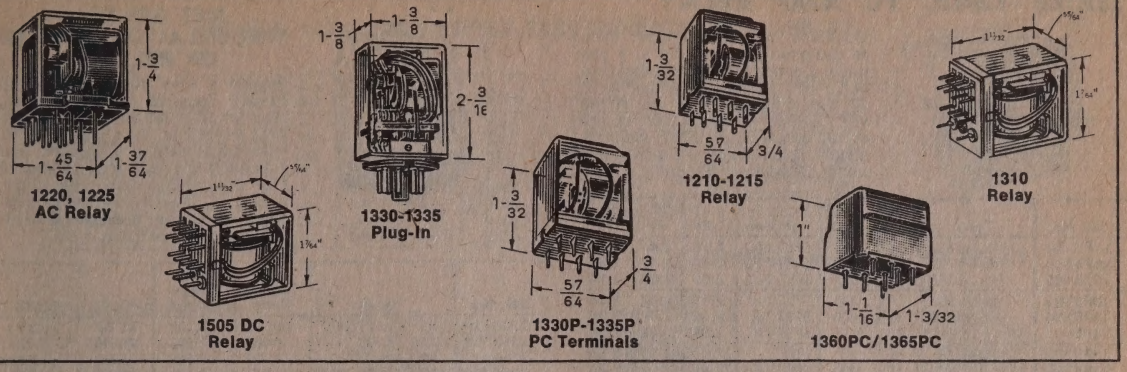
Stk. No.	Type and Coil Volts	Contacts	1-24	25-49	50-99
24F3400	1240-2C-6A	DPDT	5.35	5.08	4.82
24F3401	1240-3C-6A	3PDT	6.06	5.76	5.45
24F3402	1240-2C-24A	DPDT	5.35	5.08	4.82
24F3403	1240-3C-24A	3PDT	6.06	5.76	5.45
24F3404	1240-2C-120A	DPDT	5.35	5.08	4.82
24F3405	1240-3C-120A	3PDT	6.06	5.76	5.45
24F3406	1240-2C-240A	DPDT	5.59	5.31	5.03
24F3527	1240-3C-240A	3PDT	6.33	6.01	5.70

TYPE 1245-DC VOLTS

24F3409	1245-2C-12D	DPDT	5.31	5.04	4.78
24F3410	1245-3C-12D	3PDT	5.99	5.69	5.39
24F3411	1245-2C-24D	DPDT	5.31	5.04	4.78
24F3412	1245-3C-24D	3PDT	5.99	5.69	5.39

Enclosed and Heavy Duty Relays

GUARDIAN



ENCLOSED PLUG-IN 10 AMP RELAY

- **Transparent-Lightweight Case**
- **UL Listed**
- **Resistant to 200°F**

Enclosed in a transparent, lightweight Lexan case, resistant to temp. of 200°F. 8 pin octal plug for DPDT and 11 pin for 3PDT. Rated for 10 amps @ 60 Hz, 120 VAC, non-inductive load. U.L. Recognized. Size: 2⁹⁄₁₆"x1⅜"x1⅜".

TYPE 1210-AC VOLTS

Stock No.	Type	Coil Volt.	Cont. Cmb.	1-24	25-49	50-99
24F117	1210-2C-24A	24	DPDT	8.71	8.27	7.84
24F118	1210-3C-24A	24	3PDT	10.52	9.99	9.47
24F119	1210-2C-120A	120	DPDT	8.71	8.27	7.84
24F120	1210-3C-120A	120	3PDT	10.52	9.99	9.47
24F2457	1210-2C-240A	240	DPDT	9.18	8.72	8.26
24F2458	1210-3C-240A	240	3PDT	10.88	10.34	9.79

TYPE 1215-DC VOLTS

24F121	1215-2C-6D	6	DPDT	8.71	8.27	7.84
24F122	1215-3C-6D	6	3PDT	10.52	9.99	9.47
24F2459	1215-2C-12D	12	DPDT	8.71	8.27	7.84
24F2460	1215-3C-12D	12	3PDT	10.52	9.99	9.47
24F123	1215-2C-24D	24	DPDT	8.71	8.27	7.84
24F2461	1215-2C-110D	110	DPDT	9.26	8.80	8.33

TYPE 1210N

Neon lamp lights when coil is energized or indicates circuit fault when lamp is dark. 10 A @ 120 VAC. Coil Res.: 1110 ohms.

Stock No.	Type 1210N-	Cont. Comb.	1-24	25-49	50-99
24F191	2C-120A	DPDT	10.11	9.60	9.10
24F192	3C-120A	3PDT	11.99	11.39	10.79

1220-AC AND 1225-DC 10 AMP RELAYS

Features "UNI-GARD" continuous loop moving blades; AMP Faston 110 Series quick connect or socket plug-in. 1220 Relay comes complete with mtg. bracket. U/L recognized.

Stock No.	Type	Coil Volt	1-24	25-49	50-99
62F1882	1220-2C-24A	24AC	6.83	6.49	6.15
62F1883	1220-2C-120A	120AC	7.20	6.84	6.48
62F1887	1220-3C-120A	120AC	8.22	7.81	7.40
67F5693	1225-2C-12D	12DC	6.61	6.28	5.95
67F5694	1225-2C-24D	24DC	6.72	6.38	6.05
67F5695	1225-2C-110D	110DC	7.42	7.05	6.68
67F5696	1225-3C-24D	24DC	7.74	7.35	6.97
67F5697	1225-3C-110D	110DC	8.44	8.02	7.60

1220 SOCKETS

U/L component recognized when used with Guardian Relays. **SOC-2,** 1³¹⁄₃₂" high; 1-5/15" wide; ½" thick.

Stock No.	Type	1-24	25-Up
24F3470	1220-SOC-1	1.40	1.18
24F3471	1220-SOC-2	1.40	1.18

MINIATURE 5 AMP RELAY

1310 AC, 1315 DC. Contact; 4PDT rated @ 120 VAC or 30 VDC resistive. Power req. 1.2 volt amp. @ nom. voltage for AC, 0.9 watts for DC. Temp. range: —45°C to 70° C. Shpg. wt. 1⅛ oz.

Stock No.	Type	Coil Volt.	1-24	25-49	50-99
24F3233	1310-4C	12AC	5.68	5.40	5.11
24F3234	1310-4C	24AC	5.68	5.40	5.11
24F3235	1310-4C	120AC	5.94	5.64	5.35
24F3237	1315-4C	12DC	5.74	5.45	5.17
24F3238	1315-4C	24DC	5.74	5.45	5.17
24F3239	1315-4C	110DC	6.26	5.95	5.63

PRINTED CIRCUIT RELAYS

1310P AC, 1315P DC. Rated at 5 amp at 30 VDC or 115 VAC. Wt. 1⅛ oz.

Stock No.	Type	Coil Volt.	1-24	25-49	50-99
24F3242	1310P-4C	120AC	5.78	5.49	5.20
24F3244	1315P-4C	6DC	5.84	5.55	5.26
14F3245	1315P-4C	12DC	5.84	5.55	5.26
24F3246	1315P-4C	24DC	5.84	5.55	5.26
24F3247	1315P-4C	110DC	6.36	6.04	5.72

1310 SERIES SOCKETS

Panel cutout for socket should measure 1.015" x .858" with .025" radii at all four corners.

Stock No.	Type	NET
24F3472	1310-1ST	.85
24F3473	1310-2PC	.85
24F3474	1310-3SN	.85

TYPE 1505 DC SPDT

Subminiature in size. Terminals mount directly to PC board. Temperature range is —25C to +55C. Approx. wt: 3.5 grams.

Stock No.	Type	Coil Volt.	1-24	25-49	50-99
23F5496	1505-1C-3D	3DC	2.20	2.09	1.98
23F5497	1505-1C-6D	6DC	2.20	2.09	1.98
23F5498	1505-1C-12D	12DC	2.20	2.09	1.98
23F5499	1505-1C-24D	24DC	2.24	2.13	2.02

MINIATURE ENCLOSED RELAYS

Model 1330 & 1335 Plug. 1330P & 1335P are Printed Circuit, DPDT. Rated: 5 A @ 30VDC or 120 VAC. Heat resistant Lexan cover. For business, photocopy, computers and appliances. Wt. ¾ oz.

Stock No.	Type	Coi Volt.	1-24	25-49	50-99
67F5624	1330-2C-6A	6A	4.34	4.12	3.91
67F5625	1330-2C-12A	12AC	4.34	4.12	3.91
67F5626	1330-2C-24A	24AC	4.34	4.12	3.91
67F5627	1330-2C-120A	120AC	4.44	4.22	4.00
67F5628	1335-2C-6D	6DC	4.24	4.03	3.82
67F5629	1335-2C-12D	12DC	4.24	4.03	3.82
67F5630	1335-2C-24D	24DC	4.24	4.03	3.82
67F5631	1330P-2C-6A	6AC	4.44	4.22	4.00
67F5632	1330P-2C-12A	12AC	4.44	4.22	4.00
67F5633	1330P-2C-24A	24AC	4.44	4.22	4.00
67F5634	1330P-2C-120A	120AC	4.54	4.31	4.09
67F5635	1335P-2C-6D	6DC	4.34	4.12	3.91
67F5636	1335P-2C-12D	12DC	4.34	4.12	3.91
67F5637	1335P-2C-24D	24DC	4.34	4.12	3.91

1330 SERIES SOCKETS

Stock No.	Type	Net
67F5638	1330-1ST	.69
67F5639	1330-2PC	.69

1360PC/1365PC DPDT SWITCHING

For low power solid state circuitry .060" dia. terms. on .1" grid spacing. Solders on PC brd. or use mating socket. 1 W. 3500Ω res. 5 amp. res. 120 VAC 60 Hz. **1360 SOCKET.** Solder to PC board or snap thru underside of chassis. Cutout should measure 1.265"x1.078".

Stock No.	Type	Coil Volt.	1-24	25-49	50-99
67F5640	1360PC-2C-24A	24AC	6.70	6.37	6.03
67F5641	1360PC-2C-120A	120AC	6.84	6.50	6.16
67F5642	1365PC-2C-6D	6DC	6.00	5.70	5.40
67F5643	1365PC-2C-12D	12DC	6.00	5.70	5.40
67F5644	1365PC-2C-24D	24DC	6.00	5.70	5.40

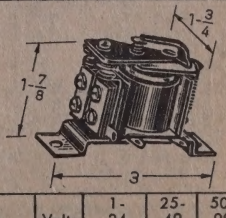
1360 SOCKET

Stock No.	Type	Net
67F5645	1360-1	.87

TYPE 220 HEAVY DUTY INDUSTRIAL AC RELAY

Rugged relay makes and breaks up to 20 amperes @ 240 volts. Armature equipped with Phenolic contact mounting block carrying ⅝" dual contacts. Phenolic tested at 1500 volts breakdown to ground. Contact rating at 60 cycles, 20 amps, 240 V non-inductive load. Size: 3 x 1⅞ x 1¾". Shpg. wt. 5.5 oz.

- **20 Amp**
- **SPST-NO**
- **Silver Alloy Contacts**

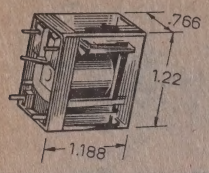


Stock No.	Type	Volts	1-24	25-49	50-99
24F052	220-A-24A	24	10.16	9.65	9.14
24F053	220-A-120A	120	10.16	9.65	9.14
24F954	220-A-240A	240	10.43	9.91	9.39

9

GUARDIAN® Mechanical and Solid State Relays

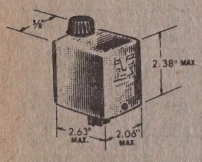
SERIES 1345, 10 AMP RELAY



Occupies just over one cubic inch. Is designed for long life at a low price. Contact rating: 10A resistive at 12 VDC, 7A res.—6A inductive at 30 VDC, 3.5A res.—2.5A ind. at 120 VAC. SPST in your choice of NO or NC contacts, or SPDT. Heat resistant nylon cover. UL recognized under Component Program.

Stk. No.	Type	Coil VDC	Coil Res.	Action	1-24	25-49	50-99
23F5100	1345-1A-6D	6	350	SPST-NO	2.60	2.47	2.34
23F5101	1345-1A-12D	12	1400	SPST-NO	2.60	2.47	2.34
23F5102	1345-1A-24D	24	5600	SPST-NO	2.82	2.68	2.54
23F5103	1345-1B-6D	6	350	SPST-NC	2.60	2.47	2.34
23F5104	1345-1B-12D	12	1400	SPST-NC	2.60	2.47	2.34
23F5105	1345-1B-24D	24	5600	SPST-NC	2.82	2.68	2.54
23F5106	1345-1C-6D	6	350	SPDT	2.94	2.79	2.65
23F5107	1345-1C-12D	12	1400	SPDT	2.94	2.79	2.65
23F5108	1345-1C-24D	24	5600	SPDT	3.20	3.04	2.88

TDO SERIES TIME DELAY

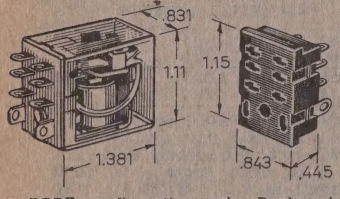


- **Economical**
- **Versatile**
- **Repeatability within 5%**

DPDT contacts rated at 5A at 120VAC. Delay adjustment by ten-turn potentiometer. Repeatability is within 5% after a line interruption of 100 ms.

Stock No.	Type	Volts	Delay Range (Sec.)	1-24	25-49	50-99	100-249
62F1912	TDO62C30-120A	120VAC	.5 to 30	29.27	27.81	26.34	24.88

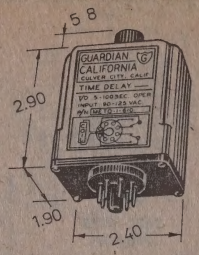
SERIES 1390-1395, DPDT, 13 AMP RELAY



Rated for mechanical life of 100 million operations, and 100,000 operations minimum at rated loads. Occupies approximately 1.25 cubic inches. Contacts rated at 13 A at 28VDC or 130VAC resistive; 7.5 A at 120VAC inductive; ⅓ hp at 120VAC. Heat resistant lexan cover. DPDT configuration only. Designed to meet U/L requirements. Weight: 1.25 oz. P suffix to serial number indicates Printed Circuit Type. All others Solder Lug Type.

Stk. No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5109	1390-2C-12A	12AC	45	6.01	5.71	5.41	4.21
23F5110	1390-2C-24A	24AC	160	6.01	5.71	5.41	4.21
23F5111	1390-2C-120A	120AC	3900	6.34	6.02	5.71	4.44
28F1338	1390P-2C-6A	6AC	10	6.11	5.80	5.50	4.28
28F1339	1390P-2C-12A	12AC	45	6.11	5.80	5.50	4.28
28F1340	1390P-2C-24A	24AC	160	6.11	5.80	5.50	4.28
28F1341	1390P-2C-48A	48AC	670	6.45	6.13	5.81	4.52
28F1342	1390P-2C-120A	120AC	3,900	6.45	6.13	5.81	4.52
23F5112	1395-2C-6D	6DC	40	5.80	5.51	5.22	4.06
23F5113	1395-2C-12D	12DC	160	5.80	5.51	5.22	4.06
23F5114	1395-2C-24D	24DC	650	5.80	5.51	5.22	4.06
23F5115	1395-2C-110D	110DC	11,000	6.64	6.31	5.98	4.65
28F1343	1395P-2C-6D	6DC	40	5.90	5.61	5.31	4.13
28F1344	1395P-2C-12D	12DC	160	5.90	5.61	5.31	4.13
28F1345	1395P-2C-24D	24DC	650	5.90	5.61	5.31	4.13
28F1346	1395P-2C-90D	90DC	9,000	6.74	6.40	6.07	4.72
28F1347	1395P-2C-110D	110DC	11,000	6.74	6.40	6.07	4.72

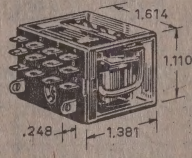
SERIES 1390 sockets for 1390-1395 relays. Requires panel cutout 0.858″ x 1.015″ with .025″ radii at all four corners. Chassis thickness of .031″ to .062″ recommended.
1390-1 ST Series relay socket with solder terminal lugs that accept AMP Series .187 quick connects.
23F5117. EACH ..... **.85**
1390-2 PC Series. Sockets with PC terminals.
23F5118. EACH ..... **.85**



MET SERIES — TIME DELAY ON OPERATE OR RELEASE

Provide a time delay range of .5 to 300 seconds. DPDT contacts rated at 10 A resistive load at 120 VAC. 50-60 Hz. Accuracy: ±10% of nominal setting over oper, and voltage range, with repeatability of 1%. Operating temperature range: 0 to 55°C. 0 in type number indicates delay on operate, R indicates delay on release.

Stk. No.	Type	Oper. Volts	Delay Range (Sec.)	1-9	10-24
23F5119	MET-O-100-24A	24VAC	.5-100	25.67	24.39
23F5120	MET-O-300-24A	24VAC	100-300	26.76	25.42
23F5121	MET-O-015-120A	120VAC	.5-15	25.00	23.75
23F5122	MET-O-100-120A	120VAC	.5-100	25.67	24.39
23F5123	MET-O-300-120A	120VAC	100-300	26.76	25.42
23F5124	MET-O-015-24D	24VDC	.5-15	24.60	23.77
23F5125	MET-O-100-24D	24VDC	.5-100	25.08	23.83
23F5126	MET-O-300-24D	24VDC	100-300	25.98	24.68
23F5127	MET-R-100-24A	24VAC	.5-100	34.63	32.90
23F5128	MET-R-300-24A	24VAC	100-300	35.56	33.78
23F5129	MET-R-015-120A	120VAC	.5-15	33.99	32.29
23F5130	MET-R-100-120A	120VAC	.5-100	34.63	32.90
23F5131	MET-R-300-120A	120VAC	100-300	35.56	33.78
23F5132	MET-R-015-24D	24VDC	.5-15	33.54	31.86
23F5133	MET-R-100-24D	24VDC	.5-100	34.03	32.33
23F5134	MET-R-300-24D	24VDC	100-300	34.94	33.19



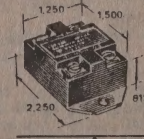
SERIES 1380-1385 RELAYS

Mechanical life of 100 million operations. Operating temp. range −45° to +70°C. Contacts: 4 Form C, Silver cadmium oxide. Rated at 13 amps resistive @ 30 VDC, or 120 V 60 Hz, 1/3 HP @ 120 V 60 Hz. Weight: 2.5 oz. P suffix to serial number indicates Printed Circuit Type. All others Solder Lug Type.

Stk. No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
28F1320	1380-4C-6A	6AC	5.5	10.27	9.76	9.24	7.19
28F1321	1380-4C-12A	12AC	20	10.27	9.76	9.24	7.19
28F1322	1380-4C-24A	24AC	80	10.27	9.76	9.24	7.19
28F1323	1380-4C-120A	120AC	2500	10.73	10.19	9.66	7.51
28F1324	1385-4C-6D	6DC	25	9.47	9.00	8.52	6.63
28F1325	1385-4C-12D	12DC	100	9.47	9.00	8.52	6.63
28F1326	1385-4C-24D	24DC	350	9.47	9.00	8.52	6.63
28F1327	1385-4C-90D	90DC	5000	10.16	9.65	9.14	7.11
28F1328	1385-4C-110D	110DC	7000	10.16	9.65	9.14	7.11
28F1329	1380P-4C-6A	6AC	5.5	10.37	9.85	9.33	7.26
28F1330	1380P-4C-12A	12AC	20	10.37	9.85	9.33	7.26
28F1331	1380P-4C-24A	24AC	80	10.37	9.85	9.33	7.26
28F1332	1380P-4C-120A	120AC	2500	10.84	10.30	9.76	7.59
28F1333	1385P-4C-6D	6DC	25	9.58	9.10	8.62	6.71
28F1334	1385P-4C-12D	12DC	100	9.58	9.10	8.62	6.71
28F1335	1385P-4C-24D	24DC	350	9.58	9.10	8.62	6.71
28F1336	1385P-4C-90D	90DC	5000	10.31	9.79	9.28	7.22
28F1337	1385P-4C-110D	110DC	7000	10.31	9.79	9.28	7.22

SOCKETS FOR 1380-1385 RELAYS

Stock No.	Type	Terminals	1-99	100-Up
29F3050	1380-1ST	Solder LUG	1.80	1.53
29F3051	1380-2PC	Printed Circuit	1.85	1.57
29F3052	1380-5SM	Screw Mount	4.90	4.17



MSSR SERIES SOLID STATE RELAYS

Optically coupled, line synchronized, constant current input. 10 amp AC output. Unit must be mounted to proper heat sink for full watt rating. Screw terminals. CMOS compatible. Size: 2.25″ x 1.25″ x .812″.

Stock No.	Type	AC Load Voltage	1-9	10-24	25-49	50-99
28F1365	MSSR-1B-10	20-140	16.34	15.19	14.05	12.91
28F1366	MSSR-2B-10	40-280	16.93	15.74	14.56	13.37
28F1367	MSSR-1B-20	20-140	24.78	23.04	21.31	19.57
28F1368	MSSR-2B-20	40-280	25.42	23.64	21.86	20.08
28F1369	MSSR-1B-30	20-140	15.36	14.28	13.21	12.13
28F1370	MSSR-2B-30	40-280	15.78	14.67	13.57	12.47

9

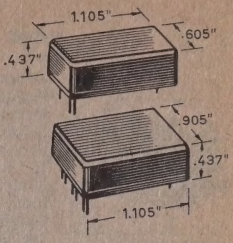
Relay Steppers

GUARDIAN

SERIES 1475 LOW PROFILE ELECTROMECHANICAL RELAY

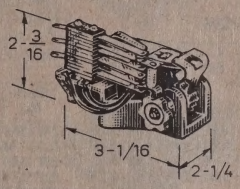
Stock No.	Type	Coil VDC	Coil Res.	Cont. Comb.	1-9	10-49
24F213	1475-1C-5D	5	44	SPDT	3.80	3.61
67F5646	1475-1C-6D	6	70	SPDT	3.80	3.61
67F5648	1475-1C-12D	12	288	SPDT	3.80	3.61
67F5650	1475-1C-24D	24	1152	SPDT	3.96	3.76
24F214	1475-2C-5D	5	41.6	DPDT	4.51	4.28
67F5647	1475-2C-6D	6	60	DPDT	4.51	4.28
67F5649	1475-2C-12D	12	240	DPDT	4.51	4.28
67F5651	1475-2C-24D	24	960	DPDT	4.62	4.39

Designed for high density packaging. Sealed thermoset housing and cover construction. Contacts rated 5 amps at 6 and 12 VDC; 3 amps at 24 and 28 VDC; 5 amps at 6, 12 & 24 VAC; 1.5 amps at 120 VAC. (AC loads are resistive.) Mechanical life in excess of 10^7 operations. Wt. 10 grams SPDT; 14 grams DPDT.



SEQUENCE RELAY

For on/off control of lighting, motors, appliances and speaker applications, among others. Each impulse (up to 10 steps per second) reverses contacts. Contacts rated 12½ amps. 120V, 60 Hz. Size: 3 1/16 x2¼x2 3/16. Shpg. wt., 7.5 oz.



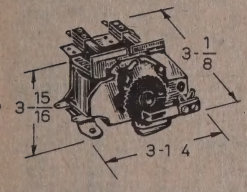
TYPE 660 — AC VOLTS

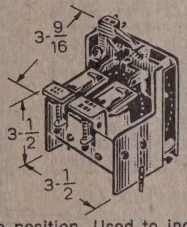
Stock No.	Type	Cont. Comb.	Volts	1-24	25-49	50-99
24F2437	660-C-24A	SPDT	24	10.21	9.70	9.19
24F193	660-C-120A	SPDT	120	10.21	9.70	9.19
24F2438	660-2C-24A	DPDT	24	11.03	10.48	9.93
24F194	660-2C-120A	DPDT	120	11.03	10.48	9.93
24F2439	660-4C-24A	4PDT	24	16.06	15.26	14.45
24F2440	660-4C-120A	4PDT	120	16.06	15.26	14.45

TYPE 665 — DC VOLTS

24F2441	665-C-24D	SPDT	24	10.21	9.70	9.19
24F2442	665-2C-24D	DPDT	24	11.03	10.48	9.93
24F2443	665-4C-24D	4PDT	24	16.06	15.26	14.45

TYPES MAS & PAS ADD AND SUBTRACT STEPPER

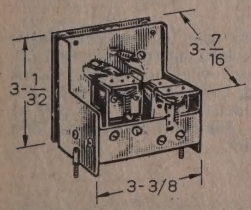


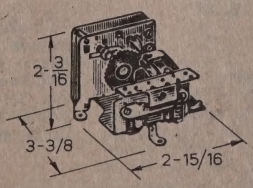


TYPE MAS. Cam actuated switch at zero position. Used to indicate zero balance between pulse. 9 Watts. Shipping wt. 11 ozs. **TYPE PAS.** Bidirectional with wiper moving in either direction depending on which coil is energized. 35 Watts. Shipping wt. 22 ozs.

Stk. No.	Type	VA	1-24	25-49	50-99
24F772	MAS-120A	12	33.89	32.20	30.50
67F5669	PAS-120A	60	47.03	44.68	42.33

CONTINUOUS ROTATION STEP RELAY

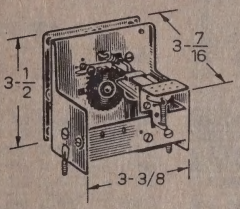


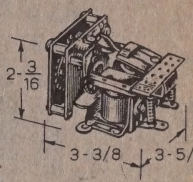


TYPE PC. Oilite shaft bearings. Life, 4,000,000 steps; oper. @ 15% below or 10% above volt. Coil 120VAC, 20W. 40 pts. & active contacts. Sz. 3⅜x3x3 3/16. **TYPE MC.** Smaller rotation like PC. Life, 2,000,000 steps. 24 pts. & con. 120VAC, 17W.

Stk. No.	Type and AC Volts	VA	1-24	25-49	50-99
24F762	PC-120A	35	34.00	32.30	30.60
24F764	MC-120A	30	25.17	23.91	22.65

ELECTRICAL RESET STEP RELAY





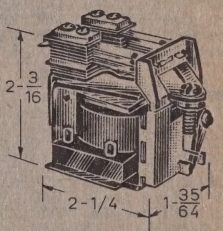
TYPE PER. Resets when coil is energized. Coil, 120 VAC; 35W (step.) 7 W (reset). 40 points. 36 contacts. Sz. 3x3⅜x3 3/16. **TYPE MER.** Positive acting interlock, actuated by magnet. Coil, 120 VAC. 20W step., 7W reset. 24 pts. 22 conts. Wt. 11.5 oz.

Stk. No.	Type and AC Volts	VA	1-24	25-49	50-99
24F766	PER/40-120A	60-10	44.75	42.51	40.28
24F865	MER-120A	40-10	28.96	27.51	26.06

SERIES 840LS (AC) & 845LS (DC) ON/OFF RELAY STEPPERS

Single Coil Impulse Operated Mechanical Latching Relay Stepper

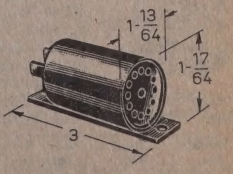
SPDT, DPDT or 4DPT contact combinations. Impulse as short as 20 ms energizes the coil to reverse position of switches. Contacts: 10 amp, at 120VAC, 60 Hz non-inductive. Power requirement: 8.2 volt amps. Shipping wt.: 5.2 oz.



Stk. No.	Type	Coil Voltage	Cont. Comb.	1-24	25-49	50-99
67F5670	840LS-C-24A	24AC	SPDT	7.64	7.26	6.88
67F5671	840LS-2C-24A	24AC	DPDT	9.21	8.75	8.29
67F5672	840LS-4C-24A	24AC	4PDT	13.44	12.77	12.10
67F5673	840LS-C-120A	120AC	SPDT	7.64	7.26	6.88
67F5674	840LS-2C-120A	120AC	DPDT	9.21	8.75	8.29
67F5675	840LS-4C-120A	120AC	4PDT	13.44	12.77	12.10
67F5676	845LS-C-12D	12DC	SPDT	7.64	7.26	6.88
67F5677	845LS-2C-12D	12DC	DPDT	8.35	7.93	7.52
67F5678	845LS-4C-12D	12DC	4PDT	13.44	12.77	12.10
67F5679	845LS-C-24D	24DC	SPDT	7.64	7.26	6.88
67F5680	845LS-2C-24D	24DC	DPDT	8.35	7.93	7.52
67F5681	845LS-4C-24D	24DC	4PDT	13.44	12.77	12.10

ROTOMITE STEPPER DC

Continuous rotation on 12 position to 20 steps per. sec. Stepping mechanism, coils & contacts metal enclosed. 3 amps resistive, 1 amp inductive (50% P.F.). Over 1,000,000 operations. For bus. machines, lighting, counting, sorting, & computer circ. L.3" x D.1 3/16". 5 oz.

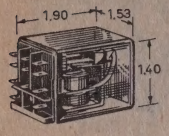


Stk. No.	Type	VDC	1-24	25-49	50-99
24F125	705-12P-6D	6	10.73	10.19	9.66
24F126	705-12P-12D	12			
24F127	705-12P-24D	24			

9

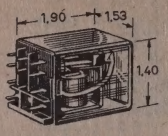
Miniature Enclosed Relays

SERIES 1510 AND 1515 ENCLOSED RELAYS



1515/1515P

General Purpose types with .187" solder lug/quick connect or Printed Circuit (P) terminals. Enclosed bracket mount, enclosed stud mount, or enclosed tapped core mount. Phenolic Insulation. Rated at 12 Amps at 30VDC or 240VAC resistive. Lifetime: 100,000 operations min. at rated load. 1500VRMS Breakdown Voltage. 500VRMS Breakdown across Silver-Cadmium-oxide contacts.



1510/1510P

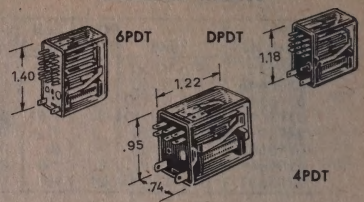
PLAIN

Stk. No.	Type	Coil V.	1-24	25-49	50-99	100-249
SPDT						
28F1500	1510-1C-6A	6AC	5.56	5.28	5.00	3.89
28F1505	1515-1C-6D	6DC	5.44	5.17	4.90	3.81
28F1501	1510-1C-12A	12AC	5.56	5.28	5.00	3.89
28F1506	1515-1C-12D	12DC	5.44	5.17	4.90	3.81
28F1502	1510-1C-24A	24AC	5.56	5.28	5.00	3.89
28F1507	1515-1C-24D	24DC	5.44	5.17	4.90	3.81
28F1503	1510-1C-48A	48AC	5.86	5.57	5.27	4.10
28F1508	1515-1C-90D	90DC	6.02	5.72	5.42	4.21
28F1504	1510-1C-120A	120AC	5.86	5.57	5.27	4.10
28F1509	1515-1C-110D	110DC	6.02	5.72	5.42	4.21
DPDT						
28F1510	1510-2C-6A	6AC	6.26	5.95	5.63	4.38
28F1515	1515-2C-6D	6DC	6.30	5.99	5.67	4.41
28F1511	1510-2C-12A	12AC	6.26	5.95	5.63	4.38
28F1516	1515-2C-12D	12DC	6.30	5.99	5.67	4.41
28F1512	1510-2C-24A	24AC	6.26	5.95	5.63	4.38
28F1517	1515-2C-24D	24DC	6.30	5.99	5.67	4.41
28F1513	1510-2C-48A	48AC	6.60	6.27	5.94	4.62
28F1518	1515-2C-90D	90DC	6.84	6.50	6.16	4.79
28F1514	1510-2C-120A	120AC	6.60	6.27	5.94	4.62
28F1519	1515-2C-110D	110DC	6.84	6.50	6.16	4.79
3PDT						
28F1520	1510-3C-6A	6AC	7.10	6.75	6.39	4.97
28F1525	1515-3C-6D	6DC	6.94	6.59	6.25	4.86
28F1521	1510-3C-12A	12AC	7.10	6.75	6.39	4.97
28F1526	1515-3C-12D	12DC	6.94	6.59	6.25	4.86
28F1522	1510-3C-24A	24AC	7.10	6.75	6.39	4.97
28F1527	1515-3C-24D	24DC	6.94	6.59	6.25	4.86
28F1523	1510-3C-48A	48AC	7.24	6.88	6.52	5.07
28F1528	1515-3C-90D	90DC	7.56	7.18	6.80	5.29
28F1524	1510-3C-120A	120AC	7.24	6.88	6.52	5.07
28F1529	1515-3C-110D	110DC	7.56	7.18	6.80	5.29

PRINTED CIRCUIT

Stock No.	Type	Coil V.	1-24	25-49	50-99	100-249
SPDT						
28F1530	1510P-1C-6A	6AC	5.64	5.36	5.08	3.95
28F1535	1515P-1C-6D	6DC	5.52	5.24	4.97	3.86
28F1531	1510P-1C-12A	12AC	5.64	5.36	5.08	3.95
28F1536	1515P-1C-12D	12DC	5.52	5.24	4.97	3.86
28F1532	1510P-1C-24A	24AC	5.64	5.36	5.08	3.95
28F1537	1515P-1C-24D	24DC	5.52	5.24	4.97	3.86
28F1533	1510P-1C-48A	48AC	5.94	5.64	5.35	4.16
28F1538	1515P-1C-90D	90DC	6.10	5.80	5.49	4.27
28F1534	1510P-1C-120A	120AC	5.94	5.64	5.35	4.16
28F1539	1515P-1C-110D	110DC	6.10	5.80	5.49	4.27
DPDT						
28F1540	1510P-2C-6A	6AC	6.34	6.02	5.71	4.44
28F1545	1515P-2C-6D	6DC	6.38	6.06	5.74	4.47
28F1541	1510P-2C-12A	12AC	6.34	6.02	5.71	4.44
28F1546	1515P-2C-12D	12DC	6.38	6.06	5.74	4.47
28F1542	1510P-2C-24A	24AC	6.34	6.02	5.71	4.44
28F1547	1515P-2C-24D	24DC	6.38	6.06	5.74	4.47
28F1543	1510P-2C-48A	48AC	6.68	6.35	6.01	4.68
28F1548	1515P-2C-90D	90DC	6.92	6.57	6.23	4.84
28F1544	1510P-2C-120A	120AC	6.68	6.35	6.01	4.68
28F1549	1515P-2C-110D	110DC	6.92	6.57	6.23	4.84
3PDT						
28F1550	1510P-3C-6A	6AC	7.18	6.82	6.46	5.03
28F1555	1515P-3C-6D	6DC	7.02	6.67	6.32	4.91
28F1551	1510P-3C-12A	12AC	7.18	6.82	6.46	5.03
28F1556	1515P-3C-12D	12DC	7.02	6.67	6.32	4.91
28F1552	1510P-3C-24A	24AC	7.18	6.82	6.46	5.03
28F1557	1515P-3C-24D	24DC	7.02	6.67	6.32	4.91
28F1553	1510P-3C-48A	48AC	7.32	6.95	6.59	5.12
28F1558	1515P-3C-90D	90DC	7.64	7.26	6.88	5.35
28F1554	1510P-3C-120A	120AC	7.32	6.95	6.59	5.12
28F1559	1515P-3C-110D	110DC	7.64	7.26	6.88	6.35

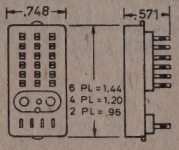
SERIES 1555 MINIATURE ENCLOSED RELAYS



One piece core and yoke, one piece bobbin. Lifetime: 100,000 operations at rated load of 2 Amps. at 120VAC or 30VDC. Silver contacts. Breakdown Voltage: 1000VRMS 60 Hz.

Stock No.	Type No.	Coil V.	Poles	1-24	25-49	50-99	100-249
28F1564	1555-2C-6D	6DC	2	3.94	3.74	3.55	2.76
28F1570	1555P-2C-6D	6DC	2	3.94	3.74	3.55	2.76
28F1565	1555-2C-12D	12DC	2	3.94	3.74	3.55	2.76
28F1571	1555P-2C-12D	12DC	2	3.94	3.74	3.55	2.76
28F1566	1555-2C-24D	24DC	2	3.94	3.74	3.55	2.76
28F1572	1555P-2C-24D	24DC	2	3.94	3.74	3.55	2.76
28F1567	1555-4C-6D	6DC	4	4.46	4.24	4.01	3.12
28F1573	1555P-4C-6D	6DC	4	4.46	4.24	4.01	3.12
28F1568	1555-4C-12D	12DC	4	4.46	4.24	4.01	3.12
28F1574	1555P-4C-12D	12DC	4	4.46	4.24	4.01	3.12
28F1569	1555-4C-24D	24DC	4	4.46	4.24	4.01	3.12
28F1575	1555P-4C-24D	24DC	4	4.46	4.24	4.01	3.12

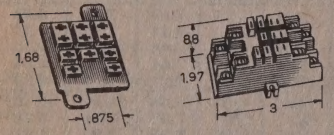
SERIES 1555 SOCKETS



Three types: 1555-ST; solder lug. 1555-PCG; P.C. lugs, .1" grid. 1555-PC; P.C. in-line lugs.

Stock No.	Type No.	Pole No.	1-99	100-Up
28F1597	1555-ST	2	.53	.45
28F1598	1555-ST	4	.63	.54
28F1599	1555-PCG	2	.53	.45
28F1600	1555-PCG	4	.63	.54
28F1601	1555-PC	2	1.44	1.22
28F1602	1555-PC	4	1.72	1.46

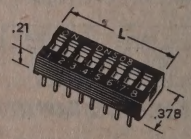
SERIES 1510 RELAY SOCKETS



1510-1-ST with solder lugs. **1510-187QC** with .187" QC terminals. **1510-2 DC** with printed circuit terminals. **1510-5 SM** with screw terminals.

Stock	Type No.	1-99	100-Up
28F1560	1510-1-ST	.90	.77
28F1561	1510-187-QC	.90	.77
28F1562	1510-2-PC	1.00	.85
28F1563	1510-5-SM	4.10	3.49

MINI DIP SWITCH

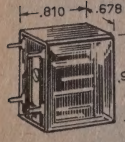


Gold plated terminals, heat resistant plastic material for molded parts. Rated 50 VDC, 100mA without switching; 5VDC, 100mA with switching; 25VDC, 25mA with switching. Contact resistance less than 50M at 2VDC, 10mA. Electrical life: More than 10,000 operations.

Stock No.	Type No.	Switches	PT*	1-24	25-49	50-99	100-249
28F1588	DNS-04-GF	4	0.1	2.20	2.09	1.98	1.54
28F1589	DNS-04-G1	4	1.0	3.12	2.96	2.81	2.18
28F1590	DNS-04-G2	4	2.0	3.78	3.58	3.40	2.65
28F1591	DNS-06-GF	6	0.1	2.50	2.38	2.25	1.75
28F1592	DNS-06-G1	6	1.0	3.76	3.57	3.38	2 63
28F1593	DNS-06-G2	6	2.0	4.31	4.09	3.88	3.02
28F1594	DNS-08-GF	8	0.1	2.70	2.57	2.43	1.89
28F1595	DNS-08-G1	8	1.0	4.57	4.34	4.11	3.20
28F1596	DNS-08-G2	8	2.0	5.21	4.95	4.69	3.65

(*) Plating thickness in microns.

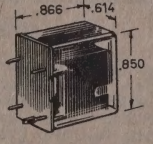
SERIES 1565 RELAY



Terminals mount directly to PC board. Electrical life of 200,000 operations at rated load of 3 Amps at 30VDC or 250VAC, 60 Hz, resistive. Silver Cadmium oxide contacts are SPST-NO for Type 1565-1A, SPDT for Type 1565-1C. Molded Nylon dust cover.

Stock No.	Type No.	Coil Volt	1-24-	25-49	50-99	100-249
28F1576	1565-1A-3D	3DC	2.18	2.07	1.96	1.53
28F1577	1565-1A-6D	6DC	2.18	2.07	1.96	1.53
28F1578	1565-1A-12D	12DC	2.18	2.07	1.96	1.53
28F1579	1565-1A-24D	24DC	2.21	2.10	1.99	1.55
28F1580	1565-1C-3D	3DC	2.32	2.20	2.09	1.62
28F1581	1565-1C-6D	6DC	2.32	2.20	2.09	1.62
28F1582	1565-1C-12D	12DC	2.32	2.20	2.09	1.62
28F1583	1565-1C-24D	24DC	2.38	2.26	2.14	1.67

SERIES 1575 RELAY

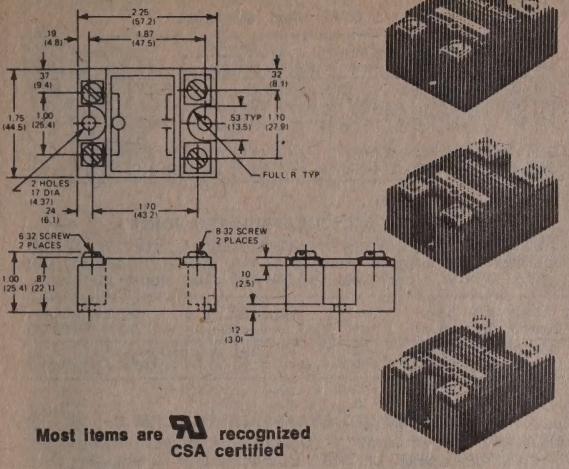


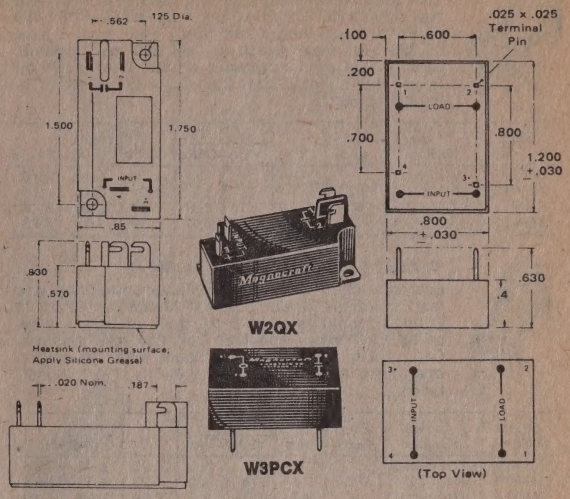
Terminals mount directly to PC board. Cover and base are sealed together. Mechanical life of 1 million operations. Electrical life of 100,000 operations at rated load of 3 Amps at 30VDC or 120VAC resistive. Contacts are Silver Cadmium oxide flashed with Gold. SPDT.

Stock No.	Type No.	Coil V.	1-24	25-49	50-99	100-249
28F1584	1575-1C-6D	6DC	2.02	1.92	1.82	1.41
28F1585	1575-1C-12D	12DC	2.02	1.92	1.82	1.41
28F1586	1575-1C-24D	24DC	2.14	2.03	1.93	1.50
28F1587	1575-1C-48D	48DC	2.54	2.41	2.29	1.78

solid state relays

Magnecraft®





Most items are UL recognized CSA certified

Magnecraft's family of 24 solid state relays provide current ratings that range from 2.5 to 40 amps, with switching capacity up to 480 VAC. All models incorporate opto-isolation between input and output, and zero-voltage switching.

Screw type clamps and Faston "Quick-Connect" terminals are available on packages which are interchangeable with others.

Output switching reflects the latest state-of-the-art technology. Both high-reliability dual SCR and Triac approaches are available. All units have same dimensions . . . 1¾" wide x 2¼" long and 1" high.

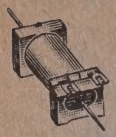
High Transient Capability
High Dielectric Isolation Between Input & Output
Photo-Isolated, Zero Voltage Switching

9

Stock Number	Type Number	AC Load Voltage	Max. Load Current	Control Signal Range	Input Impedance	Prices 1-9	10-24	25-49	50-99
SCR OUTPUT—DC CONTROLLED									
56F221	W6102DSX-1	100-140 VAC	2.5A	3-32 VDC	1500 Ohms Typ	21.03	19.98	18.93	16.82
56F222	W6110DSX-1	100-140 VAC	10A	3-32 VDC	1500 Ohms Typ	30.48	28.96	27.43	24.38
56F223	W6125DSX-1	100-140 VAC	25A	3-32 VDC	1500 Ohms Typ	35.48	33.71	31.93	28.38
56F224	W6140DSX-1	100-140 VAC	40A	3-32 VDC	1500 Ohms Typ	53.68	51.00	48.31	42.94
56F225	W6202DSX-1	200-280 VAC	2.5A	3-32 VDC	1500 Ohms Typ	21.78	20.69	19.60	19.42
56F226	W6210DSX-1	200-280 VAC	10A	3-32 VDC	1500 Ohms Typ	32.00	30.40	28.80	25.60
56F227	W6225DSX-1	200-280 VAC	25A	3-32 VDC	1500 Ohms Typ	36.06	34.26	32.45	28.85
56F228	W6240DSX-1	200-280 VAC	40A	3-32 VDC	1500 Ohms Typ	55.76	52.97	50.18	44.61
56F229	W6408DSX-1	340-480 VAC	8A	4-20 VDC	500 Ohms Typ	53.42	50.75	48.08	42.74
56F230	W6412DSX-1	340-480 VAC	12A	3-20 VDC	500 Ohms Typ	58.82	55.88	52.94	47.06
SCR OUTPUT—AC CONTROLLED									
56F231	W6102ASX-1	100-140 VAC	2.5A	90-280 VAC 80-140 VDC	40K Ohms Typ	25.93	24.63	23.34	20.74
56F232	W6110ASX-1	100-140 VAC	10A	90-280 VAC 80-140 VDC	40K Ohms Typ	31.68	30.10	28.51	25.34
56F233	W6125ASX-1	100-140 VAC	25A	90-280 VAC 80-140 VDC	40K Ohms Typ	35.64	33.86	32.08	28.51
56F234	W6140ASX-1	100-140 VAC	40A	90-280 VAC 80-140 VDC	40K Ohms Typ	54.38	51.66	48.94	43.50
56F235	W6202ASX-1	200-280 VAC	2.5A	90-280 VAC 80-140 VDC	40K Ohms Typ	26.81	25.47	24.13	21.45
56F236	W6210ASX-1	200-280 VAC	10A	90-280 VAC 80-140 VDC	40K Ohms Typ	32.41	30.79	29.17	25.93
56F237	W6225ASX-1	200-270 VAC	25A	90-280 VAC 80-140 VDC	40K Ohms Typ	36.39	34.57	32.75	29.11
56F238	W6240ASX-1	200-280 VAC	40A	90-280 VAC 80-140 VDC	40K Ohms Typ	56.68	53.85	51.01	45.34
56F239	W6408ASX-1	340-480 VAC	8A	90-120 VAC 80-100 VDC	12K Ohms Typ	25.10	23.85	22.59	20.08
56F240	W6412ASX-1	340-480 VAC	12A	90-120 VAC 80-100 VDC	12K Ohms Typ	60.49	57.47	54.44	48.39
TRIAC OUTPUT									
56F241	W6110DTX-1	12-140 VAC	10A RMS	3-32 VDC	1400 Ohms Typ	26.86	25.52	24.17	21.49
56F242	W6210DTX-1	48-280 VAC	10A RMS	3-32 VDC	1400 Ohms Typ	27.74	26.35	24.97	22.19
SOLID STATE RELAYS—TRIAC OUTPUT									
23F5480	W2QX-1	20-140 VAC	10A	3.5-8 VDC	225 Ohms Typ	18.40	17.48	16.56	14.72
23F5481	W2QX-2	40-280 VAC	10A	3.5-8 VDC	225 Ohms Typ	19.20	18.24	17.28	15.36
23F5482	W3PCX-1	20-140 VAC	2A	3.5-8 VDC	225 Ohms Typ	15.47	14.70	13.92	12.38
23F5483	W3PCX-2	40-280 VAC	2A	3.5-8 VDC	225 Ohms Typ	16.40	15.58	14.76	13.12

*Max. current ratings require use of appropriate heat sinking.

Magnecraft® reed relays



CLASS 101M AXIAL LEAD 1 FORM A

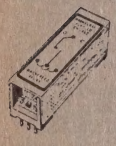
Low cost reed relays give optimum reliability and fast operation. Specifications: Miniature: SPST-NO (1 Form A) contacts rated 10 VA max. at .5 A max. or 200 VDC max. resistive. Coil 600 mW nominal. Cap., 0.3 pf avg. between contacts. Life: 5 million operations typical. Size: 2¼" lg. x ½" w. x 7/16" h. including leads.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	1-24	Prices 25-49	50-74
56F909	W101MX-1		——	6	100	4.89	4.40	4.16
56F910	W101MX-2	SPST	——	12	250	4.89	4.40	4.16
56F911	W101MX-3	—NO	——	24	500	4.89	4.40	4.16
56F912	W101MX-4		9MA	——	2500	5.59	5.03	4.75

CLASS 104M AXIAL LEAD 1 FORM C

Low cost reed relays give optimum reliability and fast operation. Specifications: Miniature: SPDT (1 Form C) contacts rated 3 VA max. at 0.25 A max. or 28 VAC max. resistive. Coil 600 mW nominal. Cap., 1.3 pf avg. across contacts. Life: 10 million operations typ. Size: 2¼" l x 7/16" h x ½" w incl. leads.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	1-24	Prices 25-49	50-74
56F914	W104MX-2		——	12	250	7.23	6.51	6.15
56F915	W104MX-3	SPDT	——	24	500	7.23	6.51	6.15
56F916	W104MX-4		9MA	——	2500	7.88	7.09	6.70



MINIATURE MODULAR PC REEDS W104MPC

Contact Resistance: 150 milliohms avg. Life: W101, 5 million cycles at rated load; W104, 10 million cycles. Rating: W101, 10 VA, 500 ma max. or 200 VDC max., non-inductive; W104, 3 VA, 250 mA max. or 28 V max., non-inductive. Size 1: Single Form A or C, 3/8" h. x 13/32" w. x 1⅛" lg.; requires 500 mWDC power. Weight: 1 oz. Size 2: Three Form A or two Form C, 3/8" h. x 39/64" w x 1⅛" lg.; requires 700 mWDC power. Weight: 1 oz.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	1-24	Prices 25-49	50-74
56F316	W101MPCX-1		——	6	70	5.80	5.22	4.93
56F317	W101MPCX-2	SPST	——	12	300	5.80	5.22	4.93
56F318	W101MPCX-3	—NO	——	24	1100	5.80	5.22	4.93
56F320	W101MPCX-5		——	6	50	7.96	7.16	6.77
56F321	W101MPCX-6	3PST	——	12	220	7.96	7.16	6.77
56F322	W101MPCX-7	—NO	——	24	850	7.96	7.16	6.77
			FORM C					
56F324	W104MPCX-1		——	6	70	8.01	7.21	6.81
56F325	W104MPCX-2	SPDT	——	12	300	8.01	7.21	6.81
56F326	W104MPCX-3		——	24	1100	8.01	7.21	6.81
56F328	W104MPCX-5		——	6	50	12.38	11.14	10.52
56F329	W104MPCX-6	DPDT	——	12	220	12.38	11.14	10.52
56F330	W104MPCX-7		——	24	850	12.38	11.14	10.52

W104EP SPDT

ENCAPSULATED AXIAL LEAD RELAYS

W104EP: SPDT rated at 3 VA at .250 amps or 28 VAC maximum. Life expectancy 10 million cycles at rated load. Operate time and release time 1 millisecond average. Axial lead wires for coil and contacts. Encapsulated molded case. Overall length 3", body length 1", diameter 7/16". Weight, 1 ounce.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	1-24	Prices 25-49	50-74
56F387	W104EPX-3	SPDT	——	12V	225	14.28	12.85	12.14
56F388	W104EPX-4		——	24V	1000	14.28	12.85	12.14

CLASS 101MPC LOW COST REED

Molded nylon bobbin with electrical insulation. Con. 10 VA @ .5 amp max. SPST-NO Nom. Pow. 500 MW Min. Size 1⅛" x ⅛" x 3/8".

Stock Number	Type Number	Contacts	Coil DC Volts	Coil DC Ohms	1-24	Prices 25-49	50-74
56F981	W101MPCX-122	SPST	6	70	5.61	5.05	4.77
56F982	W101MPCX-123	—NO	12	300	5.61	5.05	4.77
56F983	W101MPCX-124		24	1100	5.61	5.05	4.77

W102PC SPST-NO

CLASS 101 MIN ENCAPSULATED FORM A

SPST. 1½" L, ½" W, 9/16" H. DPST. 1½" L, 1/16" W, 9/16" H, Gold contacts rated at 10 VA @ .5 amps max. or 200VAC max. resistance.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	1-24	Prices 25-49	50-74
56F459	W101PCX-5		——	6V	65	8.02	7.22	6.82
56F460	W101PCX-6	SPST	——	12V	250	8.02	7.22	6.82
56F461	W101PCX-7	—NO	——	24V	1000	8.02	7.22	6.82
56F464	W101PCX-10	DPST	——	12V	150	10.33	9.30	8.78
56F465	W101PCX-11	—NO	——	24V	650	10.33	9.30	8.78

CLASS 102 STD ENCAPSULATED FORM A

SPST 2¼" L, 21/32" W, 5/8" H. DPST 2¼" L, 1¼" W, 5/8" H. Operate 3 ms. average. Release ½ ms. average. Contact Load Rating 15VA at 1 amp. max. or 250VAC max., non-inductive.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	1-24	Prices 25-49	50z74
56F468	W102PCX-2	SPST	——	12V	400	10.24	9.22	8.70
56F469	W102PCX-3	—NO	——	24V	1500	10.24	9.22	8.70

CLASS 103 STD ENCAPSULATED FORM C

SPDT 2¼" L, 21/32" W, 5/8" H. Double pole double throw 2½" L, 1¼" W, ¾" H. SPDT or DPDT. Contacts rated 10 watts resistive load, .5 amp or 250VAC max.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	1-24	Prices 25-49	50-74
56F476	W103PCX-2	SPDT	——	12	400	11.69	10.52	9.94
56F477	W103PCX-3		——	24	1500	11.69	10.52	9.94
56F480	W103PCX-6		——	12	200	16.30	14.67	13.86
56F481	W103PCX-7	DPDT	——	24	800	16.30	14.67	13.86

CLASS 131 MERCURY WETTED MINIATURE ENCAPSULATED FORM A

Contacts rated 28VA @ 1 amp or 100 V max. resistive period oper. and release time 1 ms aver. 100 million cycles life. Weight 2 ounces.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	1-24	Prices 25-49	50-74
56F376	W131PCX-10	SPST —NO	——	24	1000	11.55	10.40	9.82
56F379	W131PCX-13	DPST	——	12	150	17.37	15.63	14.76
56F380	W131PCX-14	—NO	——	24	650	17.37	15.63	14.76

W131MPC SPST-NO DPST-NO

CLASS 131 MERCURY WETTED MIN FORM A

Contact Combinations: Size 1: SPST-NO (1 Form A), Size 2: DPST-NO (2 Form A). Available through special order. Contact Load Rating: 28 Volt-Amperes max. or 10 amp max. or 100VDC max., resistive. Nominal Coil Power: Size 1: 500 mw. Size 2: 700 mw. Dielectric Strength Between Contacts: 500VAC, RMS. Dielectric Strength Between Contacts and Coil: 500VAC, RMS. Contact Resistance: 50 milliohms average. Capacitance Across Contacts: 1.2 pf average.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	1-24	Prices 25-49	50-74
56F921	W131MPCX-3	SPST	——	12	300	9.32	8.39	7.92
56F922	W131MPCX-4	—NO	——	24	1100	9.32	8.39	7.92
56F924	W131MPCX-7	DPST	——	12	220	14.18	12.76	12.05
56F925	W131MPCX-8	—NO	——	24	850	14.18	12.76	12.05

CLASS 132 MERCURY WETTED STD FORM A

Power Required: ½ watt nom.; Operating Time: 2 msec. average; Release Time: 2 msec. average; Contact Bounce: None; Contact Load Rating: 50 VA at 3.0 amps, max. or 400VAC max.; non-inductive; Contact Resistance: 50 milliohms av.; Life Expectancy 25 million Hz.; Diel. str.; cont. to coil: 500VAC RMS; Ambient Temp. Range: —37°F. to +185°F. Single Pole:—2⅝ x ¾ x 41/64".

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	1-24	Prices 25-49	50-74
56F484	W132MPCX-2	SPST	——	6	70	10.41	9.37	8.85
56F485	W132MPCX-3	—NO	——	12	250	10.41	9.37	8.85
56F486	W132MPCX-4		——	24	1000	10.41	9.37	8.85

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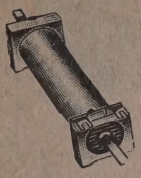
CONTACT NEAREST NEWARK FACILITY FOR LARGER QUANTITY PRICES

Magnecraft

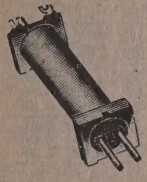
CLASS 102M STD AXIAL LEAD FORM A



Operate, 3 ms. aver. Release, ½ ms. aver. Contact bounce, less than 1 ms. aver. Contact load rated 15 VA at 1 amp max. or 250V resistive max. Contact resistance, 100 milliohms aver. Life expectancy, 20 million cycles at full load; 100 million at ½ load. Capacitance across contacts, 0.9 pf aver. Operating position, any. Size: 3¼" lg. (incl. leads) x 19/32" w. x ½" h.

Stock Number	Type Number	Contacts	MA	Coil-DC Volts	Coil-DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F900	W102MX1		—	—	—	6.13	5.52	5.21
56F901	W102MX2		—	—	—	6.13	5.52	5.21
56F902	W102MX3		—	—	—	6.13	5.52	5.21
56F903	W102MX4		—	—	—	6.13	5.52	5.21
56F899	W102MX27		—	—	—	6.45	5.81	5.48

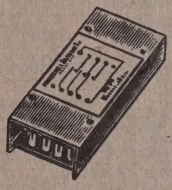
CLASS 103M STD AXIAL LEAD FORM C



Operate, 2 ms. aver. Release, ½ ms. aver. Contact bounce 4 ms. aver. or release, normally closed contacts. Contact load rated 10VA at ½ amp max. or 250V resistive max. Contact resistance 100 milliohms aver. Long life 25 million cycles at full load; 50 million at ½ load. Capacitance across contacts 3.0 pf aver. Operating position, any. Size: 3-7/16" x 19/32" w x ½" h.

56F905	W103MX-1		—	6	200	9.10	8.19	7.74
56F906	W103MX-2	SPDT	—	12	500	9.10	8.19	7.74
56F907	W103MX-3		—	24	2000	9.10	8.19	7.74

SIZE 1



SIZE 2

CLASS 102MPC STD MTG FORM A

Modular-packaged dry reed relays ideal for printed circuit applications. Operate, 3 ms aver. Release, ½ ms aver. Contact load rated 15 VA at 1 amp max. or 250V resistive max. Contact resistance, 100 milliohms aver. Long life, 20 million cycles at full load; 100 million at ½ load. Capacitance across contacts 1.0 pf aver. Operating position any. Sizes: All lengths 2-5/8"; all heights - 41/64". Only variation is in width: Size 1 -3/4"; Size 2 - 1-3/16".

56F416	W102MPCX-6			6	70	7.04	6.34	5.98
56F417	W102MPCX-7	SPST		12	250	7.04	6.34	5.98
56F418	W102MPCX-8	NO		24	1000	7.04	6.34	5.98
56F301	W102MPCX-49	3PST		12	175	11.34	10.21	9.64
56F302	W102MPCX-50	NO		24	750	11.34	10.21	9.64

CLASS 103MPC STD PC MTG FORM C

Operate, 2 ms. aver. Release, ½ ms. aver. Contact bounce 4 ms. aver. or release, normally closed contacts. Contact load rated 10VA at ½ amp max. or 250V resistive max. Contact resistance 100 milliohms aver. Long life 25 million cycles at full load; 50 million at ½ load. Capacitance across contacts 2 0 pf aver. Operating position, any.

Size: (See dwgs. above)

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F423	W103MPCX-3	SPDT		12	250	8.26	7.43	7.02
56F424	W103MPCX-4			24	1000	8.26	7.43	7.02
56F309	W103MPCX-31	DPDT		12	175	11.77	10.59	10.00
56F310	W103MPCX-32			24	750	11.77	10.59	10.00
56F313	W103MPCX-35	4PDT		12	100	18.92	17.03	16.08
56F314	W103MPCX-36			24	375	18.92	17.03	16.08

CLASS 102RM 3 AMP POWER REED

Low profile, printed circuit mounted relay with contact rating formerly available only in general purpose or telephone type relays. Contact Load Rating, 100VA @ 3 amps max. or 250VAC max. Operate Time, 1.5 ms. average. Release Time, 1 ms. average. Contact Bounce, 1 ms. average. Operating Position, any. Size: 3¼" lg (incl. leads)x19/32" w.x½ h.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F296	W102RMX-5		—	6	200	8.93	8.04	7.59
56F297	W102RMX-6	SPST	—	12	500	8.93	8.04	7.59
56F298	W102RMX-7	NO	—	24	2000	8.93	8.04	7.59

CLASS 102RMPC PC MTG POWER REED

Operate, 1 ms. aver. Release, 1 ms. aver. Contact Bounce, 0.5 ms. average. Contact Resistance, 500 milliohms, aver. Contact Load Rating, 100VA, 3 amperes max., or 250 volts, max. Operating Position, any. Size: 2-5/8" L. x 41/64" H. x 3/4" W.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F357	W102RMPCX-2	SPST	—	12	250	10.31	9.28	8.76
56F358	W102RMPCX-3	NO	—	24	1000	10.31	9.28	8.76

CLASS 102V 5,000 VOLT REED

Operates in any position. Size: 4½" x 15/16" x 7/8". Wt., 3 oz. Contact Load Rating: 50VA @ 3 amps max. or 5000 volts peak, max. resis. Nominal Coil Power: SPST-NO, 500 MW; SPST-NC, 200 MW. Operation Time: 3 ms average; Release Time: .5 ms average. Contact Bounce: .5 ms average. Contact Resistance: 100 milliohms average. Capacitance Across Contacts: 1.0 pf average. Life at Rated Load: 10 million operations, longer at reduced loads.

Stock Number	Type Number	Contacts*	MA	Coil-DC Volts	Coil-DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74	Prices 75-99
28F1380	W102VX-49		—	6	70	27.56	24.80	23.43	22.05
56F1031	W102VX-50	SPST	—	12	250	27.56	24.80	23.43	22.05
56F1032	W102VX-51		—	24	1000	27.56	24.80	23.43	22.05
28F1381	W102VX-55		—	24	2909	30.19	27.17	25.66	24.15

(*) W102VX-55 N.C. all others N.O.

CLASS 102HV 10,000 V

Contact Load Rating 10,000 volts peak at .001 amperes; Nominal Coil Power, 1.5W average. Operate Time, typically 25ms including bounce. Contact Resistance 100 milliohms average. Typical Life at Rated Load, 1 million - longer at reduced loads.

56F291	W102HVX2		—	—	—	34.19	30.77	29.06
56F292	W102HVX3		—	—	—	34.19	30.77	29.06

CLASS 103LMPC LATCHING FORM C REED

Operate, 2 ms. aver. Bounce, 3 ms. max. Contact Resistance, 150 milliohms aver. Contact Load Rating, 10VA 0.2 amp max. or 200V max., non-inductive. Life Expectancy, 25 million cycles at rated load.; longer at reduced loads. Operating Position, any. Nom. power, single coil 150MW, double coil 300 mw. Size: 2-5/8" x 41/64" x ¾". Weight: 1 oz.

Stock Number	Type Number	Contacts	MA	Coil-DC Volts	Coil-DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F397	W103LMPCX-10		—	12	460	21.55	19.40	18.32
56F398	W103LMPCX-11	SPDT	—	24	1800	21.55	19.40	18.32

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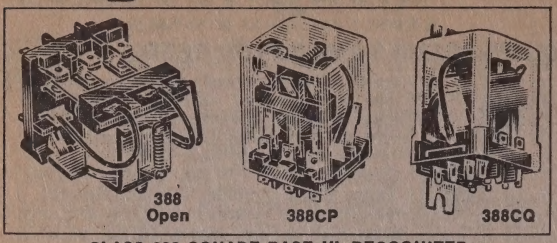
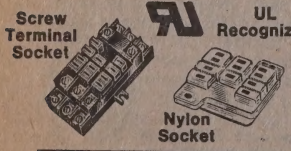
Magnecraft General Purpose Relays



CLASS 388 SQUARE BASE UL RECOGNIZED

Low cost, UL recognized, CSA certified general purpose relay. AC and DC operated, 11, 12 & 13 Amps SPST, DPDT, or 3PDT silver alloy, gold flashed contacts. Terminals are 3 way for plug-in, solder, or quick connect. Plug-in version size 1 17/32 x 1 13/32 x 2 3/16 high overall.

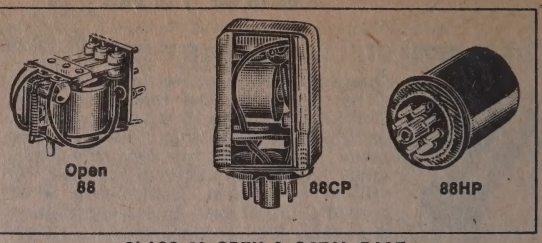
Stock Number	Type Number	Cont. Comb.	Coil Volts	Coil Ohms	Prices 1-9	Prices 10-24	Prices 25-49
AC Open Relays							
56F620	W388AX-2	SPDT	12	—	5.10	4.85	4.59
56F621	W388AX-3	SPDT	24	—	5.10	4.85	4.59
47F1222	W388AX-4	SPDT	120	—	5.10	4.85	4.59
56F622	W388AX-7	DPDT	12	—	6.25	5.94	5.63
56F623	W388AX-8	DPDT	24	—	6.25	5.94	5.63
47F1228	W388AX-9	DPDT	120	—	6.25	5.94	5.63
56F625	W388AX-12	3PDT	12	—	7.03	6.68	6.33
47F1224	W388AX-13	3PDT	24	—	7.03	6.68	6.33
47F1225	W388AX-14	3PDT	120	—	7.03	6.68	6.33
DC Open Relay							
47F1229	W388X-2	SPDT	12	120	4.87	4.63	4.38
47F1230	W388X-3	SPDT	24	470	4.87	4.63	4.38
47F1231	W388X-6	DPDT	12	120	5.65	5.37	5.09
47F1232	W388X-7	DPDT	24	470	5.65	5.37	5.09
47F1233	W388X-10	3PDT	12	120	6.48	6.16	5.83
47F1234	W388X-11	3PDT	24	470	6.48	6.16	5.83
AC Voltage Specified — Dust Cover							
47F1186	W388ACPX-2	SPDT	12	—	5.37	5.10	4.83
47F1187	W388ACPX-3	SPDT	24	—	5.37	5.10	4.83
47F1188	W388ACPX-4	SPDT	120	—	5.37	5.10	4.83
47F1191	W388ACPX-7	DPDT	12	—	6.53	6.20	5.88
47F1192	W388ACPX-8	DPDT	24	—	6.53	6.20	5.88
47F1193	W388ACPX-9	DPDT	120	—	6.53	6.20	5.88
47F1196	W388ACPX-12	3PDT	12	—	7.31	6.94	6.58
47F1197	W388ACPX-13	3PDT	24	—	7.31	6.94	6.58
47F1198	W388ACPX-14	3PDT	120	—	7.31	6.94	6.58
DC Voltage Specified — Dust Cover							
47F1201	W388CPX-2	SPDT	12	120	5.15	4.89	4.64
47F1202	W388CPX-3	SPDT	24	470	5.15	4.89	4.64
47F1205	W388CPX-6	DPDT	12	120	5.92	5.62	5.33
47F1206	W388CPX-7	DPDT	24	470	5.92	5.62	5.33
47F1209	W388CPX-10	3PDT	12	120	6.75	6.41	6.08
47F1210	W388CPX-11	3PDT	24	470	6.75	6.41	6.08
AC Voltage Specified — Flange Cover							
56F600	W388ACQX-2	SPDT	12	—	5.37	5.10	4.83
56F601	W388ACQX-3	SPDT	24	—	5.37	5.10	4.83
56F602	W388ACQX-4	SPDT	120	—	5.37	5.10	4.83
56F603	W388ACQX-7	DPDT	12	—	6.53	6.20	5.88
56F604	W388ACQX-8	DPDT	24	—	6.53	6.20	5.88
56F605	W388ACQX-9	DPDT	120	—	6.53	6.20	5.88
47F1213	W388ACQX-12	3PDT	12	—	7.31	6.94	6.58
47F1214	W388ACQX-13	3PDT	24	—	7.31	6.94	6.58
56F606	W388ACQX-14	3PDT	120	—	7.31	6.94	6.58
DC Voltage Specified — Flange Cover							
56F615	W388CQX-2	SPDT	12	120	5.15	4.89	4.64
56F616	W388CQX-3	SPDT	24	470	5.15	4.89	4.64
47F1215	W388CQX-6	DPDT	12	120	5.92	5.62	5.33
47F1216	W388CQX-7	DPDT	24	470	5.92	5.62	5.33
47F1218	W388CQX-10	3PDT	12	120	6.75	6.41	6.08
47F1219	W388CQX-11	3PDT	24	470	6.75	6.41	6.08



CLASS 388 SOCKETS

Heavy duty molded thermoplastic screw terminal socket has closed back construction that requires no insulation. Nylon sockets offer choice of solder, quick connect, or printed circuit. CSA certified.

Stock Number	Type Number	Description	Prices 1-9	Prices 10-24	Prices 25-49
47F1244	70 124 1	Nylon Solder Terminal	.90	.86	.81
47F1245	70 124 2	Nylon Quick Connect	1.35	1.28	1.22
47F1246	70 178 1	Nylon Printed Circuit	1.05	1.00	.95
47F1249	70 233 1	Screw Terminal 11 Pin accepts all Class 388 relays	4.80	4.56	4.32



CLASS 88 OPEN & OCTAL BASE

High reliability general purpose relay has glass melamine insulation for high dielectric strength and resistance to humidity or temperature change. Molded nylon bobbin. Hinge-pin armature. Contacts SPDT, DPDT, or 3PDT rated 10 amps. Open styles have tinned solder terminals. Plug-in versions have 8-pin octal or 3PDT 11-pin octal base. Plug-in version size: 1 3/8 x 1 3/8 x 2 1/8 high.

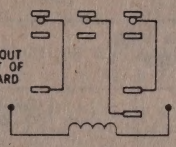
Stock Number	Type Number	Cont 10 Amps	Coil Volts	Coil Ohms	Prices 1-9	Prices 10-24	Prices 25-49
AC Voltage Specified — Open Style							
47F1051	W88AX-2	SPDT	12	—	4.92	4.67	4.43
47F1052	W88AX-3	SPDT	24	—	4.92	4.67	4.43
47F1053	W88AX-4	SPDT	115	—	4.92	4.67	4.43
56F626	W88AX-6	DPDT	12	—	5.98	5.68	5.38
47F1056	W88AX-7	DPDT	24	—	5.98	5.68	5.38
56F511	W88AX-8	DPDT	115	—	5.98	5.68	5.38
47F1059	W88AX-10	3PDT	12	—	6.77	6.43	6.09
47F1060	W88AX-11	3PDT	24	—	6.77	6.43	6.09
56F519	W88AX-12	3PDT	115	—	6.77	6.43	6.09
DC Voltage Specified — Open Style							
56F627	W88X-2	SPDT	6	25	4.76	4.52	4.28
56F525	W88X-3	SPDT	12	100	4.76	4.52	4.28
56F526	W88X-4	SPDT	24	400	4.76	5.52	4.28
56F628	W88X-5	SPDT	110	8000	5.59	5.31	5.03
56F533	W88X-7	DPDT	12	100	5.36	5.09	4.82
56F534	W88X-8	DPDT	24	400	5.36	5.09	4.82
56F541	W88X-11	3PDT	12	100	6.35	6.03	5.72
56F542	W88X-12	3PDT	24	400	6.35	6.03	5.72
DC Current Specified — Open Style							
56F629	W88X-14	SPDT	7.2	2500	5.15	4.89	4.64
56F630	W88X-16	SPDT	3.6	10000	5.98	5.68	5.38
56F554	W88X-17	DPDT	10	2500	5.94	5.64	5.35
56F556	W88X-19	DPDT	5.0	10000	6.64	6.31	5.98
56F631	W88X-20	3PDT	12.3	2500	7.02	6.67	6.32
56F632	W88X-22	3PDT	6.1	10000	7.72	7.33	6.95
88 Plug-In AC Voltage							
47F1075	W88ACPX-3	SPDT	24	—	8.25	7.84	7.43
47F1076	W88ACPX-4	SPDT	115	—	8.25	7.84	7.43
47F1078	W88ACPX-6	DPDT	12	—	9.24	8.78	8.32
47F1079	W88ACPX-7	DPDT	24	—	9.24	8.78	8.32
56F515	W88ACPX-8	DPDT	115	—	9.24	8.78	8.32
47F1081	W88ACPX-10	3PDT	12	—	11.51	10.93	10.36
47F1082	W88ACPX-11	3PDT	24	—	11.51	10.93	10.36
56F523	W88ACPX-12	3PDT	115	—	11.51	10.93	10.36
88 Plug-In DC Voltage							
47F1063	W88CPX-2	SPDT	12	100	8.20	7.79	7.38
56F530	W88CPX-3	SPDT	24	400	8.20	7.79	7.38
56F536	W88CPX-5	DPDT	6	25	9.19	8.73	8.27
56F537	W88CPX-6	DPDT	12	100	9.19	8.73	8.27
56F538	W88CPX-7	DPDT	24	400	9.19	8.73	8.27
56F633	W88CPX-8	DPDT	110	8000	9.47	9.00	8.52
56F545	W88CPX-10	3PDT	12	100	11.40	10.83	10.26
56F546	W88CPX-11	3PDT	24	400	11.40	10.83	10.26
DC Current Specified — Plug-In							
47F1068	W88CPX-14	SPDT	5.0	5000	8.80	8.36	7.92
47F1070	W88CPX-16	DPDT	10	2500	9.63	9.15	8.67
47F1071	W88CPX-17	DPDT	7.2	5000	9.74	9.25	8.77
47F1072	W88CPX-18	DPDT	5.0	10000	9.97	9.47	8.97
Plug-In W/Neon "On" Light							
56F344	W88ANCPX-2	DPDT	115	3	10.85	10.31	9.77
47F1086	W88ANCPX-3	3PDT	115	—	13.18	12.52	11.86
Hermetically Sealed AC Voltage							
56F402	W88AHPX-23	DPDT	24	—	26.48	25.16	23.83
56F403	W88AHPX-24	DPDT	115	—	26.48	25.16	23.83
56F354	W88AHPX-36	3PDT	115	—	34.30	32.59	30.87
Hermetically Sealed DC Voltage							
56F405	W88HPX-33	DPDT	12	100	26.08	24.78	23.47
56F406	W88HPX-34	DPDT	24	400	26.08	24.78	23.47
56F355	W88HPX-51	3PDT	24	400	33.90	32.21	30.51

General Purpose Relays

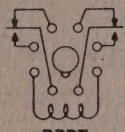
Magnecraft

Class 250

Class 250 CP



SPDT



DPDT

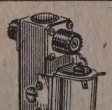
3PDT

CLASS 588 OPEN OR PLUG-IN UL RECOGNIZED

Class 588 low cost UL recognized continuous duty general purpose relays. Contacts are silver alloy, gold flashed. Plug-in version size: 1⅜x1⅜x2⅛ high. CSA certified. Open-type relays rated 10A @ 120VAC. Plug-in relays rated 8A @ 120VAC.

Stock Number	Type	Contacts	Coil Volts	Coil Ohms	1-9	10-24	25-49	50-99
OPEN RELAYS — AC VOLTAGE								
29F2420	W250AX-3	SPDT	24	...	10.29	9.26	8.75	8.23
29F2421	W250AX-4	SPDT	120	...	10.29	9.26	8.75	8.23
29F2422	W250AX-8	DPDT	24	...	12.50	11.25	10.63	10.00
29F2423	W250AX-9	DPDT	120	...	12.50	11.25	10.63	10.00
29F2424	W250AX-13	3PDT	24	...	14.91	13.42	12.67	11.93
29F2425	W250AX-14	3PDT	120	...	14.91	13.42	12.67	11.93
OPEN RELAYS — DC VOLTAGE								
29F2426	W250X-2	SPDT	12	150	9.35	8.42	7.95	7.48
29F2427	W250X-3	SPDT	24	600	9.35	8.42	7.95	7.48
29F2428	W250X-6	DPDT	12	150	11.18	10.06	9.50	8.94
29F2429	W250X-7	DPDT	24	600	11.18	10.06	9.50	8.94
29F2430	W250X-10	3PDT	12	150	13.39	12.05	11.38	10.71
29F2431	W250X-11	3PDT	24	600	13.39	12.05	11.38	10.71
PLUG-IN RELAYS — AC VOLTAGE								
29F2432	W250ACPX-3	SPDT	24	...	13.39	12.05	11.38	10.71
29F2433	W250ACPX-4	SPDT	120	...	13.39	12.05	11.38	10.71
29F2434	W250ACPX-8	DPDT	24	...	16.28	14.65	13.84	13.02
29F2435	W250ACPX-9	DPDT	120	...	16.28	14.65	13.84	13.02
29F2436	W250ACPX-13	3PDT	24	...	19.69	17.72	16.74	15.75
29F2437	W250ACPX-14	3PDT	120	...	19.69	17.72	16.74	15.75
PLUG-IN RELAYS — DC VOLTAGE								
29F2438	W250CPX-2	SPDT	12	150	12.34	11.11	10.49	9.87
29F2439	W250CPX-3	SPDT	24	600	12.34	11.11	10.49	9.87
29F2440	W250CPX-6	DPDT	12	150	14.91	13.42	12.67	11.93
29F2441	W250CPX-7	DPDT	24	600	14.91	13.42	12.67	11.93
29F2442	W250CPX-10	3PDT	12	150	18.11	16.30	15.39	14.49
29F2443	W250CPX-11	3PDT	24	600	18.11	16.30	15.39	14.49

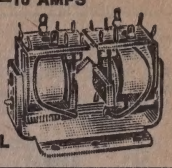
CLASS 328 HIGH POWER COAXIAL RELAY



The Class 328 Coaxial Relay is unsurpassed for meeting the problems of coaxial cable switching. This unit is designed for switching up to 1 Kilowatt on 52 ohms coaxial lines. Size: 3$^{19}/_{32}$ length, 1$^{13}/_{32}$ width, 3$^{9}/_{32}$ height.

Stock Number	Type	Contacts	Coil Volts	Coil Ohms	Prices 1-4	5-9	10-24	25-49
AC VERSION								
56F249	W328AX-1	SPDT	115VAC	280	87.53	74.40	70.02	65.65
DC VERSION								
56F250	W328X-2	SPDT	12VDC	70	86.08	73.17	68.86	64.56

CLASS 88L LATCHING RELAYS—10 AMPS

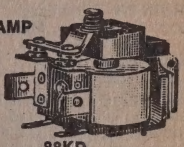


88L

Class 88L: 4PDT and 6PDT, AC or DC operation. Contacts rated 10 amps at 115VAC or 28VDC. Size: 3″x1¾″x1$^{15}/_{16}$″. Approximate Weight: 6½ oz.

Stock Number	Type	Cont. 10 Amps	Coil Volts	Coil Ohms	Prices 1-9	10-24	25-49
Latching Relays AC Voltage							
57F1218	W88AIX-4	4PDT	115	—	27.37	26.00	24.63
57F1220	W88AIX-7	6PDT	115	—	31.85	30.26	28.67
Latching Relays DC Voltage							
57F1221	W88LX-2	4PDT	12	50	25.93	24.63	23.34
57F1222	W88LX-3		24	200	25.93	24.63	23.34
56F640	W88LX-6	6PDT	12	50	30.41	28.89	27.37
57F1223	W88LX-7		24	200	30.41	28.89	27.37

CLASS 88KD LOW COST SPST-NO-DM-50 AMP

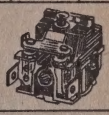


88KD
SPST-NO-DM

Silver alloy, gold flashed contacts for power switching. Terminal boards designed to accept AMP Faston "250" series receptacles on contacts, or "110" series receptacle on coil. Tapped with one 6-32 mounting hole and locating boss. Size 1$^{15}/_{16}$ x 1$^{1}/_{16}$ x 1½″. Wt., 3 oz. Contacts 50 amps SPST-NO-DM.

Stock Number	Type	Contacts	Coil Volts	Coil Ohms	Prices 1-9	10-24	25-49
DC Voltage							
56F945	W88KDX-2	SPST	12	100	6.04	5.74	5.44
56F946	W88KDX-3	SPST	24	400	6.04	5.74	5.44
AC Voltage							
56F947	W88KADX-1	SPST	24	—	6.30	5.99	5.67
56F948	W88KADX-2	SPST	115	—	6.30	5.99	5.67

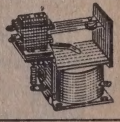
CLASS 88UKD 50/60 Hz 30 AMPS



Silver alloy gold flashed contacts for power switching. Designed to accept AMP Faston "250" series receptacles on contacts. Size: 2″L x 1¼″W x 1⅜″H.

Stock Number	Type	Contacts	Coil Volts	Coil Ohms	Prices 1-9	10-24	25-39	50-99
28F1382	W88UKADX-3		24VAC	—	6.80	6.46	6.12	5.78
28F1383	W88UKADX-4		120VAC	—	6.80	6.46	6.12	5.78
28F1384	W88UKADX-5	SPST-	240VAC	—	7.60	7.22	6.84	6.46
28F1385	W88UKDX-1	NO-	6VDC	25	6.30	5.99	5.67	5.36
28F1386	W88UKDX-2	DM	12VDC	100	6.30	5.99	5.67	5.36
28F1387	W88UKDX-3		24VDC	400	6.30	5.99	5.67	5.36
28F1388	W88UKDX-4		110VDC	8,000	7.41	7.04	6.67	6.30

CLASS 630 LIGHT POWER SELF-CLEANING



Contacts rated at 10 amps with solder lug terminals. 500 VRMS dielectric strength. Mounting is one 8-32 tapped core with four 6-32 tapped holes. Size: 2″L x 1″W x 1⅝″H(DPDT) or 2$^{1}/_{16}$″H(4PDT).

Stock Number	Type	Contacts	Coil Volts	Coil Ohms	Prices 1-9	10-24	25-49	50-99
AC VERSION								
56F251	W155AX-1	DPDT	115VAC	400	47.52	45.14	42.77	40.39

CLASS 155 HIGH VOLTAGE RELAYS

The Class 155 Relay is designed for switching high voltage industrial and radio frequency loads. Rated at 1 Kw. Size: 3$^{19}/_{32}$L x 2$^{25}/_{32}$W x 1$^{21}/_{32}$H.

Stock Number	Type	Coil Volts	Coil Ohms	Coil mA	Contacts	Prices 1-9	10-24	25-49	50-99
AC Operated									
28F1389	W630AX-3	12	24	250	DPDT	10.63	9.57	9.04	8.50
28F1390	W630AX-4	24	750	50	DPDT	10.63	9.57	9.04	8.50
28F1291	W630AX-8	24	24	250	4PDT	13.91	12.52	11.82	11.13
28F1392	W630AX-9	75	750	50	4PDT	13.91	12.52	11.82	11.13
DC Operated									
28F1393	W630X-2	12	285	166	DPDT	10.13	9.12	8.61	8.10
28F1394	W630X-3	24	6000	83	DPDT	10.13	9.12	8.61	8.10
28F1395	W630X-6	12	75	166	4PDT	13.09	11.78	11.13	10.47
28F1396	W630X-7	24	285	83	4PDT	13.09	11.78	11.13	10.47

9

Magnecraft Relays

MERCURY Ddisplacement RELAYS

60 AMPERES
35 AMPERES
STEEL TUBE DESIGN
LOW COST
1, 2, OR 3 POLES N.O. OR N.C.

FILE NO. E62907
CSA Approved

4¾H
1 5/16W
2⅜D

WM35A
WM60A

4¾H
3½W
2½D

WM35AA
WM60AA

4¾H
3¾W
3¼D

WM35AAA
WM60AAA

FEATURES

LIQUID MERCURY CONTACTS means a new contact surface after every operation. Perpetually self-renewing, it cannot pit, weld, disintegrate, or oxidize.

HERMETICALLY SEALED Contactor tubes hermetically sealed to provide maximum life, protection from adverse environments, and user protection from arcing and hazards of switching heavy loads.

QUIETER Eliminates "knocking" associated with conventional hard contactors. Mercury displacement contactor tube operates in relative silence.

SPECIFICATIONS

LIFE EXPECTANCY
Mechanical Life: 20 million minimum
General Purpose Load: 5 million minimum
Tungsten Load: 500,000 minimum
Frequency of Operation: Maximum 60 per minute

COIL RATING FOR 120V 50/60 Hz
Nominal Current: 65 MA-Single Pole
150 MA-Two Pole, 200MA-Three Pole
Inrush Current: (50% higher than nominal)
Pull In Voltage: 80V typical
Drop Out Voltage: 78V typical

CONTACT LOAD RATING M35 PER POLE

	AC Volts					DC Volts			
Type of Load	120	240	277	480	600	24	48	125	250
General Purpose and Tungsten ** Amperes	35**	35	35	35	30	35	35	35	35
Inductive Amps @ 75% PF	35	35	30	•	•	•	•	•	•

CONTACT LOAD RATING M60 PER POLE

	AC Volts					DC Volts			
Type of Load	120	240	277	480	600	24	48	125	250
General Purpose and Tungsten ** Amperes	60**	60	60	60	50	60	60	50	40
Inductive Amps @ 75% PF	60	60	50	•	•	•	•	•	•

HYBRID TIME DELAY MDR PACKAGES AVAILABLE

Stock Number	Type Number	Contacts	Coil Volts 50/60 Hz	Prices 1-9	10-49	50-Up
03F801	WH25A-120A	SPST-NO	120 VAC	17.74	15.97	15.08
03F802	WH25AA-120A	DPST-NO	120 VAC	32.21	29.08	27.46
03F803	WH25AAA-120A	3PST-NO	120 VAC	50.42	45.38	42.86
03F795	WM30A-120A	SPST-NO	120 VAC	18.96	17.06	16.12
03F796	WM30AA-120A	DPST-NO	120 VAC	34.74	31.27	29.53
03F797	WM30B-120A	SPST-NC	120 VAC	20.88	18.79	17.75
03F787	WM35A-24A	SPST-NO	24 VAC	17.75	15.98	15.09
57F1325	WM35A-120A	SPST-NO	120 VAC	17.75	15.98	15.09
57F1327	WM35B-120A	SPST-NC	120 VAC	19.61	17.65	16.67
57F1326	WM35A-240A	SPST-NO	240 VAC	17.75	15.98	15.09
03F788	WM35AA-24A	DPST-NO	24 VAC	32.31	29.08	27.46
57F1328	WM35AA-120A	DPST-NO	120 VAC	32.31	29.08	27.46
03F790	WM35AA-240A	DPST-NO	240 VAC	32.31	29.08	27.46
03F789	WM35AAA-24A	3PST-NO	24 VAC	50.42	45.38	42.86
57F1329	WM35AAA-120A	3PST-NO	120 VAC	50.42	45.38	42.86
03F791	WM35AAA-240A	3PST-NO	240 VAC	50.42	45.37	42.86
03F792	WM60A-24A	SPST-NO	24 VAC	26.95	24.26	22.91
56F216	WM60A-120A	SPST-NO	120 VAC	26.95	24.26	22.91
56F217	WM60B-120A	SPST-NC	120 VAC	29.56	26.60	25.13
56F218	WM60A-240A	SPST-NO	240 VAC	26.95	24.26	22.91
03F798	WM60A-24D	SPST-NO	24 VDC	26.95	24.26	22.91
03F793	WM60AA-24A	DPST-NO	24 VAC	47.85	43.07	40.67
56F219	WM60AA-120A	DPST-NO	120 VAC	47.85	43.07	40.67
03F799	WM60AA-24D	DPST-NO	24 VDC	47.85	43.07	40.67
03F794	WM60AAA-24A	3PST-NO	24 VAC	70.68	63.61	60.08
56F220	WM60AAA-120A	3PST-NO	120 VAC	70.68	63.61	60.08
03F800	WM60AAA-24D	3PST-NO	24 VAC	70.68	63.61	60.08

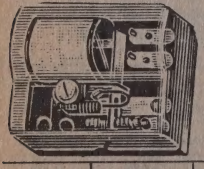
SPECIAL PURPOSE RELAYS

CLASS 120 MINIATURE COAXIAL RELAYS

The Class 120 is ideally suited for applications where space and weight must be kept to a minimum. SPDT contacts for swicthnig RF circuits are silver alloy, gold flashed, conservatively rated 100 watts of RF power; impedance matched to 50 ohm cable. VSWR 1.25: 1 maximum from 0 to 500 megacycles. Size: 1-47/64″ x 43/64″ d x 1-13/16″ h. Cables are G58AU/U 12″ long, unterminated.

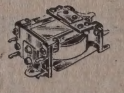
Stock Number	Type Number	Contacts	Coil Volts	Coil Ohms	Prices 1-9	10-24	25-49	50-99
57F1279	W120X-14	SPDT	12 VDC	100	19.87	17.88	16.89	15.90

CLASS 62, 5mW



The Class 62 is an ultra-sensitive, durable, dustite and fully adjustable relay incomparable for use in any DC circuit restricted to a few thousandths of a watt power consumption. Mounting Data: 2 holes 9/64″ dia. Contacts: 1 amp resistive at 115 VAC or 28VDC. Size 2-1/16″ x 1-9/16″ x 2⅝″.

Stock Number	Type Number	Coil Current	Coil Ohms	Prices 1-9	10-24	25-49	50-99
57F1288	W62SCX-1	1000MA	.005	19.92	17.93	16.93	15.94
57F1289	W62SCX-2	2.25MA	1,000	19.92	17.93	16.93	15.94
57F1291	W62SCX-4	1.50MA	2,200	19.92	17.93	16.93	15.94
57F1292	W62SCX-5	1.20MA	3,500	20.79	18.71	17.67	16.63
57F1293	W62SCX-6	0.95MA	5,500	21.02	18.92	17.87	16.82
57F1297	W62SCX-10	0.50MA	20,000	25.33	22.80	21.53	20.26

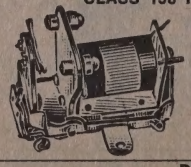


CLASS 151 R.F. RELAY 10 AMP ½ KW.

½ Kilowatt R.F. Switching. Mounting Data: 2 tapped holes; 6-32 NC-2; 2″ centers. Size: 1-15/32″ x 1-21/32″ x 2-13/16″.

Stock Number	Type Number	Contacts	Coil Volts	Coil Ohms	Prices 1-24	10-24	25-49	50-Up
DC Voltage Specified								
57F1280	W151X-2	DPDT	12	63	30.50	28.98	27.45	25.93
57F1281	W151X-3	DPDT	24	250	30.50	28.98	27.45	25.93
AC Voltage Specified								
57F1282	W151AX-1	DPDT	115	450	31.67	30.09	28.50	26.92

CLASS 158 HIGH VOLTAGE RELAY—5000V

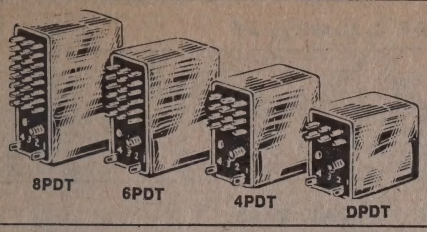


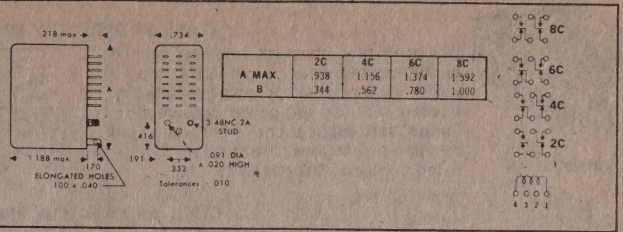
The Class 158 Relay was developed especially for making and breaking high voltage circuit. The silver alloy contacts will break up to 5000 volts. RMS at 200 milliamps current. Size: 1-29/32″ x 3-1/16″ x 2-7/32″.

DC Voltage Specified

Stk. No.	Type	Cont.	Coil volts	Coil ohms	1-9	10-24	25-49	50-99
57F1286	W158HVX-1	SPDT	24	120	32.17	30.56	28.95	17.34
57F1287	W158HVX-2	DB-DM	110	3,000	35.02	33.27	31.52	29.77

Miniature Industrial Relays *Magnecraft*





CLASS 67 ENCLOSED PLUG-IN OR PANEL MOUNT RELAYS 3 OR 5 AMP 2 TO 8 FORM C REGULAR OR BIFURCATED CONTACTS

The Class 67 miniature industrial relays are designed for applications requiring 2 to 8 Form C contacts where space, weight and low cost are of prime importance. Single and bifurcated crossbar contacts of silver alloy gold flashed rated 3 to 5 amps at 28VDC or 115VAC resistive load. All relays feature plastic dust covers and combination solder plug-in terminals with 3-48 NC stud. Voltage specified relays pull-in at 80% of nominal or less for DC relays and 85% of nominal or less for AC relays at 25°C. Resistance values +10% measured at 25°C. Size: 2 Form C, 0.734" x 0.938" x 1.188"; 4 Form C, 0.734" x 1.156" x 1.188"; 6 Form C, 0.734" x 1.375" x 1.188"; 8 Form C, 0.734" x 1.592" x 1.188". UL File No. E52197

Stk. No.	Type No.	Contact Rating	Coil DCV	Coil Ohms	1-9	10-24	25-49	50-99
2 FORM C								
56F1033	W67CSX-1		6	52	4.20	3.78	3.57	3.15
56F1034	W67CSX-2		12	185	4.20	3.78	3.57	3.15
56F1035	W67CSX-3	3 Amps	24	700	4.20	3.78	3.57	3.15
56F1036	W67CSX-4		48	2,500	4.23	3.81	3.60	3.17
56F1037	W67CSX-5		115	15,000	6.60	5.94	5.61	4.95
56F1053	W67RCSX-1		6	52	4.35	3.92	3.70	3.24
56F1054	W67RCSX-2		12	185	4.35	3.92	3.70	3.24
56F1055	W67RCSX-3	5 Amps	24	700	4.35	3.92	3.70	3.24
56F1056	W67RCSX-4		48	2,500	4.35	3.92	3.70	3.24
56F1057	W67RCSX-5		115	15,000	6.80	6.12	5.78	5.10
56F1074	W67TCSX-2		12	185	4.65	4.19	3.95	3.49
56F1075	W67TCSX-3	3* Amps	24	700	4.65	4.19	3.95	3.49
56F1101	W67TRCSX-2		12	185	4.74	4.27	4.03	3.56
56F1102	W67TRCSX-3	5* Amps	24	700	4.74	4.27	4.03	3.56
6 FORM C								
56F1044	W67CSX-12		12	90	6.06	5.45	5.15	4.55
56F1045	W67CSX-13	3 Amps	24	430	6.06	5.45	5.15	4.55
56F1064	W67RCSX-12		12	90	6.45	5.81	5.48	4.84
56F1065	W67RCSX-13	5 Amps	24	430	6.45	5.81	5.48	4.84
56F1084	W67TCSX-12		12	90	7.46	6.71	6.34	5.60
56F1085	W67TCSX-13	3* Amps	24	430	7.46	6.71	6.34	5.60
56F1111	W67TRCSX-12		12	90	7.59	6.83	6.45	5.69
56F1112	W67TRCSX-13	5* Amps	24	430	7.59	6.83	6.45	5.69

* Bifurcated Contacts

Stk. No.	Type No.	Contact Rating	Coil DCV	Coil Ohms	1-9	10-24	25-49	50-99
4 FORM C								
56F1038	W67CSX-6		6	52	4.75	4.28	4.04	3.56
56F1039	W67CSX-7		12	185	4.75	4.28	4.04	3.56
56F1040	W67CSX-8	3 Amps	24	700	4.75	4.28	4.04	3.56
56F1041	W67CSX-9		48	2,500	5.12	4.61	4.35	3.84
56F1042	W67CSX-10		115	15,000	7.31	6.58	6.21	5.48
56F1058	W67RCSX-6		6	52	4.90	4.41	4.17	3.68
56F1059	W67RCSX-7		12	185	4.90	4.41	4.17	3.68
56F1060	W67RCSX-8	5 Amps	24	700	4.90	4.41	4.17	3.68
56F1061	W67RCSX-9		48	2,500	5.26	4.73	4.47	3.95
56F1062	W67RCSX-10		115	15,000	7.38	6.64	6.27	5.54
56F1079	W67TCSX-7		12	185	5.80	5.22	4.93	4.35
56F1080	W67TCSX-8	3* Amps	24	700	5.80	5.22	4.93	4.35
56F1106	W67TRCSX-7		12	185	5.65	5.09	4.80	4.24
56F1107	W67TRCSX-8	5* Amps	24	700	5.65	5.09	4.80	4.24
8 FORM C								
56F1049	W67CSX-17		12	72	9.63	8.67	8.19	7.22
56F1050	W67CSX-18	3 Amps	24	350	9.63	8.67	8.19	7.22
56F1069	W67RCSX-17		12	72	10.17	9.15	8.64	7.63
56F1070	W67RCSX-18	5 Amps	24	350	10.17	9.15	8.64	7.63
56F1089	W67TCSX-17		12	72	10.94	9.85	9.30	8.21
56F1090	W67TCSX-18	3* Amps	24	350	10.94	9.85	9.30	8.21
56F1116	W67TRCSX-17		12	72	11.37	10.23	9.66	8.53
56F1117	W67TRCSX-18	5* Amps	24	350	11.37	10.23	9.66	8.53

* Bifurcated Contacts

CLASS 67PC DC VOLTAGE SPECIFIED PRINTED CIRCUIT VERSION

Stk. No.	Type No.	Contact Rating	Coil DCV	Coil Ohms	1-9	10-24	25-49	50-99
DPDT								
03F804	W67PCX-2	3 Amps	12	185	4.20	3.78	3.57	3.15
03F805	W67PCX-3		24	700	4.20	3.78	3.57	3.15
03F806	W67RPCX-2	5 Amps	12	185	4.35	3.92	3.70	3.24
03F807	W67RPCX-3		24	700	4.35	3.92	3.70	3.24
4DPT								
03F808	W67PCX-7	3 Amps	12	185	4.75	4.28	4.04	3.56
03F809	W67PCX-8		24	700	4.75	4.28	4.04	3.56
03F810	W67RPCX-7	5 Amps	12	185	4.90	4.41	4.17	3.68
03F811	W67RPCX-8		24	700	4.90	4.41	4.17	3.68

Stk. No.	Type No.	Contact Rating	Coil DCV	Coil Ohms	1-9	10-24	25-49	50-99
6PDT								
03F812	W67RPCX-12	5 Amps	12	90	6.45	5.81	5.48	4.84
03F813	W67RPCX-13		24	430	6.45	5.81	5.48	4.84

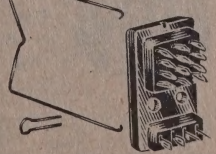
CLASS 67APC AC OPERATED RELAYS PRINTED CIRCUIT TERMINAL VERSION AC RELAYS 50/60 Hz

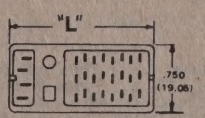
Stk. No.	Type No.	Contact Rating	Contacts	Coil DCV	Coil Ohms	1-9	10-24	25-49	50-99
03F814	W67ARPCX-1	5 Amps	DPDT	115	5000	7.50	6.75	6.38	5.63
03F815	W67ARPCX-2	5 Amps	4PDT	115	2x5800	9.13	8.22	7.76	6.85
03F816	W67ARPCX-3	5 Amps	6PDT	115	2x5800	12.16	10.94	10.34	9.12

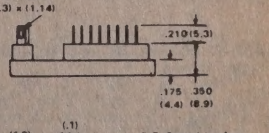
CLASS 67 SOCKETS

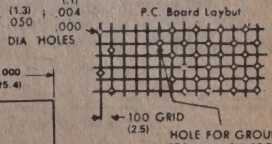
Fit all Class 67 relays from 2 to 8 Form C contacts. Available in both PC and Solder Terminal versions. Retaining and grounding clips included.

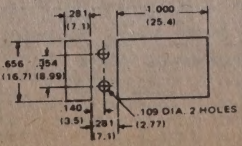
Retainer clip included with all sockets.









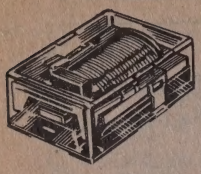


Stk. No.	Type No.	Description	Dim. "L"	1-9	10-24	25-49	50-99
56F1120	70-303	2 Pole Solder Terminal	.959	.91	.82	.77	.68
56F1121	70-304	2 Pole PC Terminal	1.047	.91	.82	.77	.68
56F1122	70-305	4 Pole Solder Terminal	1.170	1.12	1.01	.95	.84
56F1123	70-306	4 Pole PC Terminal	1.280	1.12	1.01	.95	.84
56F1124	70-307	6 Pole Solder Terminal	1.385	1.78	1.60	1.51	1.34
56F1125	70-308	6 Pole PC Terminal	1.516	1.92	1.73	1.63	1.44
56F1126	70-309	8 Pole Solder Terminal	1.596	3.04	2.74	2.58	2.28
56F1127	70-310	8 Pole PC Terminal	1.596	3.04	2.74	2.58	2.28

9

Magnecraft® Solid State & Time Delay Relays

LOW PROFILE RELAYS

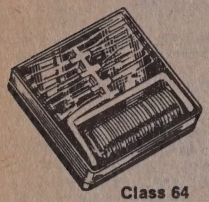


Class 63

CLASS 63 DPDT LOW PROFILE P. C. BOARD RELAY

Designed as a compact, low cost printed circuit board relay. Height is .4" above the P. C. board. DPDT contacts rated at 2 amps, with low coil power consumption. Suited for applications where multiple switching functions are needed. Bifurcated contacts. DC operation only.

Stk. No.	Type No.	Coil Nom. Volts	Coil Ohms	Coil Max. Volts	Must Operate Voltage	1-9	10-24
28F1660	W63TPCX-1	6	81	11	4.2	9.55	8.60
28F1661	W63TPCX-2	12	322	22	8.3	9.55	8.60
28F1662	W63TPCX-3	24	1045	44	17.0	9.55	8.60
28F1663	W63TPCX-4	48	5350	88	32.8	13.00	11.70

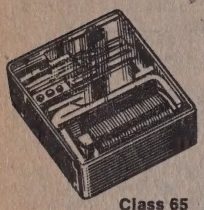


Class 64

CLASS 64 4PDT LOW PROFILE P. C. BOARD RELAY

Height of .4" above the P. C. board permits minimum center-to-center P. C. board spacing. Bifurcated contacts are rated at 2 amps. Base design protects against flux or solder entering relay, allowing automated wave soldering processes for simplification and economy. DC operation only.

Stk. No.	Type No.	Coil Nom. Volts	Coil Ohms	Coil Max. Volts	Must Operate Voltage	1-9	10-24
28F1664	W64TPCX-1	6	50	12.4	3.9	5.45	4.91
28F1665	W64TPCX-2	12	185	24.0	7.8	5.45	4.91
28F1666	W64TPCX-3	24	730	47.0	15.5	5.45	4.91
28F1667	W64TPCX-4	48	2700	88.0	32.8	7.53	6.78



Class 65

CLASS 65 SPDT-8 AMPS MINIATURE P. C. BOARD POWER RELAY

Low cost power relay used to switch heavy current loads at lower coil power. SPDT contacts rated at 8 amps. Thin pack horizontal and vertical styles are important to a design when space is factor. Dust proof cover. Standard .1" grid spacing for terminals. **Types W65RPCX-1** through **W65RPCX-4** are flatpacks, types **W65RPCX-201** through **W65RPCX-204** are uprights.

Stk. No.	Type No.	Coil Volts Nom.	Coil Volts Max.	Coil Ohms	Must Operate Voltage	1-9	10-24
28F1668	W65RPCX-1	6	10.6	80±8	4.2	5.03	4.53
28F1669	W65RPCX-2	12	21.5	330±33	8.3	5.03	4.53
28F1670	W65RPCX-3	24	40.0	1200±180	16.8	5.03	4.53
28F1671	W65RPCX-4	48	79.0	4750±700	32.8	6.00	5.40
28F1672	W65RPCX-201	6	10.6	80±8	4.2	5.03	4.53
28F1673	W65RPCX-202	12	21.5	330±33	8.3	5.03	4.53
28F1674	W65RPCX-203	24	40.0	1200±180	16.8	5.03	4.53
28F1675	W65RPCX-204	48	79.0	4750±700	32.8	6.00	5.40

9

CLASS 502 & 503 PC TIME DELAY

Class 502PCSO (1 Form A) Class 503PCSO (1 Form C)

Available:—502PCSOX, SPST-NO, 1 amp. 15 VA or 250VAC maximum, resistive. 503PCSOX, SPDT, 5 amp., 10 VAC or 250VAC maximum, resistive. Time Delay on operate. Timing Repeatability: ±5% at nominal voltage at 250°C after the first cycle and ±10% over voltage range or temperature range indicated. Polarity protection is a standard feature. Steady State Current: 25 ma typical. Temperature Range: Operate —10°C to 55°C; Storage —55°C to 85°C. Size: 2.25 x 1.25 x .75 inches.

Stock Number	Type Number	VDC	Time Range	Ext. Adj. Ohm/Sec.	Prices 1-9	Prices 10-24
Slow Operate SPST-NO (Form A)						
57F1200	W502PCSOX-2	12	100 MS to	60K	36.56	34.73
57F1201	W502PCSOX-3	24	100 SEC	60K	36.56	34.73
Slow Operate SPDT (Form C)						
57F1204	W503PCSOX-2	12	100 MS to	60K	38.77	36.83
57F1205	W503PCSOX-3	24	100 SEC	60K	38.77	36.83
57F1206	W503PCSOX-5	12	3 SEC to	10K	39.46	37.49
57F1207	W503PCSOX-6	24	M MIN.	10K	39.46	37.49
Slow Release SPST-NO (Form A)						
57F1208	W502PCSRX-2	12	200 MS to	25K	38.77	36.83
57F1209	W502PCSRX-3	24	100 SEC	25K	38.77	36.83
Slow Release SPDT (Form C)						
57F1212	W503PCSRX-2	12	200 MS to	25K	41.55	39.47
57F1213	W503PCSRX-3	24	100 SEC	25K	41.55	39.47

CLASS 67 MIN. PLUG-IN TIME DELAY

DPDT 5 amp contacts. Reset Time and Recycle Time: Typically 100 ms. Twice nominal input for 1 millisecond. Polarity Protection: Standard. Temperature Range: Operate —10° to 55°C, Storage, —50° to 85°C. Time Delay on operate. Size: 1.374 x 1.358 x .734.

Stock Number	Type Number	VDC	Timing Range	External Resistance	Prices 1-9	Prices 10-24
Adjustable—DC Voltage						
56F1000	W67CPSOX-1	12	1 30 sec.	Internal	22.33	21.21
56F1001	W67CPSOX-2	24	1 30 sec.	Potentiometer	22.33	21.21
56F1002	W67CPSOX-3	12	1 240 sec.	Adjusted	24.97	23.72
56F1003	W67CPSOX-4	24	1 240 sec.		24.97	23.72

CLASS 214CP PLUG-IN HYBRID TIME DELAY

Solid state timing with ±2% repeat accuracy. Contacts: DPDT, 5 amps @ 28 VDC or 115 VAC resistive. Time Delay on operate. Size: 2 5/32" x 1 3/8" square. Weight: 3 oz. approximately.

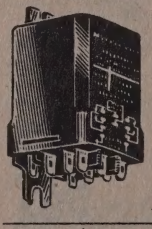
Stock Number	Type Number	Input Volts	Timing Range	Prices 1-9	Prices 10-24
47F1179	W214ACPSOX-1	120VAC	3 to 30 sec.	30.02	28.52
47F1180	W214ACPSOX-2	120VAC	3 to 240 sec.	30.02	28.52
47F1181	W214CPSOX-3	24VDC	3 to 30 sec.	30.02	28.52
47F1182	W214CPSOX-4	24VDC	3 to 240 sec.	30.02	28.52

CLASS 218 PANEL MOUNT TIME DELAY

Ideal for industrial timing applications. Three fully adjustable timing ranges. Reset and recycle time 100 ms. Time Delay on operate. 10 amp SPDT contacts. Size: 4" x 3 5/16" x 2 1/2".

56F1008	W218ACSOSX-2	120VAC	1 to 10 sec.	34.17	32.46
56F1009	W218ACSOSX-4	120VAC	1 to 180 sec.	34.17	32.46
56F1010	W218ACSOSX-5	120VAC	2 to 300 sec.	34.17	32.46

CLASS 388 LOW COST TIME DELAY



Contacts: DPDT 12 amps @ 28VDC or 115 VAC, res. Steady State Current: 20 ma @ 120 VAC 75 ma @ 24VDC. Delay on operate. Temp. Range: —10°C to 55°C operating; —55°C to 85°C storage. Reset and Recycle Time: Less than 100 ms. Size: Flange-Mount — 1 17/32" w. x 1 13/32" d. x 2 29/32" h.; Plug-In — 1 17/32" w. x 1 13/32" d. x 1 29/32" h. overall. Weight: 3 oz. approx.

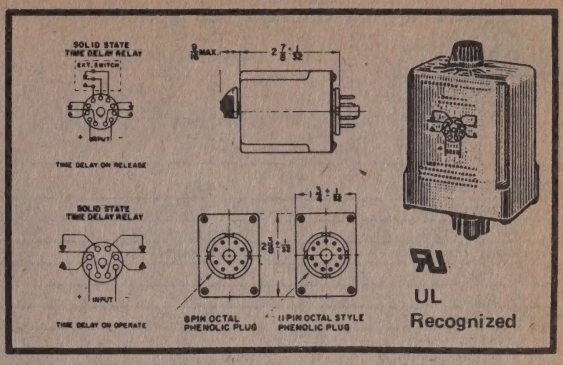
Stock Number	Type Number	Input Voltage	Timing Range Seconds	External Resistor	Prices 1-9	Prices 10-24
Plug-In						
47F1236	W388ACPSOX-1	120VAC	1-20	200K	16.22	15.41
47F1237	W388ACPSOX-2	120VAC	1-120	2.4 MEG	17.17	16.31
47F1238	W388CPSOX-1	24VDC	1-10	160K	18.53	17.60
47F1239	W388CPSOX-2	24VDC	1-120	2 MEG	19.69	18.71
Flange Mount						
47F1240	W388ACQSOX-1	120VAC	1-10	200K	16.22	15.41
47F1241	W388ACQSOX-2	120VAC	1-120	2.4 MEG	17.17	16.31

Extended Time Delay Relays

Magnecraft

CLASS 211CP PLUG-IN HYBRID TIME DELAY

Stock Number	Type Number	Coil Volts	Time Delay	Prices 1-9	10-24	25-49	50-99
Operate Delay DPDT Contacts 10 Amps							
56F958	W211ACPSOX-5	120VAC	1-10	23.21	22.05	20.89	18.57
56F959	W211ACPSOX-7	120VAC	1-180	23.21	22.05	20.89	18.57
56F960	W211ACPSOX-8	120VAC	2-300	23.21	22.05	20.89	18.57
47F1170	W211ACPSOX-18	120VAC	.2-1	23.21	22.05	20.89	18.57
56F961	W211CPSOX-1	24VDC	1-10	23.21	22.05	20.89	18.57
56F962	W211CPSOX-3	24VDC	1-180	23.21	22.05	20.89	18.57
56F963	W211CPSOX-4	24VDC	2-300	23.21	22.05	20.89	18.57
28F1676	W211CPSOX-10	24VDC	.2-1	23.21	22.05	20.89	18.57
Release Delay DPDT Contacts 10 Amps.							
56F964	W211ACPSRX-5	120VAC	1-10	28.30	26.89	25.47	22.64
56F965	W211ACPSRX-7	120VAC	1-180	28.30	26.89	25.47	22.64
56F966	W211ACPSRX-8	120VAC	2-300	28.30	26.89	25.47	22.64
47F1172	W211ACPSRX-14	120VAC	.2-1	28.30	26.89	25.47	22.64
56F967	W211CPSRX-1	24VDC	1-10	28.30	26.89	25.47	22.64
56F968	W211CPSRX-3	24VDC	1-180	28.30	26.89	25.47	22.64
56F969	W211CPSRX-4	24VDC	2-300	28.30	26.89	25.47	22.64
28F1677	W211CPSRX-9	24VDC	.2-1	28.30	26.89	25.47	22.64



CLASS 211CP EXTENDED TIME DELAY RELAY

Stock Number	Type Number	Timing	Voltage	Prices 1-9	10-24	25-49	50-99
SLOW OPERATE							
56F259	W211ACPSOX-60	1-15 Min.	120VAC	28.30	26.89	25.47	22.64
56F260	W211ACPSOX-61	2-30 Min.	120VAC	28.30	26.89	25.47	22.64
56F261	W211ACPSOX-62	4-60 Min.	120VAC	28.30	26.89	25.47	22.64
56F263	W211ACPSOX-63	8-120 Min.	120VAC	28.30	26.89	25.47	22.64
56F264	W211CPSOX-40	1-15 Min.	24VDC	28.30	26.89	25.47	22.64
56F265	W211CPSOX-41	2-30 Min.	24VDC	28.30	26.89	25.47	22.64
56F266	W211CPSOX-42	4-60 Min.	24VDC	28.30	26.89	25.47	22.64
56F267	W211CPSOX-43	8-120 Min.	24VDC	28.30	26.89	25.47	22.64
SLOW RELEASE							
56F268	W211ACPSRX-60	1-15 Min.	120VAC	28.30	26.89	25.47	22.64
56F269	W211ACPSRX-61	2-30 Min.	120VAC	28.30	26.89	25.47	22.64
56F270	W211ACPSRX-62	4-60 Min.	120VAC	28.30	26.89	25.47	22.64
56F271	W211ACPSRX-63	8-120 Min.	120VAC	28.30	26.89	25.47	22.64
56F272	W211CPSRX-40	1-15 Min.	24VDC	28.30	26.89	25.47	22.64
56F273	W211CPSRX-41	2-30 Min.	24VDC	28.30	26.89	25.47	22.64
56F274	W211CPSRX-42	4-60 Min.	24VDC	28.30	26.89	25.47	22.64
56F275	W211CPSRX-43	8-120 Min.	24VDC	28.30	26.89	25.47	22.64

FEATURES

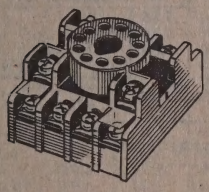
1. Available in 9 different timing ranges
2. AC or DC operation
3. Functions of delay on operate, delay on release
4. Plug in mounting
5. Knob adjustable timing
6. Nylon dust cover
7. Reverse polarity protection (DC Models)

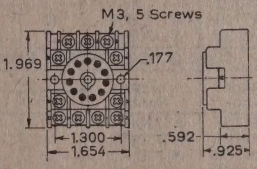
SPECIFICATIONS

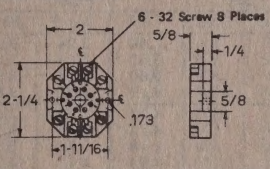
Repeat Accuracy: ±2% of setting at nominal voltage at 25°C
Contact Combination: DPDT Standard
Reset Time: 100ms typically
Temperature Range: Operate —10°C to 55°C, storage —55°C to 85°C
Transient protection of 2000V for 8MS standard on all AC models. (Optional on DC models)
The Class 211CP Time Delay Relay makes use of Hybrid Circuitry, combining Solid State Circuitry for timing function with an EMR for DPDT 10 Amperes output switching.

9

INDUSTRIAL SCREW TERMINAL SOCKETS







These heavy duty molded thermo plastic screw terminal sockets are rated at 10 amperes. Closed back construction requires no insulation.

Stock No.	Type No.	Description	Prices 1-9	10-24	25-49	50-99
47F1247	70-170	Screw Terminal 11 pin Octal	4.50	4.28	4.05	3.83
47F1248	70-169	Screw Terminal 8 pin Octal	2.85	2.71	2.57	2.42

General Purpose Relays

CLASS 78 GENERAL PURPOSE INDUSTRIAL RELAY

UL Recognized

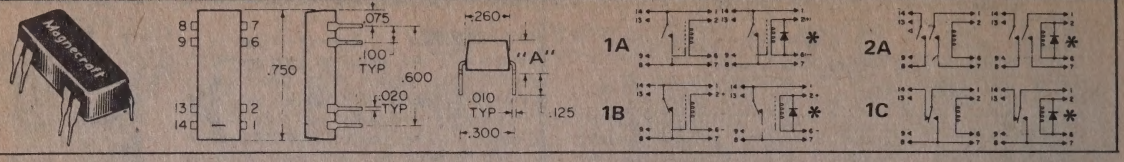
Class 78 relays are most widely used of all general purpose industrial relays. Slightly larger than one cubic inch, these relays are interchangeable with all comparable types. 4PDT with 3 amp contacts or DPDT with 10 amp contacts. Plug-in, printed circuit, or quick connect terminal. Dimensions: 1.4" x 1.1" x .86". Dust proof enclosure. UL recognized.

FEATURES
- **DPDT or 4PDT**
- **3-10 Amp Contacts**
- **Plug-in, Q.C. or P.C. terminal**
- **Dust proof enclosure**

Stock Number	Type Number	Volts	Ohms	Prices 1-24	25-49	50-99	100-249
AC Coil—Solder Lug/Plug-in Version							
28F1678	W78ACSX-2	12	42	5.91	5.61	5.32	4.14
56F280	W78ACSX-3	24	157	5.91	5.61	5.32	4.14
56F281	W78ACSX-5	115	3,500	5.91	5.61	5.32	4.14
DC Coil—Solder lug/Plug-in Version							
56F277	W78CSX-2	12	160	4.90	4.66	4.41	3.43
56F278	W78CSX-3	24	650	4.90	4.66	4.41	3.43
56F279	W78CSX-4	110	11,000	4.90	4.66	4.41	3.43
AC Coil—Printed Circuit Version							
27F1679	W78APCX-2	12	42	5.91	5.61	5.32	4.14
56F288	W78APCX-3	24	157	5.91	5.61	5.32	4.14
56F289	W78APCX-5	110	3,500	5.91	5.61	5.32	4.14
DC Coil—Printed Circuit Version							
56F284	W78PCX-2	12	160	4.90	4.66	4.41	3.43
56F285	W78PCX-3	24	650	4.90	4.66	4.41	3.43
56F286	W78PCX-4	48	655	4.90	4.66	4.41	3.43
56F287	W78PCX-6	110	11,000	6.00	5.70	5.40	4.20

Stock Number	Type Number	Volts	Ohms	Prices 1-24	25-49	50-99	100-249
AC Operated-Solder Lug/Quick Connect 10 Amp Direct Mount							
28F1686	W78ARCSX-8	12	42	6.43	6.11	5.79	4.50
28F1687	W78ARCSX-9	24	157	6.43	6.11	5.79	4.50
28F1688	W78ARCSX-11	115	3,500	6.62	6.29	5.96	4.63
DC Operated-Solder Lug/Quick Connect 10 Amp Direct Mount							
28F1689	W78RCSX-7	12	160	5.59	5.31	5.03	3.91
28F1690	W78RCSX-8	24	650	5.59	5.31	5.03	3.91
28F1691	W78RCSX-10	110	11,000	6.64	6.31	5.98	4.65
AC Coil-Printed Circuit 10 Amp							
28F1680	W78ARPCX-2	12	42	6.43	6.11	5.79	4.50
28F1681	W78ARPCX-3	24	157	6.43	6.11	5.79	4.50
28F1682	W78ARPCX-5	115	3,500	6.62	6.29	5.96	4.63
DC Coil-Printed Circuit 10 Amp							
28F1683	W78RPCX-2	12	160	5.59	5.31	5.03	3.91
28F1684	W78RPCX-3	24	650	5.59	5.31	5.03	3.91
28F1685	W78RPCX-5	110	11,000	6.64	6.31	5.98	4.65

Magnecraft® DIP Reed Relays



CONTACT FORM	1A	2A	1B	1C
Contact Rating	10VA at .5 Amp max.	8VA at .35 Amp max.	8VA at .35 Amp max.	8VA at .25 Amp max.
Op Time Typ.	300 Microseconds	600 Microseconds	400 Microseconds	500 Microseconds
Bounce Time Typ.	200 Microseconds	300 Microseconds	100 Microseconds	200 Microseconds
CR. Typ.	200 Milliohms			
IR. Typ.	10^{10} Ohms			
Life Typ.	25 x 10^6	15 x 10^6	15 x 10^6	10 x 10^6
Dielectric Between Contacts	250VDC min.	200VDC min.	250VDC min.	250VDC min.
Between Coil & Contacts	1000VDC min.			
Shock	100 G's, 11 milliseconds @ ½ sinewave			
Vibration	20 G's 0—5000 Hz operating			
Ambient Temp.	—55°C to 85°C			

Class 107 Dip, SPST-NO, 1 Form A, "A" Dimension .187

Stock Number	Type Number	Coil		Prices			
		Volts	Ohms	1-24	25-49	50-74	75-99
47F1106	W107DIP-1	5	500	3.62	3.26	3.08	2.90
47F1107	W107DIP-2	6	500	3.62	3.26	3.08	2.90
47F1108	W107DIP-3	12	500	3.62	3.26	3.08	2.90
47F1109	W107DIP-4	24	1,200	3.62	3.26	3.08	2.90
47F1110	W107DIP-5*	5	500	4.25	3.83	3.61	3.40
56F252	W107DIP-6*	6	500	4.25	3.83	3.61	3.40
56F253	W107DIP-7*	12	500	4.25	3.83	3.61	3.40
56F254	W107DIP-8*	24	1,200	4.25	3.83	3.61	3.40

(*) Internal Clamping Diode

Class 171 Dip, SPST-NO, 1 Form A, "A" Dimension .275

Stock Number	Type Number	Coil		Prices		
		Volts	Ohms	1-24	25-49	50-74
47F1137	W171DIP-2	5	500	3.60	3.24	3.06
47F1138	W171DIP-3	6	500	3.60	3.24	3.06
47F1139	W171DIP-4	12	500	3.60	3.24	3.06
47F1140	W171DIP-5	24	2,200	4.52	4.07	3.84
47F1142	W171DIP-7*	5	500	4.18	3.76	3.55
47F1143	W171DIP-8*	6	500	4.18	3.76	3.55
47F1144	W171DIP-9*	12	500	4.18	3.76	3.55
47F1145	W171DIP-10*	24	2,200	4.94	4.45	4.20

(*) Internal Clamping Diode

Class 171 Dip, SPST-NC, 1 Form B, "A" Dimension .275

47F1147	W171DIP-12	5	500	5.25	4.73	4.46
56F1023	W171DIP-13	6	500	5.25	4.73	4.46
56F1024	W171DIP-14	12	500	5.25	4.73	4.46
56F1025	W171DIP-15	24	2,200	5.78	5.20	4.91
56F1027	W171DIP-17*	5	500	5.57	5.01	4.73
56F1028	W171DIP-18*	6	500	5.57	5.01	4.73
56F1029	W171DIP-19*	12	500	5.57	5.01	4.73
56F1030	W171DIP-20*	24	2,200	6.20	5.58	5.27

(*) Internal Clamping Diode

Class 171 Dip, DPST-NO, 2 Form A, "A" Dimension .275

47F1148	W171DIP-21	5	200	5.36	4.82	4.56
47F1149	W171DIP-22	6	200	5.36	4.82	4.56
47F1150	W171DIP-23	12	500	5.36	4.82	4.56
47F1151	W171DIP-24	24	2,200	5.51	4.96	4.68
47F1152	W171DIP-25*	5	200	5.57	5.01	4.46
47F1153	W171DIP-26*	6	200	5.57	5.01	4.46
47F1154	W171DIP-27*	12	500	5.57	5.01	4.46
47F1155	W171DIP-28*	24	2,200	5.99	5.39	5.09

(*) Internal Clamping Diode

Class 118 Dip, SPDT, 1 Form C, "A" Dimension .210

47F1124	W118DIP-1	3.8	200	5.50	4.95	4.68
23F5550	W118DIP-2	4.5	200	5.50	4.95	4.68
47F1126	W118DIP-3	9.0	500	5.50	4.95	4.68
47F1127	W118DIP-4	18.0	1,200	5.50	4.95	4.68
47F1128	W118DIP-5*	3.8	200	6.05	5.45	5.14
23F5551	W118DIP-6*	4.5	200	6.05	5.45	5.14
23F5552	W118DIP-7*	9.0	500	6.05	5.45	5.14
47F1131	W118DIP-8*	18.0	1,200	6.05	5.45	5.14

(*) Internal Clamping Diode

Class 117 Dip, SPST-NO, 1 Form A, "A" Dimension .210

Stock Number	Type Number	Coil		Prices			
		Volts	Ohms	1-24	25-49	50-74	75-99
56F255	W117DIP-68	5	500	3.60	3.24	3.06	2.88
56F256	W117DIP-69	6	500	3.60	3.24	3.06	2.88
56F257	W117DIP-70	5	500	4.18	3.76	3.55	3.34
56F258	W117DIP-71	6	500	4.18	3.76	3.55	3.34
47F1113	W117DIP-3	12	500	3.60	3.24	3.06	2.88
47F1114	W117DIP-4	24	1,200	4.07	3.66	3.46	3.26
47F1117	W117DIP-7	5	500	4.18	3.76	3.55	3.34
47F1118	W117DIP-8	6	1,200	4.56	4.10	3.88	3.65

Class 117 Dip, SPST-NC, 1 Form B, "A" Dimension .210

47F1123	W117DIP-13	5	500	5.25	4.73	4.46	4.20

Class 117 Dip, DPST-NO, 2 Form A, "A" Dimension .210

47F1119	W117DIP-9	5	200	5.36	4.82	4.56	4.29
47F1120	W117DIP-10	6	200	5.36	4.82	4.56	4.29
47F1121	W117DIP-11	12	500	5.36	4.82	4.56	4.29
47F1122	W117DIP-12	24	1,200	5.36	4.82	4.56	4.29

Class 172 Dip, SPDT, 1 Form C, "A" Dimension .275

Stock Number	Type Number	Coil		Prices		
		Volts	Ohms	1-24	25-49	50-74
47F1156	W172DIP-1	5	200	5.50	4.95	4.68
47F1157	W172DIP-2	6	200	5.50	4.95	4.68
47F1158	W172DIP-3	12	500	5.50	4.95	4.68
47F1159	W172DIP-4	24	2,200	6.24	5.62	5.30
47F1160	W172DIP-5*	5	200	6.05	5.45	5.14
47F1161	W172DIP-6*	6	200	6.05	5.45	5.14
47F1162	W172DIP-7*	12	500	6.05	5.45	5.14
47F1163	W172DIP-8*	24	2,200	6.62	5.96	5.63

(*) Internal Clamping Diode

Class 172 Dip, DPDT, 2 Form C, "A" Dimension .210

23F5553	W172DIP-17	3.8	60	15.65	14.09	13.30
23F5554	W172DIP-18	4.5	60	15.65	14.09	13.30
23F5555	W172DIP-19	9.0	200	15.65	14.09	13.30
23F5556	W172DIP-20	18.0	800	15.65	14.09	13.30
23F5557	W172DIP-21	3.8*	60	18.17	16.35	15.44
23F5558	W172DIP-22	4.5*	60	18.17	16.35	15.44
23F5559	W172DIP-23	9.0*	200	18.17	16.35	15.44
23F5560	W172DIP-24	18.0*	800	18.17	16.35	15.44

(*) Internal Clamping Diode

Class 173, Position-free merc., 1 Form A, "A" Dimension .275"

23F5561	W173DIP-1	3.8	80	10.19	9.17	8.66
23F5562	W173DIP-2	4.5	80	10.19	9.17	8.66
23F5563	W173DIP-3	9.0	240	10.19	9.17	8.66
23F5564	W173DIP-4	18.0	1,600	10.98	9.88	9.33
23F5565	W173DIP-5*	3.8	80	10.71	9.64	9.10
23F5566	W173DIP-6*	4.5	80	10.71	9.64	9.10
23F5567	W173DIP-7*	9.0	240	10.71	9.64	9.10
23F5568	W173DIP-8*	18.0	1,600	11.51	10.36	9.78

(*) Internal Clamping Diode

Class 174 DIP, SPST-NO Mercury, 1 Form A, "A" Dimension .275

23F5569	W174DIP-1	3.8	55	7.25	6.53	6.16
23F5570	W174DIP-2	4.5	55	7.25	6.53	6.16
23F5571	W174DIP-3	9.0	300	7.25	6.53	6.16
23F5572	W174DIP-4	18.0	1,100	7.25	6.53	6.16
23F5573	W174DIP-5*	3.8	55	7.46	6.71	6.34
23F5574	W174DIP-6*	4.5	55	7.46	6.71	6.34
23F5575	W174DIP-7*	9.0	300	7.46	6.71	6.34
23F5576	W174DIP-8*	18.0	1,100	7.46	6.71	6.34

(*) Internal Clamping Diode

MIP Reed Relays

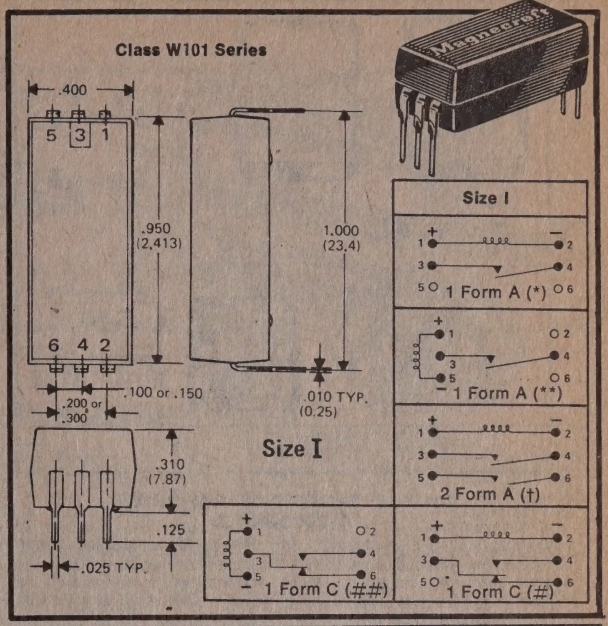
Magnecraft®

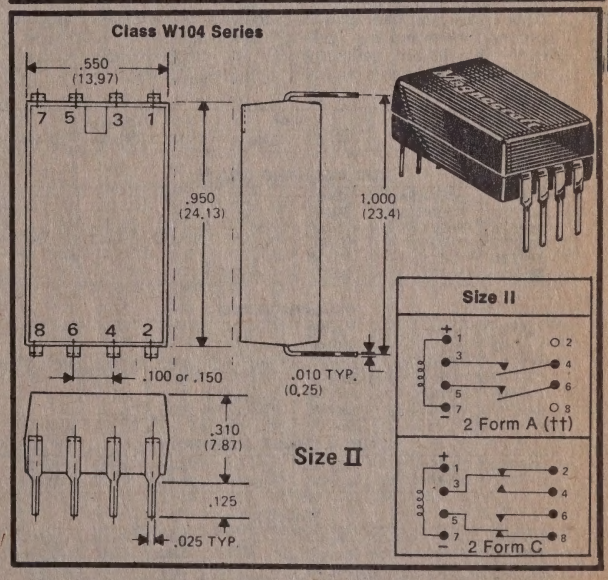
EPOXY MOLDED REED RELAYS

Reed relays satisfy many applications because contacts are hermetically sealed in glass envelope to protect against pollution from dust and atmospheric gases. Because of simple structure within glass envelope, most reed switches have life in the order of 10^9 operations when used within their switching capacity and are just as reliable when called on to work after long periods of inactivity. Switching time is very short—typically .5 to 3 milli-seconds, excluding any time lag due to the coil and supply circuits. Most commonly used contact materials for dry reed switches are rhodium over gold, tungsten and other special alloys. Immersion resistant: Epoxy molded modular construction, completely resistant to standard printed circuit board cleaning processes. Insulation resistance across open contacts is 10^{10} Ohms or greater.

Specifications

Type	101	104
Contact Rating Max. (resistive load)	10VA	8VA
Switching Volts Max.	200VDC	100VDC
Switching Current Max.	.75Amp	.25Amp
Dielectric Standoff:		
—Min. across open contacts	300VDC	250VDC
—Min. between mutually insulated points	1000VDC	1000VDC
Life at rated load with appropriate contact res.	25×10^6	10×10^6





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CLASS W101, 1 Form A

Stock No.	Type	Coil Volts	Coil Ohms	1-24	25-49	50-74
23F5577	W101MIP-1*	5	250	4.54	4.09	3.86
23F5578	W101MIP-2*	12	1,400	4.82	4.34	4.10
23F5579	W101MIP-3*	24	3,400	4.90	4.41	4.17
23F5580	W101MIP-4**	5	250	4.54	4.09	3.86
23F5581	W101MIP-5**	12	1,400	4.82	4.34	4.10
23F5582	W101MIP-6**	24	3,400	4.90	4.41	4.17

CLASS W101, 2 Form A

Stock No.	Type	Coil Volts	Coil Ohms	1-24	25-49	50-74
23F5583	W101MIP-13†	5	150	5.48	4.93	4.66
23F5584	W101MIP-14†	12	600	5.64	5.08	4.79
23F5585	W101MIP-15†	24	2,500	5.94	5.35	5.05
23F5586	W101MIP-80††	5	100	5.54	4.99	4.71
23F5587	W101MIP-152††	24	2,000	5.98	5.38	5.08

CLASS W104, 1 Form C

Stock No.	Type	Coil Volts	Coil Ohms	1-24	25-49	50-74	75-99
23F5588	W104MIP-15#	5	250	6.58	5.92	5.59	5.26
23F5589	W104MIP-38#	12	900	6.72	6.05	5.71	5.38
23F5590	W104MIP-61#	24	3,400	7.44	6.70	6.32	5.95
23F5591	W104MIP-19##	8	250	6.58	5.92	5.59	5.26
23F5592	W104MIP-42##	12	900	6.72	6.05	5.71	5.38
23F5593	W104MIP-65##	24	3,400	7.44	6.70	6.32	5.95

CLASS W104, 2 Form C

Stock No.	Type	Coil Volts	Coil Ohms	1-24	25-49	50-74	75-99
23F5594	W104MIP-25	5	75	9.83	8.85	8.36	7.86
23F5595	W104MIP-48	12	250	9.89	8.90	7.91	6.92
23F5596	W104MIP-71	24	1,000	10.06	9.05	8.55	8.05

IC COMPATIBLE REED RELAYS

CLASS 101M AXIAL LEAD FORM A

Contact load rated 10VA @ .5 amp max. or 100VDC resistive max. Typical life at rated load of 5 million cycles. Capacitance across contacts .5 pf average. Weight: 1 oz. approximately. Size: 1" x 7/16" x 1/2".

Stock Number	Type Number	Contacts	Coil DC Volts	Coil DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F975	W101MX-41	SPST-NO	3	250	5.06	4.55	4.30
56F976	W101MX-35	SPST-NO	5	500	5.06	4.55	4.30

CLASS 101MPC MTG FORM A

Contact load rated 10VA @ .5 amp max. or 100VDC resistive max. Typical life at rated load of 5 million cycles. Capacitance across contacts, .5 pf average. Weight: 1 oz. approximately. Size: 1 1/8" x 3/8" x 13/32".

56F977	W101MPCX-104	SPST-NO	5	450	5.65	5.09	4.80

CLASS 104M AXIAL LEAD FORM C

Contact load rated 3VA @ .25 amp max. or 28VDC resistive max. Typical life at rated load of 5 million cycles. Capacitance across contacts, 1.5 pf average. Weight 1 oz. approximately. Size: 1" x 7/16" x 1/2".

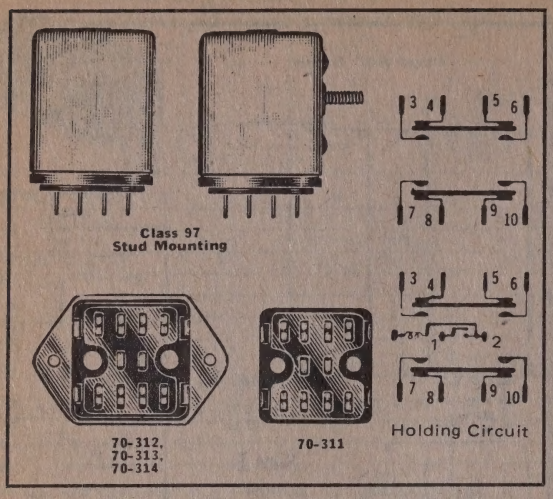
Stock Number	Type Number	Contacts	Coil DC Volts	Coil DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F978	W104MX-9	SPDT	5	500	7.74	6.97	6.58

CLASS 104MPC PC MTG FORM C

Contact load rated 3VA @ .25 amp max. or 28VDC. Typical life at rated load of 5 million cycles. Capacitance across contacts, 1.5 pf average. Weight 1 oz. approximately. Size: 1 1/8" x 3/8" x 13/32".

56F980	W104MPCX-46	SPDT	5	300	8.66	7.79	7.36

Magnecraft heavy duty power relays



CLASS 97 ENCLOSED 25 AMP RELAYS
UL RECOGNIZED

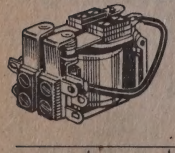
The Class 97 is a low cost 25 amp relay for 1 and 2 pole, 120/240 VAC applications. It is available with socket for plug-in applications or for use with standard quick-connect terminals for simplicity and ease in wiring. The Class 97 relay offers high quality, dependable performance and long life.

These relays are ideal for use in appliances, automation equipment, motor starting and heater circuits, clock controlled systems, laundry equipment, vending machines, machine tools, furnace controls, panel boards and air conditioners. Size: 1 29/32" x 1 9/16" square.

Stock Number	Type Number	Coil Volts	Coil Ohms	Prices 1-9	Prices 10-24	Prices 25-49
STUD MOUNTING RELAYS						
56F776	W97ACSX-1	12VAC	3.5	19.50	17.55	16.58
56F777	W97ACSX-2	24VAC	13.2			
56F778	W97ACSX-3	115VAC	265			
56F779	W97ACSX-4	220VAC	920			
56F780	W97CSX-1	12VDC	50			
56F781	W97CSX-2	24VDC	220			
PLUG-IN RELAYS						
56F782	W97ACPX-1	12VAC	3.5	19.50	17.55	16.58
56F783	W97ACPX-2	24VAC	13.2			
56F784	W97ACPX-3	115VAC	265			
56F785	W97ACPX-4	220VAC	920			
56F786	W97CPX-1	12VDC	50			
56F787	W97CPX-2	24VDC	220			
HOLDING CIRCUIT (PLUG-IN)						
67F250	W97ALCPX-1	115VAC	265	25.54	22.99	21.71
67F251	W97ALCPX-2	220VAC	920	26.13	23.52	22.21
SOCKETS						
67F252	70-311 Without Flange			3.75	3.38	3.19
67F253	70-312 Without Ground Lug			3.85	3.47	3.27
67F254	70-313 With Ground Lug			5.13	4.62	4.36
67F255	70-314 With Grd. Lug & U.L. Approved			4.95	4.46	4.21

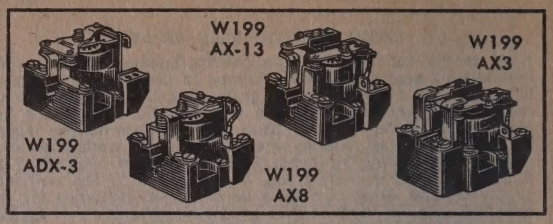
CLASS 88R POWER RELAY

- **DPDT 20 amp @ 120/240 VAC 50/60 Hz.**
- **One hole mounting**



Mounting Data: One 6-32 threaded hole. Contacts: Silver alloy gold flashed ¼" dia.—20 amps resistive at 120 VAC or 28 VDC. Size: 1 7/8" x 1 9/16" x 1 5/32". Terminals: Solder type.

Stock No.	Type No.	Contacts	Coil Volts	Coil Ohms	1-9	10-24	25-49	50-99
28F1610	W88ARX-3	DPDT	24VAC		23.80	22.61	21.42	20.23
28F1611	W88ARX-4	DPDT	120VAC		23.80	22.61	21.42	20.23
28F1612	W88RX-2	DPDT	12VDC	100	22.34	21.22	20.11	18.99
28F1613	W88RX-3	DPDT	24VDC	400	22.34	21.22	20.11	18.99

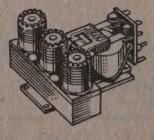


CLASS W199 SERIES

Dimensionally interchangeable with relays made by others and with Class 99. Superior quality hinge-pin design, molded nylon bobbin and adjustment stability features give it longer life. Standard dielectric strength: 1500 VAC, RMS. Screw type terminals and molded phenolic base. Contacts: Silver alloy, 5/16" dia. gold flashed. Choice of SPDT, DPDT, DPST-NO, and SPST-NO-DM. Size: SPDT (2 7/16"L. x 2½"W. x 2 3/16"H.)-DPDT (3 1/16"L. x 2½"W. x 2 3/16"H.)—DPST-NO (2 7/16"L. x 2½"W. x 2¼"H.)—SPST-NO-DM (2 7/16"L. x 2½"W. x 2 3/16"H.)

Stock No.	Type No.	Contacts	Coil Volts	Coil Ohms	1-9	10-24	25-49	50-79
AC VOLTAGE SPECIFIED—30 A CONTACTS								
28F1618	W199AX-3	SPDT	24VAC		7.25	6.89	6.53	6.16
56F955	W199AX-4	SPDT	120VAC		7.25	6.89	6.53	6.16
56F956	W199AX-5	SPDT	240VAC		7.59	7.21	6.83	6.45
DC VOLTAGE SPECIFIED—30 A CONTACTS								
56F957	W199X-2	SPDT	12VDC	70	6.84	6.50	6.16	5.81
28F1614	W199X-3	SPDT	24VDC	290	6.84	6.50	6.16	5.81
28F1615	W199X-4	SPDT	110VDC	6000	7.81	7.42	7.03	6.64
AC VOLTAGE SPECIFIED—30 A CONTACTS								
56F949	W199AX-8	DPST-NO	24VAC		7.65	7.27	6.89	6.50
56F950	W199AX-9	DPST-NO	120VAC		7.65	7.27	6.89	6.50
56F951	W199AX-10	DPST-NO	240VAC		8.00	7.60	7.20	6.80
DC VOLTAGE SPECIFIED—30 A CONTACTS								
56F642	W199X-7	DPST-NO	12VDC	70	7.33	6.96	6.60	6.23
56F952	W199X-8	DPST-NO	24VDC	290	7.33	6.96	6.60	6.23
28F1616	W199X-9	DPST-NO	110VDC	6000	8.20	7.79	7.38	6.97
AC VOLTAGE SPECIFIED—30 A CONTACTS								
28F1617	W199AX-13	DPDT	24VAC		9.20	8.74	8.28	7.82
56F971	W199AX-14	DPDT	120VAC		9.20	8.74	8.28	7.82
56F972	W199AX-15	DPDT	240VAC		9.68	9.20	8.71	8.23
DC VOLTAGE SPECIFIED—30 A CONTACTS								
56F641	W199X-12	DPDT	12VDC	70	9.04	8.59	8.14	7.68
56F973	W199X-13	DPDT	24VDC	290	9.04	8.59	8.14	7.68
56F974	W199X-14	DPDT	110VDC	6000	9.80	9.31	8.82	8.33
AC VOLTAGE SPECIFIED—50 A CONTACTS								
28F1619	W199ADX-3	SPST-NO-DM	24VAC		6.63	6.30	5.97	5.64
47F1103	W199ADX-4	SPST-NO-DM	120VAC		6.63	6.30	5.97	5.64
56F644	W199ADX-5	SPST-NO-DM	240VAC		6.98	6.63	6.28	5.93
DC VOLTAGE SPECIFIED—50 A CONTACTS								
47F1104	W199DX-2	SPST-NO-DM	12VDC	70	6.25	5.94	5.63	5.31
47F1105	W199DX-3	SPST-NO-DM	24VDC	290	6.25	5.94	5.63	5.31
56F643	W199DX-4	SPST-NO-DM	110VDC	6000	7.34	6.97	6.61	6.24

CLASS 128 COAXIAL RELAY



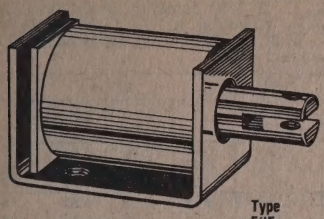
The coaxial contact structure is enclosed in a heavy duty precision machined brass cavity with removable plug for convenient inspection of contacts.

SPDT contacts for switching RF circuits are silver alloy, gold flashed, conservatively rated 500 watts of RF power; impedance matched to 50 ohm cable using standard type UHF connectors VSWR 1.25:1 max. from up to 500 megacycles.

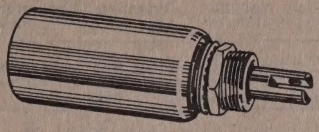
Stock Number	Type Number	Contacts	Coil Volts	Coil Ohms	1-9	10-24	25-49
WITHOUT AUXILIARY CONTACT							
56F243	W128AX-7	SPDT	115VAC		55.82	50.24	47.45
56F244	W128X-9	SPDT	12VDC	100	55.68	50.11	47.33
56F245	W128X-10	SPDT	24VDC	400	55.68	50.11	47.33
WITH DPDT AUXILIARY CONTACT							
56F246	W128AX-11	SPDT	115VAC		61.14	55.03	51.97
56F247	W128X-14	SPDT	12VDC	100	60.38	54.34	51.32
56F248	W128X-15	SPDT	24VDC	400	60.38	54.34	51.32

Solenoids

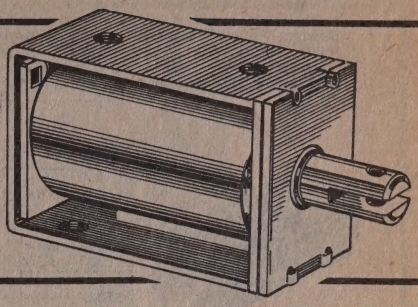
regdon CORPORATION



Type 505



Cylindrical Type



Type 312 809 827 930 940 960

General Specifications

Insulation Material: Class "A" (105 C°)

Coil Tolerances: ± 10% @ 25C°

Dielectric Strength: 1000 VRMS, 60Hz

Duty Cycle: A continuous duty solenoid is designated for operation in the energized position (under load) for indefinite periods of time, without exceeding the maximum coil temperature rating. Continuous duty operation assumes an ambient temperature of 25 °C with the solenoid mounted on a metal surface, open to the air. An intermittent duty solenoid is actuated for a short period of time (on time), and then allowed to cool during its off time. An intermittent duty solenoid will produce much greater force for size and weight than its continuous duty counterpart. Duty cycles can be calculated from the following formula:

$$\text{Duty cycle in \%} = \frac{\text{on time}}{\text{off time} + \text{on time}} \times 100$$

Duty cycles in excess of 4 Min. are classified as "continuous duty".

Force figures are based on cold operation.

Mounting Data

Type	Dimensions
312	2 holes, 4-40 on diagonal with .468" × .625" centers
5U5	2 holes, 6-32 on diagonal with .437" × .500" centers
809	2 holes, 6-32 on diagonal with .406" × .625" centers
827	2 holes, 6-32 on diagonal with .625" × .812" centers
930	4 holes, 8-32 on .500" × .937" centers
940	4 holes, 8-32 on .500" × .937" centers
960	4 holes, 8-32 on .500" × .937" centers
R7X9	5/16-32 threaded bushing
R12X12	15/32-32 threaded bushing
R16X9	3/4-24 threaded bushing
R24X13	1-27 threaded bushing
R24X19	1-27 threaded bushing

Box Frame and U Frame Solenoids

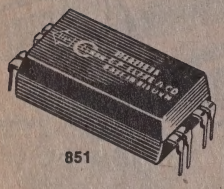
Stock No.	Type	Operate Voltage	Duty	Coil Ohms	Power	Size L × W × H	Stroke (Inches) Force (Ounces) 1/32	1/8	1/4	1/2	3/4	1-24	25-49	50-99
01F1020	312-6001	6VDC	Cont	9	4.0W	1.156 × .750 × .750	22	6	2	—	—	3.50	3.32	3.15
01F1021	312-6002	6VDC	Inter	4	8.5W	1.156 × .750 × .750	28	10	4	—	—	3.50	3.32	3.15
01F1022	312-6005	24VDC	Cont	144	4.0W	1.156 × .750 × .750	22	6	2	—	—	3.50	3.32	3.15
01F1023	312-6006	24VDC	Inter	60	8.5W	1.156 × .750 × .750	28	10	4	—	—	3.50	3.32	3.15
01F1024	312-6011	120VAC	Cont	390	5.5VA	1.156 × .750 × .750	12	4.5	2.5	1	—	3.85	3.65	3.46
01F1025	312-6012	120VAC	Inter	100	9.0VA	1.156 × .750 × .750	20	7	4	1.5	—	3.85	3.65	3.46
01F1026	5U5-6053	24VDC	Cont	114	5.0W	1.250 × .843 × .937	24	8	4	2	—	4.00	3.80	3.60
01F1027	5U5-6054	24VDC	Inter	52	11.0W	1.250 × .843 × .937	40	16	8	4	—	4.00	3.80	3.60
01F1028	5U5-6059	120VAC	Cont	500	7.5VA	1.250 × .843 × .937	10	6.5	5	3	—	4.00	3.80	3.60
01F1029	5U5-6060	120VAC	Inter	310	14VA	1.250 × .843 × .937	20	12	9	7	—	4.00	3.80	3.60
01F1030	809-6097	6VDC	Cont	6.7	5.5W	1.750 × .937 × 1.187	40	12	5	2	—	4.25	4.04	3.83
01F1031	809-6098	6VDC	Inter	3.3	11.5	1.750 × .937 × 1.187	56	22	9	3	—	4.25	4.04	3.83
01F1032	809-6099	12VDC	Cont	27	5.5W	1.750 × .937 × 1.187	40	12	5	2	—	4.25	4.04	3.83
01F1033	809-6100	12VDC	Inter	13	11.5W	1.750 × .937 × 1.187	56	22	9	3	—	4.25	4.04	3.83
01F1034	809-6101	24VDC	Cont	104	5.5W	1.750 × .937 × 1.187	40	12	5	2	—	4.25	4.04	3.83
01F1035	809-6102	24VDC	Inter	50	11.5W	1.750 × .937 × 1.187	56	22	9	3	—	4.25	4.04	3.83
01F1036	809-6107	120VAC	Cont	400	8VA	1.750 × .937 × 1.187	32	12	8	5	—	4.35	4.13	3.92
01F1037	809-6108	120VAC	Inter	220	22VA	1.750 × .937 × 1.187	40	24	16	7	—	4.35	4.13	3.92
01F1038	827-6109	6VDC	Cont	5	8W	1.875 × .937 × 1.187	40	24	11	4	3	4.55	4.32	4.10
01F1039	827-6110	6VDC	Inter	2	19W	1.875 × .937 × 1.187	60	40	22	10	6	4.55	4.32	4.10
01F1040	827-6111	12VDC	Cont	18	8W	1.875 × .937 × 1.187	40	24	11	4	3	4.55	4.32	4.10
01F1041	827-6112	12VDC	Inter	8	19W	1.875 × .937 × 1.187	60	40	22	10	6	4.55	4.32	4.10
01F1042	827-6113	24VDC	Cont	72	8W	1.875 × .937 × 1.187	40	24	11	4	3	4.55	4.32	4.10
01F1043	827-6114	24VDC	Inter	32	19W	1.875 × .937 × 1.187	60	40	22	10	6	4.55	4.32	4.10
01F1044	827-6119	120VAC	Cont	200	12VA	1.875 × .937 × 1.187	32	12	7.5	7	6	4.60	4.37	4.14
01F1045	827-6120	120VAC	Inter	85	40VA	1.875 × .937 × 1.187	40	20	17	15	10	4.60	4.37	4.14
01F1046	930-6125	24VDC	Cont	54	11W	2.00 × 1.437 × 1.625	85	63	30	11	7	7.40	7.03	6.66
01F1047	930-6126	24VDC	Inter	15	38W	2.00 × 1.437 × 1.625	155	113	80	42	25	7.40	7.03	6.66
01F1048	930-6129	110VAC	Cont	1200	11W	2.00 × 1.437 × 1.625	85	63	30	11	7	7.60	7.22	6.84
01F1049	930-6130	110VAC	Inter	346	38W	2.00 × 1.437 × 1.625	155	113	80	42	25	7.60	7.22	6.84
01F1050	930-6131	120VAC	Cont	133	10VA	2.00 × 1.437 × 1.625	22	8	6	55	4	7.50	7.13	6.75
01F1051	930-6132	120VAC	Inter	37	60VA	2.00 × 1.437 × 1.625	65	36	24	23	17	7.50	7.13	6.75
01F1052	940-6137	24VDC	Cont	50	10W	2.187 × 1.437 × 1.625	140	78	35	14	8	7.60	7.22	6.84
01F1053	940-6138	24VDC	Inter	15	36W	2.187 × 1.437 × 1.625	175	140	100	45	18	7.60	7.22	6.84
01F1054	940-6141	110VDC	Cont	1200	10W	2.187 × 1.437 × 1.625	140	78	35	14	8	8.10	7.69	7.29
01F1055	940-6142	110VDC	Inter	350	36W	2.187 × 1.437 × 1.625	175	140	100	45	18	8.10	7.69	7.29
01F1056	940-6143	120VAC	Cont	53	31VA	2.187 × 1.437 × 1.625	50	24	16	15	15	8.00	7.60	7.20
01F1057	940-6144	120VAC	Inter	15	171VA	2.187 × 1.437 × 1.625	155	100	70	65	65	8.00	7.60	7.20
01F1058	960-6149	24VDC	Cont	58	11W	1.562 × 1.437 × 1.625	88	50	24	8	3	6.00	5.70	5.40
01F1059	960-6150	24VDC	Inter	21	27W	1.562 × 1.437 × 1.625	140	100	52	18	9	6.00	5.70	5.40
01F1060	960-6155	120VAC	Cont	166	13VA	1.562 × 1.437 × 1.625	20	14	11	10	7	6.25	5.94	5.63
01F1061	960-6156	120VAC	Inter	60	44VA	1.562 × 1.437 × 1.625	58	45	33	30	20	6.25	5.94	5.63

Cylindrical Solenoids

01F1062	R7X9 -6171	12VDC	Cont	80	2W	.437 Dia. × 1.125L	5	1.4	.75	—	—	5.40	5.13	4.86
01F1063	R7X9 -6172	12VDC	Inter	14	9.5W	.437 Dia. × 1.125L	9	3.2	2.1	1	—	5.40	5.13	4.86
01F1064	R7X9 -6173	24VDC	Cont	260	2W	.437 Dia. × 1.125L	5	1.4	.75	—	—	5.40	5.13	4.86
01F1065	R7X9 -6174	24VDC	Inter	57	9.5W	.437 Dia. × 1.125L	9	3.2	2.1	1	—	5.40	5.13	4.86
01F1066	R12X12-6211	12VDC	Cont	41	3.5W	.750 Dia. × 1.500L	16	6.5	3	1.7	—	6.00	5.70	5.40
01F1067	R12X12-6212	12VDC	Inter	6	24W	.750 Dia. × 1.500L	26	18	11	8	—	6.00	5.70	5.40
01F1068	R12X12-6213	24VDC	Cont	165	3.5W	.750 Dia. × 1.500L	16	6.5	3	1.7	—	6.00	5.70	5.40
01F1069	R12X12-6214	24VDC	Inter	25	24W	.750 Dia. × 1.500L	26	18	11	8	—	6.00	5.70	5.40
01F1070	R16X9 -6221	12VDC	Cont	36	4W	1.00 Dia. × 1.125L	28	12	5.5	2.5	—	6.70	6.37	6.03
01F1071	R16X9 -6222	12VDC	Inter	8	18W	1.00 Dia. × 1.125L	64	32	15	4	—	6.70	6.37	6.03
01F1072	R16X9 -6223	24VDC	Cont	145	4W	1.00 Dia. × 1.125L	28	12	5.5	2.5	—	6.70	6.37	6.03
01F1073	R16X9 -6224	24VDC	Inter	30	18W	1.00 Dia. × 1.125L	64	32	15	4	—	6.70	6.37	6.03
01F1074	R16X16-6231	12VDC	Cont	26	5.5W	1.00 Dia. × 2.00L	58	21	12	7	—	7.25	6.89	6.53
01F1075	R16X16-6232	12VDC	Inter	3.7	38W	1.00 Dia. × 2.00L	84	56	36	24	—	7.25	6.89	6.53
01F1076	R16X16-6233	24VDC	Cont	105	5.5W	1.00 Dia. × 2.00L	58	21	12	7	—	7.25	6.89	6.53
01F1077	R16X16-6234	24VDC	Inter	15	38W	1.00 Dia. × 2.00L	84	56	36	24	—	7.25	6.89	6.53
01F1078	R24X13-6243	24VDC	Cont	85	7W	1.500 Dia. × 1.625L	125	50	20	8	4	9.80	9.31	8.82
01F1079	R24X13-6244	24VDC	Inter	14	41W	1.500 Dia. × 1.625L	200	150	95	35	10	9.80	9.31	8.82
01F1080	R24X19-6253	24VDC	Cont	59	10W	1.500 Dia. × 2.375L	—	80	43	20	12	10.50	9.98	9.45
01F1081	R24X19-6254	24VDC	Inter	10	59W	1.500 Dia. × 2.375L	—	140	110	65	48	10.50	9.98	9.45

SERIES 851 AND HRB MERCURY-WETTED RELAYS

851 epoxy molded and HRB metal covered relays have reliable reed capsules with mercury wetted armatures. SPECIFICATIONS **Contact Rating (Resistive load with proper contact protection):** Power—50VA max. Voltage—350Vdc or peak ac max. Current—1 ampere, max., switched. 3 amperes, max., carry only. **Contact Resistance (ON impedance):** 50 milliohms max., ±2 milliohms throughout life. **Insulation Resistance (OFF impedance):** 500 megohms over open contacts, 10,000 megohms between coil and contacts at 100Vdc, +25°C, 20-50% humidity. **Drain Time:** 30 seconds plus one no-load operation to clear the contacts. **Operating Temperature:** —38.8° to +65°C. **Life Expectancy:** 20 x 10^6 operations at max. contact rating.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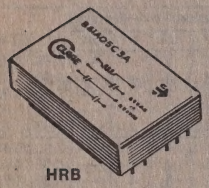

HRB

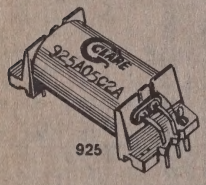
Stk. No.	Type	Contact Form	Nominal Voltage (Vdc)	Must Operate (Vdc)	Must Release (Vdc)	Maximum Voltage (Vdc)	Coil Resistance (Ohms ±10%)	EACH 1-9	10-24	25-49	50-99
65F000	851A05B1A	1A	5	3.75	0.5	15	120	6.95	5.20	4.85	4.50
65F001	851A12B1A		12	9	1.3	31	490	6.95	5.20	4.85	4.50
65F002	851A24B1A		24	18	2.6	61	1870	7.35	5.51	5.15	4.78
65F003	851A05B2A	2A	5	3.75	0.4	9	32	9.45	7.09	6.61	6.14
65F004	851A12B2A		12	9	0.9	23	184	9.45	7.09	6.61	6.14
65F005	851A24B2A		24	18	2.0	47	744	9.80	7.36	6.87	6.38
65F006	851A05B4A	4A	5	3.75	0.4	9	20	14.35	10.75	10.03	9.32
65F007	851A12B4A		12	9	1.0	23	126	14.35	10.75	10.03	9.32
65F008	851A24B4A		24	18	2.1	47	510	14.70	11.03	10.29	9.56
65F009	HRB1A1505	1A	5	3.75	0.15	10	95	6.95	5.20	4.85	4.50
65F010	HRB1A1512		12	9	0.7	18	405	6.95	5.20	4.85	4.50
65F011	HRB1A1524		24	18	1.4	36	2210	7.35	5.51	5.15	4.78
65F012	HRB2A1505	2A	5	3.75	0.15	7.5	55	9.45	7.09	6.61	6.14
65F013	HRB2A1512		12	9	0.7	18	250	9.45	7.09	6.61	6.14
65F014	HRB2A1524		24	18	1.4	36	1000	9.80	7.36	6.87	6.38
65F015	HRB3A1505	3A	5	3.75	0.15	7.5	46	11.90	8.90	8.31	7.71
65F016	HRB3A1512		12	9	0.7	18	325	11.90	8.90	8.31	7.71
65F017	HRB3A1524		24	18	1.4	28	810	12.30	9.21	8.60	7.99
65F018	HRB4A1505	4A	5	3.75	0.15	7.5	31	14.35	10.75	10.03	9.32
65F019	HRB4A1512		12	9	0.7	18	200	14.35	10.75	10.03	9.32
65F021	HRB4A1524		24	18	1.4	28	600	14.70	11.03	10.29	9.56
65F022	HRB5A1505	5A	5	3.75	0.15	7.5	22	16.80	12.60	11.76	10.92
65F023	HRB5A1512		12	9	0.7	18	150	16.80	12.60	11.76	10.92
65F024	HRB5A1524		24	18	1.4	28	420	17.20	12.91	12.05	11.19

9

SERIES 925 AND 951 DRY REED RELAYS

Series 925. SPECIFICATIONS **Contact Rating (Resistive):** Power — 10VA, max. Voltage — 200Vdc, max. Current — 0.75 ampere, switched, max. 2.0 amperes, carry only, max. **Contact Resistance (ON Impedance):** 250 milliohms, max. initial total circuit, at 10mA, 1000Hz. **Operating Temperature:** —40° to +85°C. **Life Expectancy:** 100 x 10^6 operations at signal levels, 10 x 10^6 at full load.

Series 951. SPECIFICATIONS **Contact Rating (Resistive):** Power — 10VA, max. Voltage — 200Vdc, max. Current — 0.75 ampere, switched, max. 1.0 amperes, carry only, max. **Contact Resistance (ON impedance):** 200 milliohms, max. initial total circuit. **Operating Temperature:** —40° to +105°C. **Life Expectancy:** 100 x 10^6 operations at signal level, 5 x 10^6 at 750mA, 12Vdc, resistive, 5 x 10^5 at 360mA, 28Vdc, resistive.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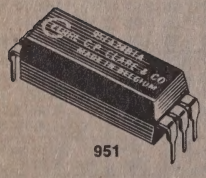
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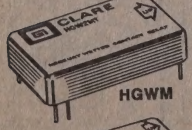
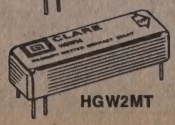
Stk. No.	Type	Contact Form	Nominal Voltage (Vdc)	Must Operate (Vdc)	Must Release (Vdc)	Max. Voltage (Vdc)	Coil Resistance (Ohms, ±10%)	EACH 1-24	25-49	50-99	100-249
65F025	925A05C1A	1A	5/6	3.75	0.35	10	260	1.85	1.65	1.56	1.38
65F026	925A12C1A		12	9	0.7	18	800	1.85	1.65	1.56	1.38
65F027	925A24C1A		24	18	1.4	36	2670	1.85	1.65	1.56	1.38
65F028	925A05C2A	2A	5/6	3.75	0.35	10	200	2.45	2.22	2.10	1.85
65F029	925A12C2A		12	9	0.7	18	800	2.45	2.22	2.10	1.85
65F030	925A24C2A		24	18	1.4	36	3050	2.45	2.22	2.10	1.85
65F031	925A05C1B	1B	5/6	3.75	0.35	9	200	2.45	2.22	2.10	1.85
65F032	925A12C1B		12	9	0.7	18	800	2.45	2.22	2.10	1.85
65F033	925A24C1B		24	18	1.4	36	3050	2.45	2.22	2.10	1.85
65F034	951A05B1A	1A	5	3.75	0.4	16	190	2.95	2.65	2.50	2.20
65F035	951A12B1A		12	8.6	1.0	39	1150	2.95	2.65	2.50	2.20
65F036	951A24B1A		24	17.1	2.0	74	4200	3.30	2.98	2.81	2.48
65F037	951A05B2A	2A	5	3.75	0.4	12	105	4.15	3.73	3.53	3.11
65F038	951A12B2A		12	8.6	1.0	31	630	4.15	3.73	3.53	3.11
65F039	951A24B2A		24	17.1	2.0	59	2300	4.50	4.06	3.84	3.39
65F040	951A05B4A	4A	5	3.75	0.3	11	60	6.55	5.91	5.58	4.92
65F041	951A12B4A		12	9.2	0.9	28	370	6.55	5.91	5.58	4.92
65F042	951A24B4A		24	18	1.5	56	1400	6.95	6.24	5.89	5.20

HGW MERCURY-WETTED RELAYS

SPECIFICATIONS **Contact Rating (with proper contact protection):** Power—100 VA max. Voltage—500 V, dc or ac max. Current—2A, switched, max. 5A, carry only, max. **Contact Forms:** HGWM—1 Form C. HGW2MT—2 Form C. **Contact Resistance (ON impedance):** 12 to 25 milliohms, stable within ±2.0 milliohms over life. **Life Expectancy:** 10 x 10^9 operations at rated load with proper contact protection. **Operating Temperature:** —38.8°C to +85°C. **Insulation Resistance (OFF impedance):** — Measured across open contacts at 25°C, 40% relative—HGWM—1000 megohms. HGW2MT—10,000 megohms. **Coil Power Dissipation (at 25°C):** HGWM—1.0W max. HGW2MT—2.0W max. Weight: 1 Form C—.28 oz., 2 Form C—.53 oz.


HGWM


HGW2MT

Stk. No.	Part Number	Recommended Nominal Voltage	Coil Resistance ±10%	Operate (Vdc)	Release (Vdc)	Maximum Voltage (Vdc)	EACH 1-9	10-24	25-49	50-99
65F043	HGWM51111K00	5	117	2.9	.52	11	15.00	11.25	10.50	9.75
65F044	HGWM51111L00	6	196	3.5	.66	14	15.00	11.25	10.50	9.75
65F045	HGWM51111P00	12	720	7.0	1.3	27	15.00	11.25	10.50	9.75
65F046	HGWM51111T00	24	2730	14	2.6	52	15.00	11.25	10.50	9.75
65F047	HGWM51111W00	48	10000	28	5.2	108	15.00	11.25	10.50	9.75
65F048	HGW2MT54111G00	5	56	2.9	.52	11	26.90	20.18	18.83	17.49
65F049	HGW2MT54111H00	6	90	3.5	.66	13	26.90	20.18	18.83	17.49
65F050	HGW2MT54111L00	12	392	7.0	1.3	28	26.90	20.18	18.83	17.49
65F051	HGW2MT54111P00	24	1440	14	2.6	54	26.90	20.18	18.83	17.49
65F052	HGW2MT54111T00	48	5460	28	5.2	104	26.90	20.18	18.83	17.49

Relays

HGM SERIES MODULAR MERCURY-WETTED RELAYS

Consist of standard HG switch capsules in module form, with plated steel covers for excellent mechanical protection and magnetic shielding. Standard HG switch is not polarity sensitive. SPDT make-before-break contacts rated 5 amps, 500 volts, 250 VA maximum. Life expectancy, 22 x 10^9 at specified ratings. Size, ¾″ x ¾″ x 3 13/64″.

Stock No.	Type	Coil Resis., Ohms	Must mADC Operate	Must mADC Release	Must Oper. VDC	Max. DC Volts	Each 1-9	Each 10-24	Each 25-49	Each 50-99
65F065	HGM1005	40	119	52	5.24	12.6	17.10	12.82	11.97	11.11
65F066	HGM1008	150	53	23	8.75	24				
65F067	HGM1002	450	32.9	14.5	16.3	42				
65F068	HGM1001	750	18.6	8.2	15.4	55				

HG2M SERIES DPDT MODULAR RELAYS

Same characteristics as HGM series, but contains two capsules for DPDT make-before-break configuration. Contacts rated, 5 amps, 500 volts, 250 VA maximum with life expectancy of 22 x 10^9. Size, ¾″ x 1 3/32 x 3 13/64″ max.

65F069	HG2M1007	90	82.2	28.6	8.2	19	23.30	17.48	16.32	15.15
65F070	HG2M1008	350	42.0	14.6	16.2	37				
65F071	HG2M1020	580	32.5	11.2	20.7	48				

HGSM SERIES PRINTED CIRCUIT MODULE RELAYS

Mercury-wetted relays for printed circuit board mounting. **HGSM-1000** series have SPDT make-before-break contacts; **HGSM-5000**, break-before-make. Contacts rated 2 amps, 500 volts, 100 VA max. at rated load. Max. dissipation, 2 watts continuous at 25°C. Temperature rise, 30°C per watt at 25°C ambient. Life expectancy, 22 x 10^9. Single side stable, except as indicated. Size 5/8″ x 5/8″ x 2 1/16″ max.

65F072	HGSM1008	115	.....	.....	3.8	15.1	14.70	11.03	10.29	9.55
65F073	HGSM1009	275	17.0	2.8	5.2	23.4				
65F074	HGSM1010	450	12.9	2.1	6.4	30.0				
65F075	HGSM1011	675	11.6	1.9	8.6	36.7				
65F076	HGSM1002	940	10.1	1.7	10.5	43.3				
65F077	HGSM1001	1425	8.3	1.4	13	53.4	14.70	11.03	10.29	9.55
65F078	HGSM1003	2400	7.35	1.2	20.6	69.2				
65F079	HGSM1005	65	.....	.....	2.7	11.4				
65F080	HGSM1007	90	.....	.....	3.8	13.4				
65F081	HGSM1063	460/ 460	.....	.....	±7.8/ ±7.8	30.3				
65F082	HGSM1016*	1100/ 1100	7.25/ 5.7	.....	8.77/ 6.9	46.9/ 46.9	14.70	11.03	10.29	9.55
65F083	HGSM5035	275	17.0	2.8	5.2	23.4				
65F084	HGSM5009	450	12.9	2.1	6.4	30.0				
65F085	HGSM5010	675	11.6	1.9	8.6	36.7				
65F086	HGSM5011	940	10.1	1.7	10.5	43.3				
65F087	HGSM5001	1425	8.3	1.4	13	53.4	14.70	11.03	10.29	9.55
65F088	HGSM5064	2400	7.35	1.2	20.6	69.2				
65F089	HGSM5003*	1100/ 1100	±7.25/ 5.7	.....	±8.77/ 6.9	46.9/ 46.9				

*Bi-stable double wound.

HGS2MT SERIES MERCURY-WETTED CONTACT RELAYS

Capable of handling input switching functions for any type of reasonable high speed, low level data acquisition system. Contacts rated 2 amps. 500 volts, 100 VA maximum DPDT, Form C break-before-make. Life expectancy, 22 x 10^9. Size, ¾″ x 1 3/32″ x 2 1/16″ max.

Stk. No.	Type	Nom. VDC	Coil Resis. Ohms	Must VDC Operate	Must VDC Release	Each 1-9	Each 10-24	Each 25-49	Each 50-99
65F090	HGS2MT51111F00	6	130	3.0	0.5	27.65	20.74	19.35	17.97
65F091	HGS2MT51111J00	12	520	5.3	1.1				
65F092	HGS2MT51111M00	24	2200	11.0	2.2				

HGJM SERIES MERCURY-WETTED CONTACT RELAYS

Noise is only 15 μV at 4 ms after coil energization with 10 kHz bandwidth; less than 5 μV at 5 ms. Fast response time approaches 1 ms; ultra-stable to 250Hz. SPDT contacts rated 2 amps at 500 volts max.; 100 VA max. AC or DC.

0.350″ LOW PROFILE SINGLE SIDE STABLE

65F053	HGJM51131J00	5.0	68	3.0	0.50	16.70	12.52	11.69	10.85
65F054	HGJM51131N00	12.0	375	6.6	1.0				
65F055	HGJM51131R00	24.0	1425	14.0	2.3				

0.400″ HIGH SENSITIVITY SINGLE SIDE STABLE

65F056	HGJM51111K00	5.0	125	3.2	0.57	15.90	11.93	11.13	10.33
65F057	HGJM51111P00	12.0	685	7.5	1.4				
65F058	HGJM51111T00	24.0	2650	15.0	2.6				

HGJ2MT SERIES MERCURY-WETTED CONTACT RELAYS

Same as HGJM Series except two capsules for DPDT configurations.

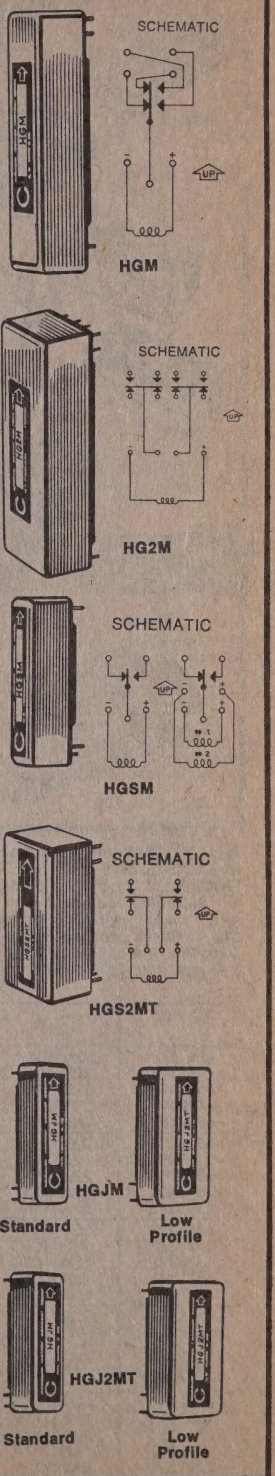
0.350″ LOW PROFILE SINGLE SIDE STABLE

65F059	HGJ2MT51231E00	5.0	27	2.6	.54	31.10	23.32	21.77	20.21
65F060	HGJ2MT51231K00	12.0	230	6.0	1.36				
65F061	HGJ2MT51231N00	24.0	800	12.0	2.4				

0.400″ HIGH SENSITIVITY SINGLE SIDE STABLE†

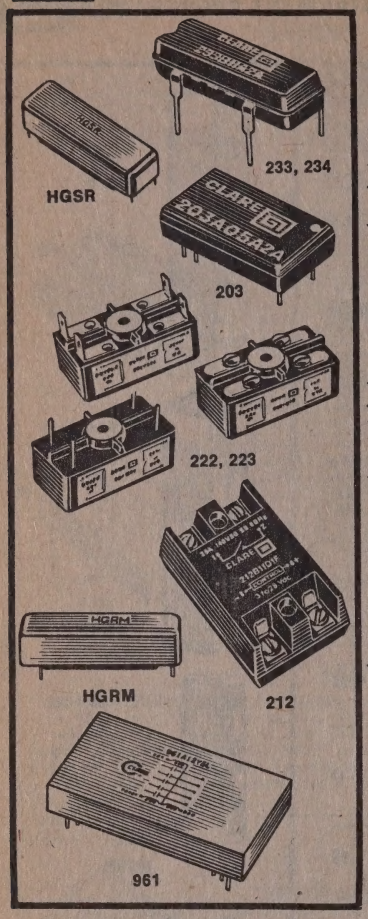
65F062	HGJ2MT54211G00	5.0	55	2.8	0.50	29.85	22.39	20.89	19.40
65F063	HGJ2MT54211L00	12.0	370	7.3	1.0				
65F064	HGJ2MT54211P00	24.0	1370	14.0	2.3				

†With common open time.



9

Relays



SERIES HGSR, HGRM AND HGR2MT MODULAR MERCURY-WETTED RELAYS

Mercury-wetted contact relays recommended for replacement applications. Contacts rated 2 A max., 100 VA max. SPDT, make-before-break (Form D or break-before-make (Form C). Life expectancy, 2 x 10^{10}. Size: Type HGRM, 1.61″ lg. x .565″ w. x .4″ h.; Type HGR2MT, 1.61″ lg. x 1″ w. x .4″ h.; Type HGSR, 1.563″ lg. x .532″ w. x .4″ h. Operating Temperature Range: —38.8°C to +85°C.

40mW Single Side Stable

1 Form D		1 Form C		Voltage (VDC)			Price			
Stk. No.	Type	Stk. No.	Type	Coil	Operate	Max.	1-9	10-24	25-49	50-99
65F1340	HGSR11111H00	65F1349	HGSR51111H00	4	1.4	9.4				
65F1341	HGSR11111K00	65F1350	HGSR51111K00	6	2.3	15				
65F1342	HGSR11111M00	65F1351	HGSR51111M00	10	3.8	25	**14.70**	**11.03**	**10.29**	**9.55**
65F1343	HGSR11111Q00	65F1352	HGSR51111Q00	20	7.2	44				
65F1344	HGSR11111V00	65F1353	HGSR51111V00	48	17	103				
65F1345	HGRM11111J00	65F1354	HGRM51111J00	5	1.8	11				
65F1346	HGRM11111K00	65F1355	HGRM51111K00	6	2.3	15				
65F1347	HGRM11111N00	65F1356	HGRM51111N00	12	4.7	28	**14.75**	**11.06**	**10.32**	**9.59**
65F1348	HGRM11111R00	65F1357	HGRM51111R00	24	8.8	55				
		2 Form C								
.....		65F1358	HGR2MT5001	6	3.5	14				
.....		65F1359	HGR2MT5002	12	5.0	30				
.....		65F1360	HGR2MT5003	24	10	56	**27.65**	**20.74**	**19.35**	**17.97**
.....		65F1361	HGR2MT5004	48	20	110				

SERIES 961 MAGNETIC LATCHING RELAYS

A self-latching switch providing a magnetic memory function. Designed to operate on a one millisecond pulse limited by the coil heating. Contact Rating, 5 VA max. Initial Contact Resistance, 100 milliohms. Operating Temperature Range, —10°C to +85°C.

Stk. No.	Type	No. of Poles	Nom. Voltage VDC	Must Operate, VDC	Coil Resistance, Ohms ± 10%	Net Each 1-24	25-49	50-99	100-249
65F1362	961A06Y1L	1	6	4.8	55	6.10	6.10	5.48	5.18
65F1363	961A12Y1L	1	12	9.6	210	6.10	6.10	5.48	5.18
65F1364	961A06Y2L	2	6	4.8	33	7.45	7.45	6.71	6.34
65F1365	961A12Y2L	2	12	9.6	130	7.45	7.45	6.71	6.34
65F1366	961A06Y3L	3	6	4.8	25	8.80	8.80	7.94	7.50
65F1367	961A12Y3L	3	12	9.6	100	8.80	8.80	7.94	7.50
65F1368	961A06Y4L	4	6	4.8	19	10.20	10.20	9.17	8.66
65F1369	961A12Y4L	4	12	9.6	75	10.20	10.20	9.17	8.66
65F1370	961A06Y5L	5	6	4.8	15	11.55	11.55	10.39	9.82
65F1371	961A12Y5L	5	12	9.6	55	11.55	11.55	10.39	9.82
65F1372	961A06Y6L	6	6	4.8	9.5	13.00	13.00	11.67	11.02
65F1373	961A12Y6L	6	12	9.6	45	13.00	13.00	11.67	11.02

SOLID-STATE RELAYS

Type 203 features zero-crossing synchronous switching; opto-isolation to 2000 VAC; 7.5 A peak surge rating; and a compact (.880″ x .5″ x .218″) package. **Type 212** features opto-isolation to 1500 VAC; compatibility with DTL/TTL logic; zero-crossing synchronous switching; and a 2.8″ x 1.75″ x 1.21″ package. **Type 222** features opto-isolation to 1500 VAC; compatibility with DTL/TTL logic; and a 2.00″ x 1.00″ x .90″ package. **Type 223** features opto-isolation to 1500 VAC; compatibility with DTL/TTL logic; and a 2.00″ x 1.00″ x .90″ package. **Type 233** features 1 microsecond response time; compatibility with 5V digital logic; total isolation to 1500 VAC; and a 14-pin DIP package measuring .75″ x .25″ x .165″. **Type 234** features 10 microsecond response time; compatibility with 5 V digital logic; bipolar output; total isolation to 750 V peak; and a 14-pin DIP package measuring .75″ x .25″ x .165″. All are SPST-NO.

Stk. No.	Type	Terminals	Input, VDC	Dropout, VDC	Output, VAC	Output, Amps.	EACH 1-9	10-24	25-49	50-99
65F1374	203A05A2A	P.C.	4-6.5	1.0	6.3-240	.75	16.00	14.40	12.80	11.20
65F1397	212B11D1E	Screw	3-28	1.0	140	10	24.15	20.53	18.11	16.91
65F1398	212B11D2E	Screw	3-28	1.0	250	10	26.25	22.31	19.69	18.38
65F1399	212B11D1F	Screw	3-28	1.0	140	25	30.45	25.88	22.84	21.32
65F1400	212B11D2F	Screw	3-28	1.0	250	25	33.60	28.56	25.20	23.52
65F1379	222B11A1C	P.C.	3-28	1.0	140	5	23.10	19.64	17.33	16.17
55F1380	222B11A2C	P.C.	3-28	1.0	250	5	25.20	21.42	18.90	17.64
65F1383	222B11B1C	Screw	3-28	1.0	140	5	23.10	19.64	17.33	16.17
65F1384	222B11B2C	Screw	3-28	1.0	250	5	25.20	21.42	18.90	17.64
65F1385	222B11B1E	Screw	3-28	1.0	140	10	24.15	20.53	18.11	16.91
65F1386	222B11B2E	Screw	3-28	1.0	250	10	26.25	22.31	19.69	18.38
65F1387	222B11C1C	Q.C.	3-28	1.0	140	5	23.10	19.64	17.33	16.17
65F1388	222B11C2C	Q.C.	3-28	1.0	250	5	25.20	21.42	18.90	17.64
65F1389	222B11C1E	Q.C.	3-28	1.0	140	10	24.15	20.53	18.11	16.91
65F1390	222B11C2E	Q.C.	3-28	1.0	250	10	26.25	22.31	19.69	18.38
65F1391	223B11A1A	P.C.	3-28	1.0	50†	2	26.25	22.31	19.69	18.38
65F1392	223B11A1B	P.C.	3-28	1.0	50†	5	31.50	26.78	23.63	22.05
65F1393	223B11B1A	Screw	3-28	1.0	50†	2	26.25	22.31	19.69	18.38
65F1394	223B11B1B	Screw	3-28	1.0	50†	5	31.50	26.78	23.63	22.05
65F1395	223B11C1A	Q.C.	3-28	1.0	50†	2	26.25	22.31	19.69	18.38
65F1396	223B11C1B	Q.C.	3-28	1.0	50†	5	31.50	26.78	23.63	22.05
65F1375	233B11A1B	P.C.	3.8-10	0.4	60†	.4	11.05	9.39	8.29	7.74
65F1376	233B11A2A	P.C.	3.8-10	0.4	250†	.1	13.65	11.60	10.24	9.56
65F1377	234B11A1A	P.C.	3.8-6	0.4	5‡	.005	16.30	13.86	12.23	11.41
65F1378	234B11A2B	P.C.	3.8-10	0.4	50‡	.08	11.05	9.39	8.29	7.74

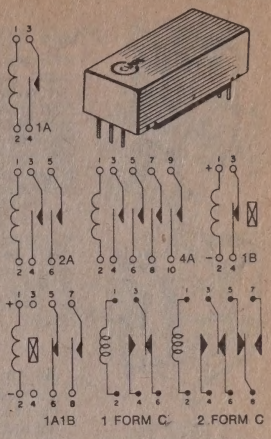
†DC ‡AC/DC

Relays and Arresters

C. P. CLARE & COMPANY
GENERAL INSTRUMENT CORPORATION

MRB SERIES MICROCLAREED® RELAYS

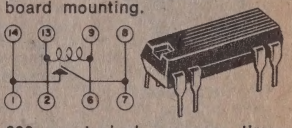
Stock No.	Type	Contact Form	Nom. VDC	Must Operate VDC	Must Release VDC	Max. VDC	Coil Resis., Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99
65F1401	MRB1A05	1A	5	3.75	0.15	15	225	2.95	2.95	2.65	2.51
65F1402	MRB1A06	1A	6	4.5	0.15	18	340	2.95	2.95	2.65	2.51
65F1403	MRB1A12	1A	12	9.0	0.7	36	1400	2.95	2.95	2.65	2.51
65F1404	MRB1A24	1A	24	18.0	2.5	60	4340	3.30	3.30	2.97	2.80
65F1405	MRB2A05	2A	5	3.75	0.15	11	105	4.10	4.10	3.69	3.48
65F1406	MRB2A06	2A	6	4.5	0.15	14	180	4.10	4.10	3.69	3.48
65F1407	MRB2A12	2A	12	9.0	0.7	26	730	4.10	4.10	3.69	3.48
65F1408	MRB2A24	2A	24	18.0	2.5	48	2500	4.50	4.50	4.05	3.82
65F1409	MRB4A05	4A	5	3.75	0.15	9	60	6.55	6.55	5.89	5.57
65F1410	MRB4A06	4A	6	4.5	0.15	11	100	6.55	6.55	5.89	5.57
65F1411	MRB4A12	4A	12	9.0	0.7	18	275	6.55	6.55	5.89	5.57
65F1412	MRB4A24	4A	24	18.0	2.5	36	1090	6.95	6.95	6.25	5.91
65F1413	MRB1B05	1B	5	3.75	0.4	7.5	300	4.10	4.10	3.69	3.48
65F1414	MRB1B06	1B	6	4.5	0.5	9	450	4.10	4.10	3.69	3.48
65F1415	MRB1B12	1B	12	9.0	1.0	18	1240	4.10	4.10	3.69	3.48
65F1416	MRB1B24	1B	24	18.0	2.0	36	5800	4.50	4.50	4.05	3.82
65F1417	MRB1N05	1A1B	5	3.75	0.4	7.5	50	5.35	5.35	4.81	4.55
65F1418	MRB1N06	1A1B	6	4.5	0.5	9	82	5.35	5.35	4.81	4.55
65F1419	MRB1N12	1A1B	12	9.0	1.0	18	230	5.35	5.35	4.81	4.55
65F1420	MRB1N24	1A1B	24	18.0	2.0	36	900	5.70	5.70	5.13	4.84
65F1421	922A05C1C	1C	5	3.75	0.4	20	350	6.55	6.55	5.91	5.58
65F1422	922A06C1C	1C	6	4.5	0.5	25	560	6.55	6.55	5.91	5.58
65F1423	922A12C1C	1C	12	9.0	1.0	45	1900	6.55	6.55	5.91	5.58
65F1424	922A24C1C	1C	24	18.0	2.0	93	7800	6.95	6.95	6.24	5.89
65F1425	922A05C2C	2C	5	3.75	0.4	16	220	11.40	11.40	10.25	9.68
65F1426	922A06C2C	2C	6	4.5	0.5	21	365	11.40	11.40	10.25	9.68
65F1427	922A12C2C	2C	12	9.0	1.0	32	880	11.40	11.40	10.25	9.68
65F1428	922A24C2C	2C	24	18.0	2.0	75	4660	11.80	11.80	10.63	10.04



Signal level to 10VA switching capabilities, total input/output isolation, 800 microsecond typical switching speeds. Coil power requirements as low as 10 milliwatts. Life expectancy of 100 x 10^6 operations at signal level, 10 x 10^6 at rated load. 1.000"x0.100" grid mounting centers for PC board mounting.

PRME EPOXY MOLDED PICOREED® DIP RELAYS

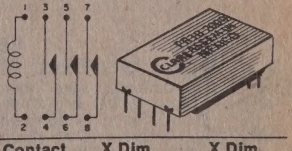
Stock No.	Type	Coil Resis. Ohms ± 10%	Must Operate	VDC Release	Max. VDC	Nom. Oper. VDC	Power mW	Net Each, Lots of 1-24	25-49	50-99	100-249
65F1429	PRME1A05	380	3.75	0.9	15.0	5	66	3.45	3.10	2.93	2.59
65F1431	PRME1A12	530	9.0	2.0	18.0	12	272	3.45	3.10	2.93	2.59
65F1432	PRME1A24	2000	18.0	4.0	32.0	24	288	3.45	3.10	2.93	2.59



600 ms typical response times, signal level to 10VA switching capabilities, total input/output isolation, IC compatible TO-116 DIP. Life expectancy of 100 x 10^6 operations at signal level or 5 x 10^6 at rated load. PCB mntg. on 0.30" x 0.100 grid patterns, or 14 pin DIP sockets. Ht.: 0.180".

SERIES PRB PICOREED® RELAYS

Stock No.	Type	Nom. V	Coil Resis., Ohms	Contact Form	Net Each, Lots of 1-9	10-24	25-49	50-99
65F1434	PRB-2510	6	387	1A	3.35	3.35	3.01	2.85
65F1438	PR2B-2007	6	136	2A	4.85	4.85	4.36	4.12
65F1442	PR3B-2006	6	117	3A	6.40	6.40	5.76	5.44
65F1446	PR4B-2005	6	88	4A	7.90	7.90	7.11	6.72
65F1450	PR5B-2005	6	105	5A	9.45	9.45	8.50	8.03
65F1435	PRB-2513	12	1200	1A	3.35	3.35	3.01	2.85
65F1439	PR2B-2011	12	740	2A	4.85	4.85	4.36	4.12
65F1443	PR3B-2009	12	483	3A	6.40	6.40	5.76	5.44
65F1447	PR4B-2008	12	351	4A	7.90	7.90	7.11	6.72
65F1451	PR5B-2008	12	419	5A	9.45	9.45	8.50	8.03
65F1436	PRB-2516	24	5380	1A	3.70	3.70	3.33	3.14
65F1440	PR2B-2014	24	3042	2A	5.25	5.25	4.72	4.46
65F1444	PR3B-2013	24	2254	3A	6.75	6.75	6.07	5.74
65F1448	PR4B-2012	24	1856	4A	8.30	8.30	7.47	7.05
65F1452	PR5B-2011	24	1424	5A	9.80	9.80	8.82	8.33
65F1433	PRB-3510	5	387	1A	3.70	3.70	3.33	3.14
65F1437	PR2B-3007	5	136	2A	5.25	5.25	4.72	4.46
65F1441	PR3B-3006	5	117	3A	6.75	6.75	6.07	5.74
65F1445	PR4B-3005	5	88	4A	8.30	8.30	7.47	7.05
65F1449	PR5B-3005	5	105	5A	9.80	9.80	8.82	8.33

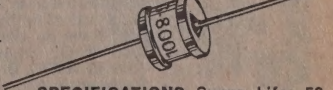


Contact Form	X Dim. PRB	X Dim. PRBH
1A	.285(7.24)	.385(9.78)
2A	.385(9.78)	.485(12.40)
3A	.485(12.40)	.585(14.86)
4A	.585(14.86)	.685(17.40)
5A	.685(17.40)	.785(19.94)

Signal level ot 10VA switching char., power req. from 48 to 500 milliwatts, operate times typically less than 500 ms. Life expectancy of 100 x 10^6 operations at signal level, 5 x 10^6 at rated loads. Mounts on 0.79" x 0.100" grid patterns. Permits 0.375" PCB mntg. centers. 5 V compatible with 5 V DTL/TTL logic.

CG/CG2 GAS DISCHARGE ARRESTERS

Stock No.	Type	Breakdown Voltage DC Volts	Breakdown Voltage Pulse Max. V.	Typical Arc V.	Max. Cap. no leads (pF)	Net Each, Lots of 1-24	25-49	50-99	100-249
65F1453	CG90L*	90±20%	1000	10	1.5	2.45	2.20	1.84	1.59
65F1454	CG145L*	145±20%	1000	10	1.4	2.45	2.20	1.84	1.59
65F1455	CG350L	350±15%	2000	10	1.0	2.20	1.98	1.65	1.43
65F1456	CG800L	800±15%	4000	10	1.0	2.50	2.25	1.88	1.62
65F1457	CG1000L	1000±15%	4000	10	1.0	2.50	2.25	1.88	1.62
65F1458	CG2-145L	145±20%	900	16	2.5	2.70	2.43	2.02	1.75
65F1459	CG2-230L	230±15%	750	16	2.0	2.40	2.16	1.80	1.56
65F1460	CG2-350L	350±20%	800	16	2.0	2.40	2.16	1.80	1.56
65F1461	CG2-470L	470±15%	850	16	2.0	2.40	2.16	1.80	1.56
65F1462	CG2-800L	800±15%	1600	16	2.0	2.75	2.47	2.06	1.79
65F1463	CG2-1000L	1000±15%	2800	16	2.0	2.75	2.47	2.06	1.79



SPECIFICATIONS Surge Life: 50 surges min. Max. Surge Current: 5,000A. Max. AC Current: 5A. Min. Insulation Resistance: 10,000 megohms. Oper. and Storage Temp: −55°C to +125°C. Weight: 1 gm. (*) Not applicable for CG Series products below 350V breakdown.

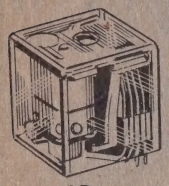
General Purpose Relays

LA

LA SERIES MINIATURE TELEPHONE

Four Form C contacts have palladium with gold overlay on make-and-break contacts. Contacts rated 1.0A @ 28VDC, 10 million operations; 1.0A @ 48VDC, 500,000 operations; 2.0A @ 28VDC, 100,000 operations; 0.25A @ 48VDC, 50 million operations; 0.5A @ 115VAC 60Hz, 750,000 operations; resistive power load. Tinned nickel silver terminals for direct PCB insertion. Size: 0.750"w. x 1.07"d. x 1.36"h.

Stk. No.	Type	Coil Volts	Coil Res. Ohms ±10%	Contact Form	1-24	25-49	50-99	100-249
65F1482	LA0040A00	6	35	4 Form C	4.75	4.27	4.04	3.56
65F1483	LA0040B00	12	130	4 Form C	4.75	4.27	4.04	3.56
65F1484	LA0040D00	24	590	4 Form C	4.75	4.27	4.04	3.56
65F1485	LA0040K00	30	915	4 Form C	4.75	4.27	4.04	3.56
65F1486	LA0040N00	48	2100	4 Form C	4.75	4.27	4.04	3.56
65F1487	LA0040M00	60	3000	4 Form C	4.75	4.27	4.04	3.56

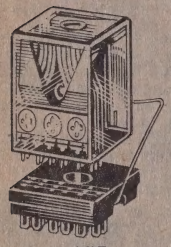


LB

LB SERIES MINIATURE TELEPHONE COVERED

6PDT contacts rated 2A at 28VDC resistive, with life of 100,000 operations at rated load, 100 million operations mechanical. LB series is for direct PC board mounting; LBP series mounts in sockets (listed below). Contact Resistance (ON impedance): 100 milliohms max. initial. Contacts are palladium alloy with gold alloy overlay on bifurcated Make-and-Break springs. Operate Time: 10-25ms typical. Release Time: 5ms. Size: 1.24"x1.00" x1.22".

Stk. No.	Type	Stk. No.	Type	Volts	Coil Resis., Ohms	Contact Form	1-24	25-49	50-99	100-249
65F1464	LB0060A00	65F1473	LBP0060A00	6	35	6PDT				
65F1465	LB0060B00	65F1474	LBP0060B00	12	130	6PDT				
65F1466	LB0060H00	65F1475	LBP0060H00	15	200	6PDT				
65F1467	LB0060C00	65F1476	LBP0060C00	18	330	6PDT				
65F1468	LB0060D00	65F1477	LBP0060D00	24	590	6PDT	**5.20**	**4.68**	**4.42**	**3.90**
65F1469	LB0060K00	65F1478	LBP0060K00	30	915	6PDT				
65F1470	LB0060J00	65F1479	LBP0060J00	36	1150	6PDT				
65F1471	LB0060N00	65F1480	LBP0060N00	48	2100	6PDT				
65F1472	LB0060M00	65F1481	LBP0060M00	60	3000	6PDT				
.....	.....	65F1516	RP-15450G5	Solder lug socket for LBP			2.10	1.89	1.78	1.57
.....	.....	65F1517	RP-15450G6	PC board socket for LBP			2.10	1.89	1.78	1.57



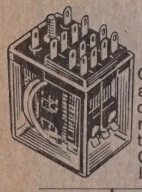
LBP
With Socket

SERIES 511 LOW PROFILE TELEPHONE TYPE

Gold alloy over palladium contacts. Contact rating: 1A @ 28VDC res. (5 million operations); 1A @ 48VDC res. (750,000 operations); 2A @ 28VDC res. (100,000 operations); 0.1A @ 48VDC res. (50 million operations); 0.5A @ 115 VAC res. (750,000 operations). 0.35" high allowing PC board mounting on 0.5" centers. Comes with plastic dust cover and a molded base of thermosetting plastic.

Stk. No.	Type	Contact Form	Nominal Voltage VDC	Must Operate VDC	Must Release VDC	Coil Resistance Ohms ± 10⅓	1-24	25-49	50-99	100-249
65F1488	511A06A2C	2C	6	4.5	0.6	40	5.20	4.68	4.42	3.90
65F1489	511A12A2C	2C	12	9.0	1.2	175	5.20	4.68	4.42	3.90
65F1490	511A24A2C	2C	24	18.0	2.4	700	5.20	4.68	4.42	3.90
65F1491	511A48A2C	2C	48	36.0	4.8	2370	5.45	4.91	4.64	4.09
65F1492	511A06A4C	4C	6	4.5	0.6	25	7.60	6.85	6.47	5.71
65F1493	511A12A4C	4C	12	9.0	1.2	100	7.60	6.85	6.47	5.71
65F1494	511A24A4C	4C	24	18.0	2.4	435	7.60	6.85	6.47	5.71
65F1495	511A48A4C	4C	48	36.0	4.8	1800	7.90	7.09	6.69	5.91

511



SERIES 354
GENERAL PURPOSE MINIATURE

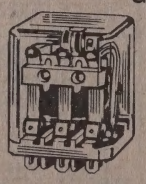
Contacts: gold flashed silver button rated at 3 amps at 28VDC or 120VAC resistive; gold flashed silver cadmium oxide rated at 5 amps at 28VDC or 120VDC resistive. Coil power: DC types, 0.9 W nom.; AC types, 1.4VA nom. Contact resistance: 50 milliohms. Contacts are 4 Form C, 4PDT. Terminals are solder lug/plug-in or (*) PCB type. Weight: 1.5 oz.

Stk. No.	Type	Coil Volts	Contact Amps	Coil Pes.	1-9	10-24	25-49	50-99
65F1496	354A12A2C	12DC	3	160	6.25	5.94	5.31	4.69
65F1497	354A14A2C	24DC	3	650	6.25	5.94	5.31	4.69
65F1498	354A17A2C	110DC	3	11000	7.25	6.89	6.16	5.44
65F1499	354A12A1C	12DC	5	160	6.54	6.13	5.48	4.84
65F1500	354A14A1C	24DC	5	650	6.45	6.13	5.48	4.84
65F1501	354A14B2C(*)	24DC	3	650	6.25	5.94	5.31	4.69
65F1502	354A24A2C	24AC	3	157	7.25	6.89	6.16	5.44
65F1503	354A27A2C	120AC	3	4100	7.65	7.27	6.50	5.74
65F1504	354A24A1C	24AC	5	157	7.45	7.08	6.33	5.59
65F1505	354A27A1C	120AC	5	4100	7.85	7.46	6.67	5.89

HYBRID AC SOLID STATE

Industry Standard outline thermoplastic case with square terminal bosses to stop wire clamp rotation and slotted "U" mounting hole in base to simplify panel mounting. Life of 10^6 operations on 120VAC models. Contact Form: SPST (N.O.). Input Voltage: 4-13VDC. Pickup Voltage: 4VDC. Dropout Voltage: 0.4VDC. Coil Resistance: 340 Ohms ±10%.

Stk. No.	Type	RMS Output Amps	RMS Max Output VAC	EACH 1-9	10-24	25-49	50-99
65F1526	251A11D1E	10	120	12.45	11.21	9.96	8.72
65F1527	251A11D1F	25	120	15.20	13.68	12.16	10.64
65F1528	251A11D2E	10	240	14.15	12.74	11.32	9.91
65F1529	251A11D2F	25	240	17.60	15.84	14.08	12.32



GP3 GENERAL PURPOSE

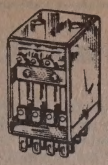
UL recognized and CSA certified as magnetic motor controllers. Comes with dust cover. Gold flashed silver cadmium oxide contacts are rated at 10 amps at 28 VDC resistive 120/150 VAC, .8 power factor. Mechanical life expectancy is 10 million operations, electrical life 100,000 operations minimum at rated load. .187" quick connect terminals are standard. Initial Contact Resistance: 50 milliohms max. at rated current. Temperature Range: —45° to +45°C(AC) 3 pole. —45° to +70°C(DC). —45° to +55°C(AC) 2 pole. Breakdown Voltage: 600 VAC rms, 60Hz minimum between open contacts. Operate/Release Time: 15ms/11ms typical.

Stk. No.	Type GP3R	Coil Volts	Contacts	1-9	10-24	25-49	50 99
65F1506	221AA1000	12 VAC	DPDT	6.35	6.03	5.40	4.76
65F1507	221AA2000	24 VAC	DPDT	6.35	6.03	5.40	4.76
65F1508	221AA6000	120 VAC	DPDT	6.90	6.55	5.86	4.48
65F1518	221AD1000	12 VDC	DPDT	6.35	6.03	5.40	4.76
65F1519	221AD2000	24 VDC	DPDT	6.35	6.03	5.40	4.76
65F1520	221AD4000	90 VDC	DPDT	.....	.....	.....	.....
65F1521	221AD5000	110 VDC	DPDT	6.90	6.55	5.86	4.48
65F1509	231AA1000	12 VAC	3PDT	7.55	7.17	6.42	5.66
65F1510	231AA2000	24 VAC	3PDT	7.55	7.17	6.42	5.66
65F1511	231AA6000	120 VAC	3PDT	8.15	7.74	6.93	6.11
65F1522	231AD1000	12 VDC	3PDT	7.55	7.17	6.42	5.66
65F1523	231AD2000	24 VDC	3PDT	7.55	7.17	6.42	5.66
65F1524	231AD4000	90 VDC	3PDT	.....	.....	.....	.....
65F1525	231AD5000	110 VDC	3PDT	8.15	7.74	6.93	6.11
65F1512	GPS3001	Solder terminal socket		1.05	1.05	1.00	.89
65F1513	GPS3002	Q.C. terminal socket		1.15	1.15	1.09	.98
65F1514	GPS3003	PCB terminal socket		1.15	1.15	1.09	.98
65F1515	GPA3050	50 hold-down spring clips		7.15	7.15	6.79	6.08

General Purpose Relays

SIGMA

SERIES 67 AC AND DC—4PDT



Switches 5 amperes loads from 1.2 VA or 900 MW signals. Solder or printed circuit terminals. Temp. range of —4°F. to +140°F. 14-prong plug, designed for stud mtg. 1 5/16" x 1 7/64" x 55/64" UL-CSA listed. Shpg. wt. 1.3 oz.

For price quotes on larger quantities contact your nearest Newark facility.

DUST COVERED VERSIONS—3 AMP RATING

Stk. No.	Type and Coil Voltage Solder Terminals	Stk. No.	Type and Coil Voltage P. C. Terminals	Coil Resis. Ohms	EACH 1-49
24F2830	67R4-24AC	65F1041	67RE4-24AC	160	6.70
24F2831	67R4-120AC	65F1042	67RE4-120AC	3,900	7.35
65F1035	67R4-240AC	65F1043	67RE4-240AC	16,650	7.55
65F1036	67R4-5DC	65F1044	67RE4-5DC	28	6.00
24F2832	67R4-6DC	65F1045	67RE4-6DC	40	6.00
24F2833	67R4-12DC	65F1046	67RE4-12DC	160	6.00
24F2834	67R4-24DC	65F1047	67RE4-24DC	650	6.00
24F2836	67R4-110DC	65F1048	67RE4-110DC	11,000	6.95

DUST COVERED VERSIONS—5 AMP RATING

65F1037	67RV4-24AC-SC0	65F1049	67REV4-24AC-SC0	160	6.85
45F367	67RV4-120AC-SC0	65F1050	67REV4-120AC-SC0	3,900	7.45
65F1038	67RV4-240AC-SC0	65F1051	67REV4-240AC-SC0	16,650	7.65
65F1039	67RV4-5DC-SC0	65F1052	67REV4-5DC-SC0	28	6.10
65F1040	67RV4-6DC-SC0	65F1053	67REV4-6DC-SC0	40	6.10
45F365	67RV4-12DC-SC0	65F1054	67REV4-12DC-SC0	160	6.10
45F366	67RV4-24DC-SC0	65F1056	67REV4-24DC-SC0	650	6.10
65F1055	67RV4-110DC-SC0	65F1057	67REV4-110DC-SC0	11,000	7.05

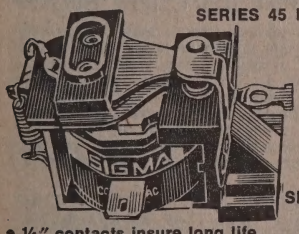
HERMETICALLY SEALED—3 AMP RATING

65F1058	67RJ4-120AC	.....	.....	3,900	13.70
65F1059	67RJ4-12DC	.....	.....	160	11.70
65F1060	67RJ4-24DC	.....	.....	650	11.70

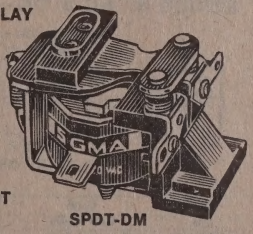
TERMINALS

Stk. No.	Type	Description	1-49	50-74	75-99	100-249
24F2837	AD113-1	Solder terminals	.80	.76	.72	.64
65F1061	AD113-2	P.C. terminals w/ground	.80	.76	.72	.64
24F2838	AD113-3	P.C. terminals w/o ground	.80	.76	.72	.64
65F1062	AD61	Screw terminals	6.85	6.51	6.17	5.48
65F1063	SD220	Hold-down spring (AD113-1)	.10	.10	.09	.08

SERIES 45 RELAY



SPDT



SPDT-DM

- ¼" contacts insure long life.
- .250" quick-connect terminals on coil and contact terminals.
- Nominal coil power: DC-2.0W; AC-4.7 VA.
- Molded nylon coils.

UL Recognized File E41906

CSA Certified Report LR20690

Contact ratings (resistive load @ 12VDC or 12VAC): SPST-DM (silver/silver cadmium oxide)—30 amps, 1hp 20 amps, 1½hp @ 240VAC. SPDT (silver cadmium oxide)—15 amps, ¾hp; 15 amps, 1hp @ 240VAC. Expected electrical life of contacts (operations at rated load): 200,000. Operate time: (DC coils): 20 msecs, max. Release time: (DC coils): 15 msecs, max. Initial dielectric strength between all insulated points: 1500 Vrms. Across contacts: 500 Vrms. Operating temperature: AC— —45°C to +75°C, DC— —45°C to +90°C. Molded nylon coils improve heat dissipation and resists dust and moisture. Heavy duty ¼" contacts insure long life. .250" quick-connect terminals on coil and contact terminals. Coil pick-up voltage, max: DC— 75% of nominal coil voltage; AC— 85% of nominal coil voltage. Nominal coil power: DC-2.0W; AC-4.7VA. Weight 2.3 oz. (65g).

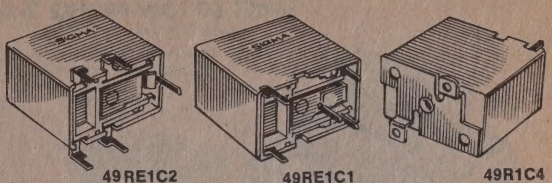
SPST-DM—30 AMP RATED

Stock Number	Type and Coil Voltage	Coil Ohms	1-49	50-74	75-99	100-249
65F1005	45F11X-120AC-C0S	1100	5.65	5.09	4.52	3.96
65F1006	45F11X-12DC-C0S	72	5.40	4.86	4.32	3.78
65F1007	45F11X-24DC-C0S	288	5.40	4.86	4.32	3.78

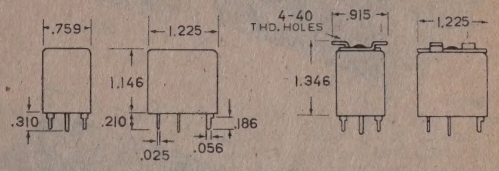
SPST—15 AMP RATED

65F1008	45F11C-120AC-SC0	1100	6.25	5.63	5.00	4.38
65F1009	45F11C-12DC-SC0	72	6.05	5.45	4.84	4.24
65F1010	45F11C-24DC-SC0	288	6.05	5.45	4.84	4.24

SERIES 49 SPDT RELAYS



49RE1C2 49RE1C1 49R1C4



The series 49 is a low cost printed circuit board relay capable of switching up to 5 amps in just over 1 cubic inch. Units have gloss filled nylon dust covers and contact placement furthest away from the PC board. Terminals can be soldered directly to PC board or mounted for hand wiring. Typical applications are garage door openers, antenna rotor controls, vending machines, automatic toys and games. Overall case dimensions: .759 x 1.225 x 1.146. Temperature range: —55°C to+85°C. Weight: 1.5 oz. (42 g). SIL indicates contact material of fine silver, gold plated. SCO means silver cadmium oxide, gold plated. Terminal material: brass with fused tin plating. Initial dielectric strength (@ 25°C and 50% R.H.): between all insulated points is 1500 Vrms, across contacts is 500 Vrms. Initial insulation resistance: 1000 megohms, min. (measured at 500 VDC). Expected contact mechanical life: 50 million operations. Expected contact electrical life: 100,000 operations at rated load. Initial contact resistance (max.): 100 milliohms (@ 6V, 1A). Maximum dissipation at coil @ 25°C: 2.0 watts. Coil pick-up, max.: 75% of nominal coil voltage for VG adjustment, 80% of nominal coil voltage for VF adjustment. Not designed for submersible cleaning.

Stk. No.	Type and Coil Voltage	Coil Resis.	Contact Rating	1-24	25-49	50-99	100-499
65F1011	49RE1C1VG-5DC-SIL	235	3A	2.65	2.39	2.12	1.86
65F1012	49RE1C1VG-6DC-SIL	340	3A	2.65	2.39	2.12	1.86
65F1013	49RE1C1VG-12DC-SIL	1350	3A	2.85	2.57	2.28	2.00
65F1014	49RE1C1VG-24DC-SIL	5400	3A	3.20	2.88	2.56	2.24
65F1015	49RE1C2VF-6DC-SIL	410	3A	2.65	2.39	2.12	1.86
65F1016	49RE1C2VF-12DC-SIL	1640	3A	2.85	2.57	2.28	2.00
65F1017	49RE1C2VF-24DC-SIL	6560	3A	3.20	2.88	2.56	2.24
65F1018	49R1C4VG-5DC-SIL	235	3A	2.90	2.61	2.32	2.03
65F1019	49R1C4VG-6DC-SIL	340	3A	2.90	2.61	2.32	2.03
65F1020	49R1C4VG-12DC-SIL	1350	3A	3.10	2.79	2.48	2.17
65F1021	49R1C4VG-24DC-SIL	5400	3A	3.45	3.11	2.76	2.42
65F1022	49RE1C1VG-5DC-SC0	235	5A	2.75	2.49	2.22	1.96
65F1023	49RE1C1VG-6DC-SC0	340	5A	2.75	2.49	2.22	1.96
65F1024	49RE1C1VG-12DC-SC0	1350	5A	2.95	2.67	2.38	2.10
65F1025	49RE1C1VG-24DC-SC0	5400	5A	3.30	2.98	2.66	2.34
65F1026	49RE1C2VF-6DC-SC0	410	5A	2.75	2.49	2.22	1.96
65F1027	49RE1C2VF-12DC-SC0	1640	5A	2.95	2.67	2.38	2.10
65F1028	49RE1C2VF-24DC-SC0	6560	5A	3.30	2.98	2.66	2.34
65F1029	49R1C4VG-5DC-SC0	235	5A	3.00	2.71	2.42	2.13
65F1030	49R1C4VG-6DC-SC0	340	5A	3.00	2.71	2.42	2.13
65F1031	49R1C4VG-12DC-SC0	1350	5A	3.20	2.89	2.58	2.27
65F1032	49R1C4VG-24DC-SC0	5400	5A	3.55	3.21	2.86	2.52

SOCKETS FOR SERIES 50

AD114

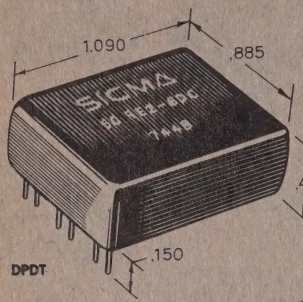
AD115

AD114. .173 dia. mounting holes. 1.688 on centers. Dimensions: 2.250 sq. x .625 H. **AD115.** .173 dia. mounting holes. 2.188 on centers. Dimensions: 2.563 sq. x .625 H. Series 50 sold on next page.

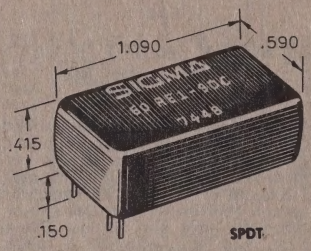
Stk. No.	Type	1-49	50-74	75-99	100-249
65F1033	AD114 (8 pins)	3.20	3.04	2.88	2.56
65F1034	AD115 (11 pins)	4.75	4.52	4.28	3.80

9

SERIES 60 LOW-PROFILE 2-AMP RELAY FOR PC BOARDS



- Low 0.415" Height
- Switches Up To 2 Amps



- Terminal Pins Can Be Safely Bent
- Case Seals Out Dirt And Solvents

Low-profile relay designed for high density PC board applications requiring a machine-solderable relay capable of switching higher currents than a reed relay. Can switch capacitive, lamp, and inductive loads that would weld the contacts of a reed relay, and can be operated from TTL-driver circuits. Available in both SPDT and DPDT models, with a choice of sensitive or standard coils. Uses standard 0.1" grid pin spacing. Ultrasonically welded polyester case protects the contacts against contaminants, and withstands normal vapors and sprays of most flux-cleaning solvents. Rugged terminal pins. Typical applications include: telephone switching equipment, alarm systems, business machines, control systems, communications equipment, and data processing equipment. Type No. Suffix represents Nominal coil VDC. UL/CSA approved.

SPDT—STANDARD COIL

Stk. No.	Type	Max. Cont. VDC	Pick-Up (max) VDC	Coil Res. Ohms	1-9	10-49	50-99	100-249
53F774	60RE1-5DC	7.3	3.8	43	3.00	2.70	2.40	2.10
53F800	60REI-6DC	8.2	3.9	47	3.00	2.70	2.40	2.10
53F801	60RE1-12DC	17	8.2	200	3.00	2.70	2.40	2.10
53F802	60RE1-24DC	37	17	950	3.15	2.84	2.52	2.21

SPDT—SENSITIVE COIL

Stk. No.	Type	Max. Cont. VDC	Pick-Up (max) VDC	Coil Res. Ohms	1-9	10-49	50-99	100-249
53F803	60RE1S-5DC	8.2	3.2	64	3.10	2.79	2.48	2.17
53F804	60RE1S-6DC	9.7	3.2	66	3.10	2.79	2.48	2.17
53F805	60RE1S-12DC	21	7.1	310	3.10	2.79	2.48	2.17
53F806	60RE1S-24DC	37	12.3	950	3.25	2.93	2.60	2.28

DPDT—STANDARD COIL

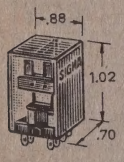
53F807	60RE2-5DC	7.5	3.6	32	3.90	3.51	3.12	2.73
53F808	60RE2-6DC	9	4.3	45	3.90	3.51	3.12	2.73
53F809	60RE2-12DC	17	8.3	170	3.90	3.51	3.12	2.73
53F810	60RE2-24DC	35	17	670	4.00	3.60	3.20	2.80

DPDT—SENSITIVE COIL

53F811	60RE2S-5DC	8.5	3.6	42	4.10	3.69	3.28	2.87
53F812	60RE2S-6DC	10	4.1	60	4.10	3.69	3.28	2.87
53F813	60RE2S-12DC	21	8.8	260	4.10	3.69	3.28	2.87
53F814	60RE2S-24DC	35	14	670	4.20	3.78	3.36	2.94

9

SERIES 77AC/DC, DPDT, 3PDT



Miniature relay for use in business machines, alarm systems, automatic toys, communication systems. Silver, gold-plated contacts provide 100,000 operations at 28VDC or 120VAC at 2 amp resistive load. Temp.: +14° to +150°F.

SOLDER TERMINALS

Stk. No.	Type No.	Resis. Ohms	Contacts	1-49	50-74	75-99
67F453	77R2-6DC	31	DPDT	3.10	2.95	2.79
38F1666	77R2-12DC	125	DPDT	3.10	2.95	2.79
38F1667	77R2-24DC	500	DPDT	3.10	2.95	2.79
67F454	77R3-6DC	31	3PDT	5.50	5.23	4.95
67F455	77R3-12DC	125	3PDT	5.50	5.23	4.95
38F1671	77R3-24DC	500	3PDT	5.50	5.23	4.95
38F1668	77R2-24AC	250	DPDT	4.15	3.95	3.74
38F1669	77R2-120AC	5750	DPDT	5.25	4.99	4.73
67F456	77R3-24AC	250	3PDT	5.55	5.28	5.00
67F457	77R3-120AC	5750	3PDT	6.70	6.37	6.03

PC TERMINALS

67F458	77RE2-6DC	31	DPDT	3.10	2.95	2.79
67F459	77RE2-12DC	125	DPDT	3.10	2.95	2.79
38F1670	77RE2-24DC	500	DPDT	3.10	2.95	2.79
67F460	77RE3-6DC	31	3PDT	5.50	5.23	4.95
67F461	77RE3-12DC	125	3PDT	5.50	5.23	4.95
67F462	77RE3-24DC	500	3PDT	5.50	5.23	4.95
67F463	77RE2-24AC	250	DPDT	4.15	3.95	3.74
67F464	77RE2-120AC	5750	DPDT	5.25	4.99	4.73
67F465	77RE3-24AC	250	3PDT	5.55	5.28	5.00
67F466	77RE3-120AC	5750	3PDT	6.70	6.37	6.03

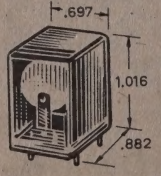
SOCKETS FOR SERIES 77 RELAY

Stk. No.	Type No.	Description	1-49	50-74	75-99
38F1608	AD82	Solder terminal sockets	1.40	1.33	1.26
38F1609	AD83	Printed circuit terminal sockets	1.60	1.52	1.44

SERIES 68 AC & DC—SPDT, DPDT, 3PDT RELAYS

Versatile low-cost, general purpose relay for production-line switching of light to medium power loads. Fast installation—.187" terminals. Contact rating 10 amps at 28 VDC/115 VAC. 5 x 10^5 operations. Nominal power AC 1-and 2-pole types, 2.1 VA; 3-pole types, 2.5 VA, DC, 1.2 w. Minimum operating temperature: −49°F. Maximum: AC 1- and 2-pole, +131°F; 3-pole, +113°F; DC, +158°F. Polycarbonate cover. 68R34 has flange mtg. SCO contacts. 2.900"h. U/L listed. Weight 2.7 oz.

Stock No.	Type Coil Volts	Coil Ohms	Action	1-49	50-74	75-99	100-249
24F3125	68R1-120AC-SCO	2250	SPDT	5.15	4.90	4.64	4.12
24F3126	68R1-12DC-SCO	120	SPDT	4.90	4.66	4.41	3.92
24F3127	68R1-24DC-SCO	470	SPDT	4.90	4.66	4.41	3.92
24F3128	68R2-120AC-SCO	2250	DPDT	6.25	5.94	5.63	5.00
24F3129	68R2-12DC-SCO	120	DPDT	5.60	5.32	5.04	4.48
24F3130	68R2-24DC-SCO	470	DPDT	5.60	5.32	5.04	4.48
24F3131	68R3-120AC-SCO	2000	3PDT	7.00	6.65	6.30	5.60
24F3132	68R3-12DC-SCO	120	3PDT	6.35	6.04	5.72	5.08
24F3133	68R3-24DC-SCO	470	3PDT	6.35	6.04	5.72	5.08
24F3134	68R34-120AC-SCO	2000	3PDT	7.00	6.65	6.30	5.60
24F3135	68R34-12DC-SCO	120	3PDT	6.35	6.04	5.72	5.08
24F3136	68R34-24DC-SCO	470	3PDT	6.35	6.04	5.72	5.08
24F3137	AD63 P.C. term socket			1.10	1.05	.99	.88
24F3138	AD62-Solder term. socket			1.00	.95	.90	.80



SERIES 78 AC/DC—SPDT

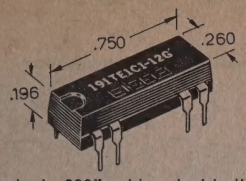
- For Printed Circuit Use
- Polypropylene Case
- Withstands solder flux and degreasing solvents

Subminiature relay for PC's. Life rated at a minimum of 100,000 operations at 3 amps, 28VDC/12VAC.

Stk. No.	Type No.	Nominal Volts	Ohms	1-99	100-249	250-499
67F479	78RE1-6DC	6DC	100	1.75	1.67	1.58
38F1672	78RE1-12DC	12DC	400	1.75	1.67	1.58
38F1673	78RE1-24DC	24DC	1600	2.10	2.00	1.89
38F1674	78RE1-120AC	120AC	5500	3.10	2.95	2.79

Reed and General Purpose Relays

SIGMA

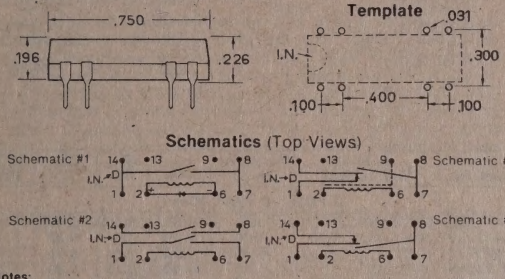


SERIES 191 REED RELAYS

- **Form A — One or Two Pole**
- **Form C — One Pole**

Standard .300″ wide, dual-in-line packaged reed relays. Best suited for test and computer peripheral equipment. Operating Time: 1.0 milliseconds maximum at nominal coil voltage. Isolation Resistance: 10^9 ohms min. Internal coil suppression diode and electrostatic shielding optional. Contacts 1A, 0.5A, 100V DC, 40W., 1B, 0.5A, 50V DC, 10W., 2A, 0.25A, 28V DC, 3W.

Mechanical Data

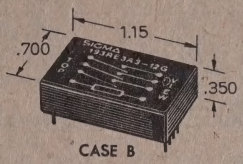


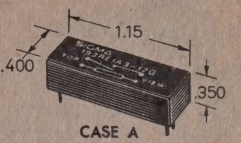
Notes:
1. Diode, when furnished, is connected as shown in Schematic #1.
2. Electrostatic shield, when furnished, is as shown by the dotted line in Schematic #3.

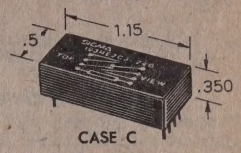
Stock No.	Mfr's. Type & Nom. VDC	Resis. Ohms	Con-tacts	Schem. Diagram	1-49	50-74	75-99
38F1675	191TE1A1-5S	500	1A	1			
38F1676	191TE1A1-5G	200	1A	1			
38F1677	191TE1A1-6S	500	1A	1			
38F1678	191TE1A1-6G	200	1A	1	3.30	3.14	2.97
38F1679	191TE1A1-12G	1,250	1A	1			
38F1680	191TE1A1-12L	500	1A	1			
23F5170	191TE1A1-24W	1,250	1A	1			
23F5171	191TE1A2-5S	500	1A	1			
23F5172	191TE1A2-12G	1,250	1A	1			
23F5173	191TE1A2-24W	1,250	1A	1	3.85	3.66	3.47
23F5174	191TE1A5-5S	500	1A	1			
23F5175	191TE1A5-12G	1,250	1A	1			
23F5176	191TE1A5-24W	1,250	1A	1			
23F5177	191TE1A6-5S	500	1A	1			
23F5178	191TE1A6-12G	1,250	1A	1	4.40	4.18	3.96
23F5179	191TE1A6-24W	1,250	1A	1			
38F1682	191TE1C1-5S	200	1C	3			
38F1683	191TE1C1-5G	150	1C	3			
38F1684	191TE1C1-6S	200	1C	3			
38F1685	191TE1C1-6G	150	1C	3	5.00	4.75	4.50
38F1686	191TE1C1-12G	500	1C	3			
53F860	191TE1C1-24L	1,250	1C	3			
23F5180	191TE1C1M-5S	200	1C	4			
23F5181	191TE1C1M-5G	150	1C	4			
23E5182	191TE1C1M-6S	200	1C	4	5.25	4.99	4.73
23F5183	191TE1C1M-6G	150	1C	4			
23F5184	191TE1C1M-12G	500	1C	4			
23F5185	191TE1C1M-24L	1,250	1C	4			
23F5189	191TE1C2M-5S	200	1C	4			
23F5190	191TE1C2M-12G	500	1C	4			
23F5191	191TE1C2M-24L	1,250	1C	4			
23F5186	191TE1C2-5S	200	1C	3			
23F5187	191TE1C2-12G	500	1C	3			
23F5188	191TE1C2-24L	1,250	1C	3	5.80	5.51	5.22
23F5195	191TE1C5M-5S	200	1C	4			
23F5196	191TE1C5M-12G	500	1C	4			
23F5197	191TE1C5M-24L	1,250	1C	4			
23F5192	191TE1C5-5S	200	1C	3			
23F5193	191TE1C5-12G	500	1C	3			
23F5194	191TE1C5-24L	1,250	1C	3			
23F5201	191TE1C6M-5S	200	1C	4			
23F5202	191TE1C6M-12G	500	1C	4			
23F5203	191TE1C6M-24L	1,250	1C	4	6.35	6.04	5.72
23F5198	191TE1C6-5S	200	1C	3			
23F5199	191TE1C6-12G	500	1C	3			
23F5200	191TE1C6-24L	1,250	1C	3			
38F1681	191TE2A1-5G	200	2A	2			
53F857	191TE2A1-6G	200	2A	2	6.10	5.80	5.49
53F858	191TE2A1-12G	500	2A	2			
53F859	191TE2A1-24L	1,200	2A	2			

SERIES 193 REED RELAYS

- **26 Contact Combinations**
- **Magnetically Shielded for Minimum interaction**

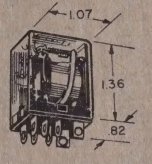




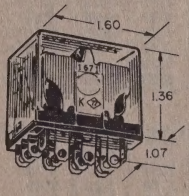


Enclosed reed relays. SPST thru 3PST, SPDT thru 3PDT. Form A capsules for single throw switching; Form C for double throw switching. Printed circuit type pin contacts are on 1.000″ x 0.100″ PC grid spacing. Magnetically shielded for minimum interaction and housed in a molded plastic case. All have standoffs. Contact Rating: 0.5 amp. 100V DC, max. 10W, max.

Stock No.	Mfr's. Type	Case	Coil Ohms	Con-tacts	1-49	50-74	75-99
53F820	193RE1A3-6G	A	100	1A	3.55	3.38	3.20
45F330	193RE1A3-12G	A	420	1A	3.55	3.38	3.20
45F337	193RE1A3-24G	A	2300	1A	3.55	3.38	3.20
53F821	193RE1C3-6G	A	100	1C	5.95	5.66	5.36
45F331	193RE1C3-12G	A	420	1C	5.95	5.66	5.36
45F338	193RE1C3-24G	A	2300	1C	5.95	5.66	5.36
53F822	193RE2A3-6G	B	70	2A	4.60	4.37	4.14
45F332	193RE2A3-12G	B	280	2A	4.60	4.37	4.14
45F339	193RE2A3-24G	B	1500	2A	4.60	4.37	4.14
53F823	193RE2C3-6G	B	70	2C	7.95	7.56	7.16
45F333	193RE2C3-12G	B	280	2C	7.95	7.56	7.16
45F340	193RE2C3-24G	B	1500	2C	7.95	7.56	7.16
53F824	193RE3A3-6G	C	30	3A	5.30	5.04	4.77
53F825	193RE3A3-12G	C	120	3A	5.30	5.04	4.77
53F826	193RE3A3-24G	C	640	3A	5.30	5.04	4.77
53F727	193RE3C3-6G	C	30	3C	11.10	10.55	9.99
53F828	193RE3C3-12G	C	120	3C	11.10	10.55	9.99
53F829	193RE3C3-24G	C	640	3C	11.10	10.55	9.99



SERIES 76 AC/DC —DPDT, 4PDT



- **Handles 10 Amp Resistive Loads in 1¼ cu. inches**
- **100K Operations Electrical Life**

Compact relay for heavy duty industrial or consumer applications. Provides multipole switching of resistive loads up to 10 amps each pole at 120 VAC. Temperature range: −40°F. to +131°F. AC and +158°F. DC. UL/CSA approved.

Stk. No.	Type No.	Resis. Ohms	Contacts	1-49	50-74	75-99
67F474	76R2-6DC-SCO	40	DPDT	5.50	5.23	4.95
38F1661	76R2-12DC-SCO	160	DPDT	5.50	5.23	4.95
38F1662	76R2-24DC-SCO	650	DPDT	5.50	5.23	4.95
67F475	76R4-6DC-SCO	25	4PDT	7.50	7.13	6.75
67F476	76R4-12DC-SCO	100	4PDT	7.50	7.13	6.75
38F1664	76R4-24DC-SCO	350	4PDT	7.50	7.13	6.75
67F477	76R2-24AC-SCO	160	DPDT	6.20	5.89	5.58
38F1663	76R2-120AC-SCO	3900	DPDT	6.80	6.46	6.12
67F478	76R4-24AC-SCO	78	4PDT	8.10	7.70	7.29
38F1665	76R4-120AC-SCO	2400	4PDT	9.15	8.70	8.24

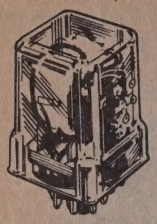
SOCKETS FOR SERIES 76 RELAY

Stk. No.	Type No.	Description	1-49	50-74	75-99
38F1606	AD127	Solder terminal socket for DPDT	1.10	1.05	.99
38F1607	AD128	Solder terminal socket for 4PDT	1.10	1.05	.99
38F1610	AD129	PC terminal socket for DPDT	1.65	1.57	1.49
38F1611	AD130	PC terminal socket for 4PDT	1.65	1.57	1.49

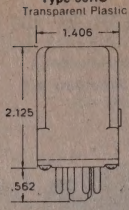
9

SIGMA

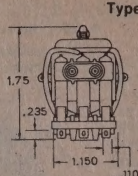
General Purpose Relays

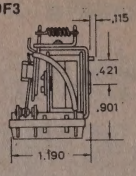


Type 50RO
Transparent Plastic

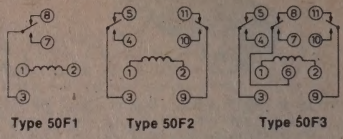


Type 50F3





Connection Diagrams (Bottom Views)



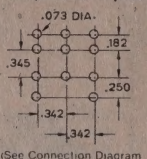
Type 50F1 Type 50F2 Type 50F3

OPEN & ENCLOSED MODELS
HIGH DIELECTRIC STRENGTH
5 & 10 AMPS

TYPE 50 SPECIFICATIONS

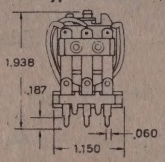
"RO" types are enclosed with plug terminals.
"F" types are open with solder terminals.
"FP" types are open with p.c. terminals.
Contacts: 5 or 10 amps @ 28 VDC or 120 VAC, initial resist. 50 mohms. **General:** operate time 30 msec., release time 20 msec. Temp. range: open type-AC −45 to +70 C; DC −45 to +85 C. enclsd type-AC −10 to +55 C; DC −45 to +70 C. **WT:** 2.3 —3.6 oz.

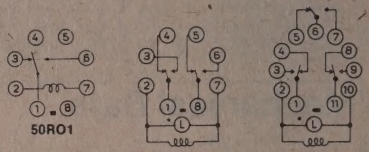
Template for 3 pole



(See Connection Diagram for 1 and 2 pole)

Type 50FP3





50RO1 50ROL2 & 50JO2 50ROL3 & 50JO3

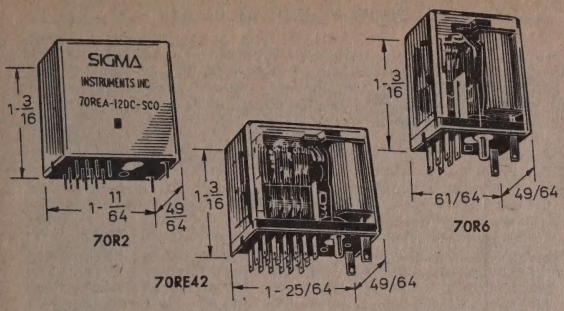
Stock No.	Type & Coil Voltage	Coil Resist. (ohms)	1-49	50-74	75-99	100-249
SINGLE POLE 5 AMP.						
23F5205	50RO1-24AC	85	8.45	8.03	7.61	6.76
23F5232	50F1-24AC	85	4.70	4.47	4.23	3.76
23F5272	50FP1-24AC	85	4.80	4.56	4.32	3.84
23F5206	50RO1-120AC	2250	8.45	8.03	7.61	6.76
23F5233	50F1-120AC	2250	4.80	4.56	4.32	3.84
23F5273	50FP1-120AC	2250	4.80	4.56	4.32	3.84
23F5207	50RO1-12DC	120	8.15	7.75	7.34	6.80
23F5234	50FI-12DC	120	4.70	4.47	4.23	3.76
23F5274	50FP1-12DC	120	4.70	4.47	4.23	3.76
23F5208	50RO1-24DC	472	8.15	7.75	7.34	6.52
23F5235	50F1-24DC	472	4.70	4.47	4.23	3.76
23F5275	50FP1-24DC	472	4.70	4.47	4.23	3.76
SINGLE POLE 10 AMP.						
23F5211	50RO1-12AC-SCO	21	8.50	8.08	7.65	6.80
23F5238	50F1-12AC-SCO	21	4.85	4.61	4.37	3.88
23F5278	50FP1-12AC-SCO	21	4.85	4.61	4.37	3.88
23F5212	50RO1-24AC-SCO	85	8.50	8.08	7.65	6.80
23F5239	50F1-24AC-SCO	85	4.85	4.61	4.37	3.88
23F5279	50FP1-24AC-SCO	85	4.85	4.61	4.37	3.88
23F5213	50RO1-120AC-SCO	2250	8.50	8.08	7.65	6.80
23F5240	50F1-120AC-SCO	2250	4.85	4.61	4.37	3.88
23F5280	50FP1-120AC-SCO	2250	4.85	4.61	4.37	3.88
23F5214	50RO1-12DC-SCO	120	8.20	7.79	7.38	6.56
23F5241	50F1-12DC-SCO	120	4.75	4.52	4.28	3.80
23F5281	50FP1-12DC-SCO	120	4.75	4.52	4.28	3.80
38F1623	50RO1-24DC-SCO	472	8.20	7.79	7.38	6.56
23F5242	50F1-24DC-SCO	472	4.75	4.52	4.28	3.80
23F5282	50FP1-24DC-SCO	472	4.75	4.52	4.28	3.80
23F5215	50RO1-48DC-SCO	1800	8.20	7.79	7.38	6.56
23F5243	50F1-48DC-SCO	1800	4.75	4.52	4.28	3.80
23F5283	50FP1-48DC-SCO	1800	4.75	4.52	4.28	3.80
23F5216	50RO1-110DC-SCO	10000	8.85	8.41	7.97	7.08
23F5244	50F1-110DC-SCO	10000	5.50	5.23	4.95	4.40
23F5284	50FP1-110DC-SCO	10000	5.50	5.23	4.95	4.40
2 POLE 5 AMP.						
38F1640	50RO2-24AC	85	9.25	8.79	8.33	7.40
23F5246	50F2-24AC	85	5.90	5.61	5.31	4.72
23F5286	50FP2-24AC	85	5.90	5.61	5.31	4.72
23F5218	50RO2-120AC	2250	9.25	8.79	8.33	7.40
23F5247	50F2-120AC	2250	5.90	5.61	5.31	4.72
23F5287	50FP2-120AC	2250	5.90	5.61	5.31	4.72
23F5219	50RO2-12DC	120	9.20	8.74	8.28	7.36
23F5248	50F2-12DC	120	5.30	5.04	4.77	4.24
23F5288	50FP2-12DC	120	5.30	5.04	4.77	4.24
23F5220	50RO2-24DC	472	9.20	8.74	8.28	7.36
23F5249	50F2-24DC	472	5.30	5.04	4.77	4.24
23F5289	50FP2-24DC	472	5.30	5.04	4.77	4.24
23F5222	50RO2-110DC	10000	9.85	9.36	8.87	7.88
23F5251	50F2-110DC	10000	6.05	5.75	5.45	4.84
23F5291	50FP2-110DC	10000	6.05	5.75	5.45	4.84
2 POLE 10 AMP.						
23F5252	50F2-12AC-SCO	21	6.00	5.70	5.40	4.80
23F5292	50FP2-12AC-SCO	21	6.00	5.70	5.40	4.80
23F5253	50F2-24AC-SCO	85	6.00	5.70	5.40	4.80
23F5293	50FP2-24AC-SCO	85	6.00	5.70	5.40	4.80
23F5254	50F2-120AC-SCO	2250	6.00	5.70	5.40	4.80
23F5294	50FP2-120AC-SCO	2250	6.00	5.70	5.40	4.80
24F2705	50RO2-12AC-SCO	21	9.35	8.89	8.42	7.48
24F2706	50RO2-24AC-SCO	85	9.35	8.89	8.42	7.48
24F2707	50RO2-120AC-SCO	2250	9.35	8.89	8.42	7.48
24F2709	50RO2-12DC-SCO	120	9.30	8.84	8.37	7.44

Stock No.	Type & Coil Voltage	Coil Resist. (ohms)	1-49	50-74	75-99	100-249
2 POLE 10 AMP. (Cont.)						
24F2710	50RO2-24DC-SCO	472	9.30	8.84	8.37	7.44
24F2019	50RO2-48DC-SCO	1800	9.30	8.84	8.37	7.44
24F2711	50RO2-110DC-SCO	10000	9.95	9.46	8.96	7.96
23F5255	50F2-12DC-SCO	120	5.40	5.13	4.86	4.32
23F5295	50FP2-12DC-SCO	120	5.40	5.13	4.86	4.32
23F5256	50F2-24DC-SCO	472	5.40	5.13	4.86	4.32
23F5296	50FP2-24DC-SCO	472	5.40	5.13	4.86	4.32
23F5257	50F2-48DC-SCO	1800	5.40	5.13	4.86	4.32
23F5294	50FP2-48DC-SCO	1800	5.40	5.13	4.86	4.32
23F5258	50F2-110DC-SCO	10000	6.15	5.85	5.54	4.92
23F5298	50FP2-110DC-SCO	10000	6.15	5.85	5.54	4.92
3 POLE 5 AMP.						
23F5224	50RO3-24AC	85	10.80	10.26	9.72	8.64
38F1632	50F3-24AC	85	6.50	6.18	5.85	5.20
23F5307	50FP3-24AC	85	6.50	6.18	5.85	5.20
38F1642	50RO3-120AC	2250	10.80	10.26	9.72	8.64
38F1633	50F3-120AC	2250	6.50	6.18	5.85	5.20
23F5308	50FP3-120AC	2250	6.50	6.18	5.85	5.20
23F5225	50RO3-12DC	120	10.60	10.07	9.54	8.48
23F5260	50F3-12DC	120	6.00	5.70	5.40	4.80
23F5302	50FP3-12DC	120	6.00	5.70	5.40	4.80
23F5226	50RO3-24DC	472	10.60	10.07	9.54	8.48
23F5262	50F3-24DC	472	6.00	5.70	5.40	4.80
23F5303	50FP3-24DC	472	6.00	5.70	5.40	4.80
3 POLE 10 AMP.						
23F5229	50RO3-12AC-SCO	21	10.95	10.41	9.86	8.76
23F5264	50F3-12AC-SCO	21	6.65	6.32	5.99	5.32
23F5306	50FP3-12AC-SCO	21	6.65	6.32	5.99	5.32
23F5265	50F3-24AC-SCO	85	6.65	6.32	5.99	5.32
23F5307	50FP3-24AC-SCO	85	6.65	6.32	5.99	5.32
23F5266	50F3-120AC-SCO	2250	6.65	6.32	5.99	5.32
24F2714	50RO3-24AC-SCO	85	10.95	10.41	9.86	8.76
24F2715	50RO3-120AC-SCO	2250	10.95	10.41	9.86	8.76
24F2717	50RO3-12DC-SCO	120	10.75	10.22	9.68	8.60
24F2718	50RO3-24DC-SCO	472	10.75	10.22	9.68	8.60
24F2719	50RO3-110DC-SCO	10000	11.45	10.88	10.31	9.16
23F5308	50FP3-120AC-SCO	2250	6.65	6.32	5.99	5.32
23F5267	50F3-12DC-SCO	120	6.15	5.85	5.54	4.92
23F5309	50FP3-12DC-SCO	120	6.15	5.85	5.54	4.92
23F5268	50F3-24DC-SCO	472	6.15	5.85	5.54	4.92
23F5310	50FP3-24DC-SCO	472	6.15	5.85	5.54	4.92
23F5230	50RO3-48DC-SCO	1800	10.75	10.22	9.68	8.60
23F5269	50F3-48DC-SCO	1800	6.15	5.85	5.54	4.92
23F5311	50FP3-48DC-SCO	1800	6.15	5.85	5.54	4.92
23F5270	50F3-110DC-SCO	10000	6.70	6.37	6.03	5.36
23F5312	50FP3-110DC-SCO	10000	6.70	6.37	6.03	5.36
UNITS WITH INDICATING LIGHT 10 AMP.						
23F5313	50ROL2-24DC-SCO	450	10.70	10.17	9.63	8.56
23F5314	50ROL3-120AC-SCO	2250	12.25	11.64	11.03	9.80
24F3139	50ROL2-120AC-SCO	2250	10.75	10.22	9.68	8.60
23F5315	50ROL3-24DC-SCO	450	12.15	11.55	10.94	9.72
HERMETICALLY SEALED (*) 2 POLE AND (**) 3 POLE						
23F5204	50JO2-12DC-SCO*	120	23.10	21.95	20.79	18.48
23F5209	50JO2-24DC-SCO*	472	23.10	21.95	20.79	18.48
23F5210	50JO2-120AC-SCO*	2250	23.65	22.47	21.29	18.90
23F5217	50JO3-12DC-SCO**	120	27.30	25.94	24.57	21.84
23F5221	50JO3-24DC-SCO**	472	27.30	25.94	24.57	21.84
23F5223	50JO3-120DC-SCO**	2250	27.85	26.46	25.07	22.28

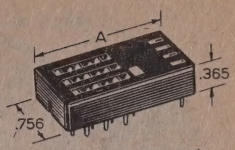
9

General Purpose Series 70 Relays

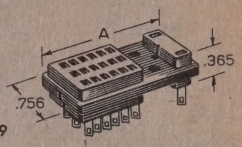
SIGMA



Socket	Dim. A
AD117	.944
AD118	1.172
AD119	1.378
AD120	.940
AD121	1.168
AD122	1.372



AD120, 121, 122



AD117, 118, 119

Miniature industrial relay for low-level to 5 amp multiple-circuit switching. Choice of voltage adjusted (with either standard or bifurcated contacts) or current sensitive adjusted. Voltage adjusted types with bifurcated contacts rated at 50 million operations. Sensitive current adjusted types pick up from signals as low as 10 mW. Choice of solder or printed circuit terminal sockets, for fast, easy connection. Typical applications include use in communications and data processing equipment, measuring instruments, process controls, recording devices, and alarm systems. Temp.: −67° F to ±158°F.

SOLDER AND PC TERMINAL SOCKETS

Stk. No.	Type No.	Description	1-9	10-49	50-99
38F1600	AD117	Solder terminal socket for DPDT	.75	.68	.60
38F1601	AD118	Solder terminal socket for 4PDT	.85	.77	.68
38F1602	AD119	Solder terminal socket for 6PDT	1.15	1.04	.92
38F1603	AD120	PC terminal socket for DPDT	.75	.68	.60
38F1604	AD121	PC terminal socket for 4PDT	.85	.77	.68
38F1605	AD122	PC terminal socket for 6PDT	1.15	1.04	.92

SOLDER TERMINALS, VOLTAGE ADJUSTED

2 AMPS—Standard Contacts

Stk. No.	Type No.	Con-tacts	Coil Ohms	Nominal Power	1-9	10-49	50-99
67F535	70R2-12DC	DPDT	185	800mW	4.15	3.74	3.32
38F1647	70R2-24DC	DPDT	700	800mW	4.15	3.74	3.32
67F536	70R2-110DC	DPDT	15,000	800mW	6.00	5.40	4.80
38F1650	70R4-12DC	4PDT	185	800mW	4.60	4.14	3.68
38F1651	70R4-24DC	4PDT	700	800mW	4.60	4.14	3.68
67F537	70R4-110DC	4PDT	15,000	800mW	6.55	5.90	5.24
67F538	70R6-12DC	6PDT	90	1.6 W	5.90	5.31	4.72
38F1654	70R6-24DC	6PDT	430	1.4 W	5.90	5.31	4.72
67F539	70R6-110DC	6PDT	9,000	1.5 W	7.40	6.66	5.92

5 AMPS—Standard Silver Cadmium Oxide Contacts

38F1648	70R2-12DC	DPDT	185	800mW	4.15	3.74	3.32
38F1649	70R2-24DC	DPDT	700	800mW	4.15	3.74	3.32
67F540	70R2-110DC	DPDT	15,000	800mW	6.00	5.40	4.80
38F1652	70R4-12DC	4PDT	185	800mW	4.60	4.14	3.68
38F1653	70R4-24DC	4PDT	700	800mW	4.60	4.14	3.68
67F580	70R4-110DC	4PDT	15,000	800mW	6.55	5.90	5.24
67F581	70R6-12DC	6PDT	90	1.6 W	5.90	5.31	4.72
67F582	70R6-24DC	6PDT	430	1.4 W	5.90	5.31	4.72
67F583	70R6-110DC	6PDT	9,000	1.5 W	7.40	6.66	5.92

2 AMP—Bifurcated Contacts

67F584	70R2T-12DC	DPDT	185	700mW	4.75	4.28	3.80
67F585	70R2T-24DC	DPDT	700	700mW	4.75	4.28	3.80
67F587	70R4T-12DC	4PDT	185	700mW	5.30	4.77	4.24
67F588	70R4T-24DC	4PDT	700	700mW	5.30	4.77	4.24
67F450	70R6T-12DC	6PDT	90	1.4 W	6.75	6.08	5.40
67F451	70R6T-24DC	6PDT	430	1.4 W	6.75	6.08	5.40

PC TERMINALS, CURRENT ADJUSTED

2 AMPS—Standard Contacts

Stk. No.	Type No.	Coil Ohms	Nominal Power	1-9	10-49	50-99
67F471	70RE22-12DC	185	700mW	4.15	3.74	3.32
67F511	70RE22-24DC	700	700mW	4.15	3.74	3.32
67F512	70RE22-110DC	15,000	700mW	6.00	5.40	4.80
67F513	70RE42-12DC	185	700mW	4.60	4.14	3.68
67F514	70RE42-24DC	700	700mW	4.60	4.14	3.68
67F515	70RE42-110DC	15,000	700mW	6.55	5.90	5.24
67F516	70RE62-12DC	90	1.4 W	5.90	5.31	4.72
67F517	70RE62-24DC	430	1.4 W	5.90	5.31	4.72
67F518	70RE62-110DC	9,000	1.4 W	7.40	6.66	5.92

5 AMP—Standard Silver Cadmium Oxide Contacts

67F519	70RE22-12DC	185	700mW	4.15	3.74	3.32
67F520	70RE22-24DC	700	700mW	4.15	3.74	3.32
67F521	70RE22-110DC	15,000	700mW	6.00	5.40	4.80
67F522	70RE42-12DC	185	700mW	4.60	4.14	3.68
67F523	70RE42-24DC	700	700mW	4.60	4.14	3.68
67F524	70RE42-110DC	15,000	700mW	6.55	5.90	5.24
67F525	70RE62-12DC	80	1.4 W	5.90	5.31	4.72
67F526	70RE62-24DC	430	1.4 W	5.90	5.31	4.72
67F527	70RE62-110DC	9,000	1.4 W	7.40	6.66	5.92

2 AMP—Bifurcated Contacts

67F528	70RE22T-12DC	185	700mW	4.75	4.28	3.80
67F529	70RE22T-24DC	700	700mW	4.75	4.28	3.80
67F531	70RE42T-12DC	185	700mW	5.30	4.77	4.24
67F532	70RE42T-24DC	700	700mW	5.30	4.77	4.24
67F534	70RE62T-12DC	90	1.4 W	6.75	6.08	5.40
67F472	70RE62T-24DC	430	1.4 W	6.75	6.08	5.40

SOLDER TERMINAL, SENSITIVE VERSION

1 AMP CURRENT SENSITIVE TYPES

Stk. No.	Type	Con-tacts	Coil Ohms	Pickup Power mW	1-9	10-49	50-99
38F1655	70R2S-2500	DPDT	2500	85	4.60	4.14	3.68
38F1656	70R2S-5000	DPDT	5000	85	5.10	4.59	4.08
38F1657	70R2S-10,000	DPDT	10K	85	5.60	5.04	4.48
38F1658	70R4S-2500	4PDT	2500	175	5.10	4.59	4.08
38F1659	70R4S-5000	4PDT	5000	175	5.60	5.04	4.48
38F1660	70R4S-10,000	4PDT	10K	175	6.15	5.54	4.92

1 AMP SUPER CURRENT SENSITIVE

53F753	70R2H-1000	DPDT	1000	40	5.25	4.73	4.20
53F754	70R2H-2500	DPDT	2500	40	5.25	4.73	4.20
53F755	70R2H-5000	DPDT	5000	40	5.85	5.27	4.68
53F756	70R4H-1000	4PDT	1000	80	6.50	5.85	5.20
53F757	70R4H-2500	4PDT	2500	80	6.50	5.85	5.20
53F758	70R4H-5000	4PDT	5000	80	7.20	6.48	5.76

1 AMP SUPER VOLTAGE SENSITIVE

53F759	70R2VH-6DC	DPDT	500	40	5.25	4.73	4.20
53F760	70R2VH-12DC	DPDT	2000	40	5.25	4.73	4.20
53F761	70R2VH-24DC	DPDT	7500	40	5.85	5.27	4.68
53F762	70R4VH-6DC	4PDT	250	80	6.50	5.85	5.20
53F763	70R4VH-12DC	4PDT	1000	80	6.50	5.85	5.20
53F764	70R4VH-24DC	4PDT	3700	80	7.20	6.48	5.76

1 AMP VOLTAGE SENSITIVE

Stk. No.	Type	Con-tacts	Coil Ohms	Pickup Power mW	1-9	10-49	50-99
53F765	70R2VS-6-DC	DPDT	200	100	4.60	4.14	3.68
53F766	70R2VS-12DC	DPDT	800	100	5.10	4,59	4.08
53F767	70R2VS-24DC	DPDT	3200	100	5.60	5.04	4.48
53F768	70R4VS-6DC	4PDT	110	175	5.10	4.59	4.08
53F769	70R4VS-12DC	4PDT	450	175	5.60	5.04	4.48
53F770	70R4VS-24DC	4PDT	1800	175	6.15	5.54	4.92
53F771	70R6VS-6DC	6PDT	80	250	6.50	5.85	5.20
53F772	70R6VS-12DC	6PDT	320	250	7.20	6.48	5.76
53F773	70R6VS-24DC	6PDT	1200	250	7.75	6.98	6.20

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9

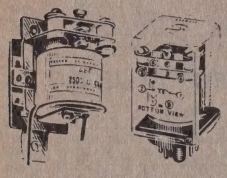
Sensitive Relays

SERIES 4—SPDT DC RELAYS

For vacuum tube and transistor drives; and applications requiring high dropout or narrow differential. Ideal for circuits where energizing current does not drop to zero. Pickup power, 20 mW. Contact rating 2 amps at 28 VDC/120 VAC resistive. Temperature range, +32 to +122°F. **4F:** unenclosed, screw mounting, solder terminals. Shpg. wt. 2¼ oz. **4R:** UL listed for use in burglary protection equipment. Dust cover, 5-pin plug. Shpg. wt. 3¾ oz.

Stock No.	Type & Coil Ohms	Pickup Max. mA	Dropout Min. mA	1-49	50-74	75-99	100-249
24F352	4F-1000S-SIL	4.5	2.0	13.45	12.78	12.11	10.76
24F353	4F-2500S-SIL	3.0	1.3	13.45	12.78	12.11	10.76
24F354	4F-5000S-SIL	2.0	.90	14.10	13.40	12.69	11.28
24F350	4F-8000S-SIL	1.6	.75	14.65	13.92	13.19	11.72
24F1700	4F-10,000S-SIL	1.4	.65	14.65	13.92	13.19	11.72
24F2770	4R-1000S-SIL	4.5	2.0	20.25	19.24	18.23	16.20
24F2771	4R-5000S-SIL	2.0	.90	18.95	18.01	17.06	15.16
24F2772	4R-8000S-SIL	1.6	.75	19.45	18.48	17.51	15.56

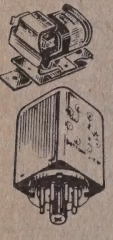
SERIES 48—SPST DC RELAYS



For alarm systems requiring operation from 10 mW. Bridge type contact. Compliant armature. Contact rating: 2 amp; Temp: −4 to +158°F. **48F:** unenclosed, screw mounting, solder terminals, 1 17/64 x 2 9/32 x 1 7/16". Shpg. wt. 3 oz. **48RO:** Plastic dust cover, 8 pin octal plug. 1 23/64 sq. x 2 7/64". UL-CSA listed. Shpg. wt. 4 oz.

Stock No.	Type & Coil Ohms	Pick.up Max. mA	Dropout Min. mA	1-49	50-74	75-99	100-249
24F2779	48F-1000G-SIL	3.2	.32	11.55	10.98	10.40	9.24
24F2780	48F-2500G-SIL	2.0	.2	11.55	10.98	10.40	9.24
24F2783	48RO-1000G-SIL	3.2	.32	13.40	12.73	12.06	10.72
24F2784	48RO-2500G-SIL	2.0	.2	13.40	12.73	12.06	10.72

SERIES 41—AC & DC—SPDT



Industrial relay. Operates from on-off AC/DC signals. Adjustment S: 40 mW; ACS: 2 VA; ACG: .4 VA. Contact rating: ACG, 5 amps at 28 VDC/120 VAC: S, ACS: 2 amps. Temp. range, −67 to +185°F, except plastic covers, to +158°F. All UL/CSA listed. **41F, 41FZ:** unenclosed, screw mtg., solder terminals. **41RO, 41ROZ:** aluminum dust cover, 8-pin. **41RO6:** Plastic dust cover, 8-pin. **41JOZ:** Hermetically sealed, 8-pin. **41R, 41RZ:** Dust cover, 5-pin. Wts: enclosed, 5½ oz.; unenclosed, 2½ oz. Pickup power, 200 mW; contact rating 10 amps.

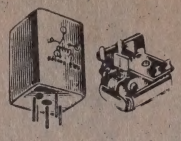
AC TYPES

Stock No.	Type & Coil Ohms	Nom. Volts	1-49	50-74	75-99	100-249
24F3164	41FZ-200ACG-BSL	24	8.55	8.13	7.70	6.84
24F369	41FZ-5000ACG-BSL	120	8.55	8.13	7.70	6.84
53F775	41JOZ-10,000ACS-SIL	120	25.85	24.56	23.27	20.68
24F2787	41JOZ-12,000ACS-SIL	120	26.65	25.32	23.99	21.32
24F2788	41ROZ-5,000ACG-BSL	120	13.00	12.35	11.70	10.40
24F2789	41RZ-5,000ACG-BSL	120	12.15	11.55	10.94	9.72

DC TYPES

Stock No.	Type & Coil Ohms	Nom. Volts	1-49	50-74	75-99	100-249
24F2790	41F-200S-SIL	6	9.40	8.93	8.46	7.52
24F2791	41F-500S-SIL	..	9.40	8.93	8.46	7.52
24F1714	41F-1,000S-SIL	12	9.40	8.93	8.46	7.52
24F2792	41F-5,000S-SIL	24	9.75	9.27	8.78	7.80
24F1747	41F-10,000S-SIL	..	10.45	9.93	9.41	8.36
53F777	41F-200G-BSL	12	8.55	8.13	7.70	6.84
53F778	41F-1,000G-BSL	24	8.55	8.13	7.70	6.84
24F3169	41R-5,000S-SIL	24	13.85	13.16	12.47	11.08
53F781	41R-8,000S-SIL	..	14.40	13.68	12.96	11.52
24F1716	41RO-1,000S-SIL	12	14.10	13.40	12.69	11.28
53F782	41RO-2,500 S-SIL	..	14.10	13.40	12.69	11.28
24F2793	41RO-5,000 S-SIL	24	14.70	13.97	13.23	11.76
24F2794	41RO-10,000 S-SIL	..	15.10	14.35	13.59	12.08
24F2795	41RO6-1,000 S-SIL	12	13.35	12.69	12.02	10.68
24F2796	41RO6-2,500 S-SIL	..	13.35	12.69	12.02	10.68
24F2797	41RO6-5,000 S-SIL	24	13.85	13.16	12.47	11.08

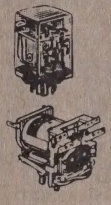
SERIES 5—SPDT DC RELAY



Sensitive type for overload-underload detection. Withstands overloads of 30:1. Contact ratings: S: 1 amp; SS, .25 amp. Temp.: S: −40 to +158°F; SS, +50 to 140°F. **5F:** Unenclosed, screw mtg., solder terminals. Wt., 4½ oz. **5JO:** hermetically sealed; 8-pin plug. Wt. 7½ oz. **5R:** dust cover; 5-pin plug. **5RO;** 8-pin. Wt. 5¾ oz.

Stock No.	Type & Coil Ohms	Pickup Max. mA	Dropout Min. mA	1-49	50-74	75-99	100-249
24F355	5F-1,000 S-SIL	2.3	.80	18.50	17.58	16.65	14.80
24F357	5F-5,000 S-SIL	1.0	.40	19.75	18.77	17.78	15.80
24F2774	5F-1,000 SS-PAL	1.0	.40	27.60	26.22	24.84	22.08
53F785	5JO-2,500 S-SIL	1.4	.50	33.80	32.11	30.42	27.04
53F787	5JO-10,000 S-SIL	.70	.25	36.85	35.01	33.17	29.48
53F788	5JO-16,000 S-SIL	.55	.20	38.95	37.01	35.06	31.16
24F2778	5R-5,000 S-SIL	1.0	.40	26.20	24.89	23.58	20.96
24F1742	5R-10,000 S-SIL	.70	.25	28.30	26.89	25.47	22.64
24F1743	5R-16,000 S-SIL	.55	.20	28.30	26.89	25.47	22.64
53F789	5R-1,000 SS-PAL	1.0	.40	32.40	30.78	29.16	25.92
53F790	5R-10,000 SS-PAL	.30	.13	35.75	33.97	32.18	28.60
24F3174	5RO-1,000 S-SIL	2.3	.80	25.10	23.85	22.59	20.08
53F791	5RO-2,500 S-SIL	1.4	.50	25.10	23.85	22.59	20.08
53F792	5RO-5,000 S-SIL	1.0	.40	26.20	24.89	23.58	20.96
24F3177	5RO-10,000 S-SIL	.70	.25	28.30	26.89	25.47	22.64
53F793	5RO-16,000 S-SIL	.55	.20	28.30	26.89	25.47	22.64

SERIES 42—DPDT AC AND DC RELAYS



100 mW for 1-billion-operation mechanical life. Adjustment S: 100 mW; G: 200 mW; ACS: .3 VA; ACG: 5VA. Contact ratings (at 28 VDC/120 VAC resistive): ACG, G: 5A; ACS, S: 2A. Temp.: −67 to +185°F, except plastic covers, to +158°F. UL and CSA listed. **42RO, 42ROZ:** Plastic dust cover, 8-pin octal plug. **42RO6, 42RO6Z:** Differ in wiring only. **42JOZ:** Hermetically sealed, 8-pin plug. **42F:** unenclosed, stud mounting solder terminals. Shpg. wt. 5¼ oz.

AC TYPES

Stock No.	Type & Coil Ohms	Nom. Volts	1-49	50-74	75-99	100-249
24F2798	42JOZ-4000 ACG-SIL	120	24.50	23.28	22.05	19.60
24F2799	42ROZ-8ACG-SIL	6	13.65	12.97	12.29	10.92
24F2800	42ROZ-50 ACG-SIL	12	13.65	12.97	12.29	10.92
24F2802	42ROZ-4000 ACG-SIL	120	13.65	12.97	12.29	10.92
24F2049	42RO6Z-4000 ACG-SIL	120	14.10	13.40	12.69	11.28
24F2803	42ROZ-7000 ACS-SIL	120	17.45	16.58	15.71	13.96
53F794	42RO6Z-8 ACG-SIL	120	14.10	13.40	12.69	11.28

DC TYPES

Stock No.	Type & Coil Ohms	Nom. Volts	1-49	50-74	75-99	100-249
53F797	42F-1,000 G-SIL	24	10.60	10.07	9.54	8.48
53F798	42F-2,500 G-SIL	48	10.60	10.07	9.54	8.48
53F799	42RO-50 G-SIL	6	13.65	12.97	12.29	10.92
53F815	42RO-100 G-SIL	..	13.65	12.97	12.29	10.92
24F2804	42RO-200 G-SIL	12	13.65	12.97	12.29	10.92
24F2805	42RO-500 G-SIL	..	13.65	12.97	12.29	10.92
24F2806	42RO-1,000 G-SIL	24	13.65	12.97	12.29	10.92
24F2807	42RO-2,500 G-SIL	48	13.65	12.97	12.29	10.92
24F2808	42RO-5,000 G-SIL	..	14.10	13.40	12.69	11.28
24F2809	42RO-10,000 G-SIL	..	14.60	13.87	13.14	11.68
24F2810	42RO-12,000 G-SIL	..	15.85	15.06	14.27	12.68
53F816	42RO-100 S-SIL	..	15.65	14.87	14.09	12.52
24F2811	42RO-150 S-SIL	6	15.65	14.87	14.09	12.52
24F2812	42RO-500 S-SIL	12	15.65	14.87	14.09	12.52
24F2813	42RO-1,000 S-SIL	..	15.65	14.87	14.09	12.52
24F2814	42RO-2,500 S-SIL	24	15.65	14.87	14.09	12.52
24F2815	42RO-5,000 S-SIL	..	16.50	15.68	14.85	13.20
53F819	42RO6-50 G-SIL	6	13.65	12.97	12.29	10.92
24F2041	42RO6-500 G-SIL	..	13.65	12.97	12.29	10.92
24F2010	42RO6-1,000 G-SIL	24	13.65	12.97	12.29	10.92
24F2043	42RO6-2,500 G-SIL	48	13.65	12.97	12.29	10.92
24F2011	42RO6-5,000 G-SIL	..	14.10	13.40	12.69	11.28
24F2045	42RO6-10,000 G-SIL	..	14.60	13.87	13.14	11.68
24F2009	42RO6-500 S-SIL	12	15.65	14.87	14.09	12.52
24F2817	42RO6-1,000 S-SIL	..	15.65	14.87	14.09	12.52
24F3179	42RO6-2,500 S-SIL	24	15.65	14.87	14.09	12.52

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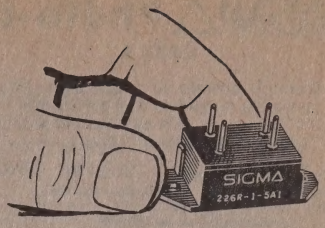
Solid-State and Hybrid Relays

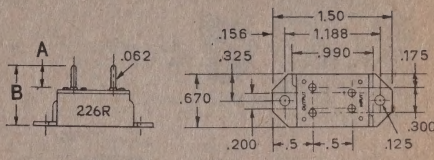
SIGMA

SERIES 226 SOLID-STATE RELAYS

• Handle Loads From 50 Milliamps to 7 Amps. • Integral Heat Sink Permits 1½ Amps of Continuous Load Current. • Mates with Standard TO-3 Style Transistor Heat Sink. • Compatible with Standard TTL Gates.

Miniature solid-state relay will handle loads from 50 milliamps to 7 amps. Unit is encapsulated internally and cover is ultrasonically sealed. Comes with an integral heat sink designed for mating with standard TO-3 style transistor heat sinks for increased current handling capacity. By itself, the integral heat sink permits 1½ amps of continuous load current. Connections can be made via standard slip-on connectors or the unit can be inverted and inserted directly into a pc board for wave soldering. Termination pins are on standard 0.1" grid pin spacing and are polarized to prevent reverse plug-in. 15 milliamps maximum input requirement makes the unit compatible with standard TTL gates. High sensitivity, coupled with 2,500V rms and 10^{12} ohms isolation ratings, make it an ideal output device when going from low level logic to line voltage loads. Designed for application in computer interface equipment, programmable controllers, process controls, machine tool controls, vending machines, electronic games, temperature controllers, and a host of other industrial and commercial uses.





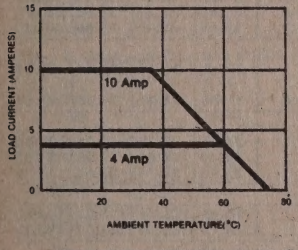
Dimension	Chassis Mount	PC Mount
A	.315"	.155"
B	.780"	.620"

Push-on Connector Terminals		Printed Circuit Terminals		INPUT VOLTAGE	OUTPUT VOLTAGE						
					Nominal Line Vrms	Repetitive Peak Blocking Voltage Vpk(DC)					
Stk. No.	Type	Stk. No.	Type	VDC	(50/60Hz)		1-9	10-49	50-99	100-249	250-499
27F1150	226R1-5A1	27F1152	226RE1-5A1	5	120	±200	6.90	6.21	5.52	4.83	4.49
27F1153	226R1-12A1	27F1156	226RE1-12A1	12	120	±200	6.90	6.21	5.52	4.83	4.49
27F1157	226R2-5A1	27F1154	226RE2-5A1	5	240	±400	7.90	7.11	6.32	5.53	5.14
27F1155	226R2-12A1	27F1151	226RE2-12A1	12	240	±400	7.90	7.11	6.32	5.53	5.14
23F5600	226R4-5A1	23F5608	226RE4-5A1	5	120	±300	7.40	6.66	5.92	5.18	4.81
23F5601	226R4-12A1	23F5609	226RE4-12A1	12	120	±300	7.40	6.66	5.92	5.18	4.81
23F5602	226R5-5A1	23F5610	226RE5-5A1	5	240	±500	8.90	8.01	7.12	6.23	5.79
23F5603	226R5-12A1	23F5611	226RE5-12A1	12	240	±500	8.90	8.01	7.12	6.23	5.79
23F5604	226R6-5A1	23F5612	226RE6-5A1	5	240	±600	9.40	8.46	7.52	6.58	6.11
23F5605	226R6-12A1	23F5613	226RE6-12A1	12	240	±600	9.40	8.46	7.52	6.58	6.11
23F5606	226R7-5A1	23F5614	226ER7-5A1	5	120-240	±400	7.90	7.11	6.32	5.53	5.14
23F5607	226R7-12A1	23F5615	226RE7-12A1	12	120-240	±400	7.90	7.11	6.32	5.53	5.14

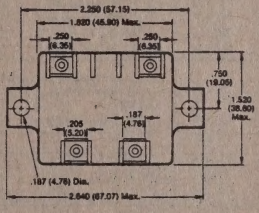
9

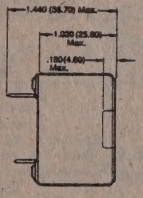
MECHANICAL DATA

Current Ratings*

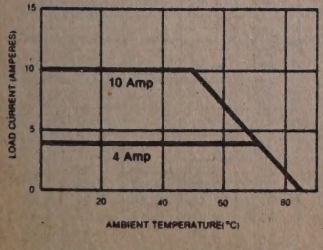


*Based on relay mounted to a 6" x 6" x ¼" aluminum plate using thermal joint compound.

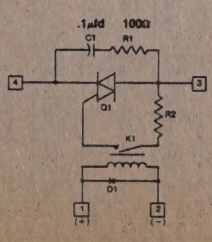




Current Ratings*

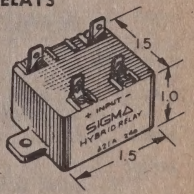


*Based on relay mounted to a 6" x 6" x ¼" aluminum plate using thermal joint compound.



SERIES 221 HYBRID RELAYS

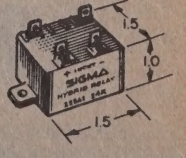
For photocopy equipment, process controls, instrumentation. Uses reed relay to sense and provide gating to an AC semiconductor. Compatible with TTL logic; used to switch inductive, capacitive, tungsten or resistive loads. Operate time, 2 msec. max., 60 Hz. Release time, 9 msec. max. 60 Hz. Dielectric strength, between all insulated points, 1500 VAC rms. *Output, 120 VAC; †Output, 240, VAC.



Stock No.	Mfr's. Type & Input VDC	Output Amps	Input Impeds Ohms	1-49	50-74	75-99	100-249
53F861	221A-1-5D*	4	525	12.40	11.16	9.92	8.68
53F863	221A-1-12D*	4	420	11.75	10.58	9.40	8.23
53F864	221A-1-24D*	4	2150	11.75	10.58	9.40	8.23
53F865	221A-2-5D†	4	525	13.05	11.75	10.44	9.14
53F867	221A-2-12D†	4	420	12.40	11.16	9.92	8.68
53F868	221A-2-24D†	4	2150	12.40	11.16	9.92	8.68
53F869	221A-3-5D*	10	525	14.10	12.69	11.28	9.87
53F871	221A-3-12D*	10	420	13.45	12.11	10.76	9.42
53F872	221A-3-24D*	10	2150	13.45	12.11	10.76	9.42
53F873	221A-4-5D†	10	525	14.75	13.28	11.80	10.33
53F875	221A-4-12D†	10	420	14.10	12.69	11.28	9.87
53F876	221A-4-24D†	10	2150	14.10	12.69	11.28	9.87

SERIES 223 SOLID-STATE RELAYS

For use in vending machines, process controls, machine tools. Isolates power input from low level control circuits. Utilizes an optical coupler to control an AC semiconductor. Can be operated from either AC or DC sources. Operate time, 60 Hz, 50 milliseconds. Release time, 60 Hz, 50 milliseconds. Dielectric strength, between all insulated points, 1000 VAC rms. Output, 120 VAC.



Stock No.	Mfr's. Types & Input VDC/AVC	Output Amps	Input mA	1-49	50-74	75-99	100-249
53F877	223A-1-6	4	50	11.70	10.53	9.36	8.19
53F878	223A-3-6	10	50	13.40	12.06	10.72	9.38
53F879	223A-1-12	4	24	11.70	10.53	9.36	8.19
53F880	223A-3-12	10	24	13.40	12.06	10.72	9.38
53F881	223A-1-24	4	24	11.70	10.53	9.36	8.19
53F882	223A-3-24	10	24	13.40	12.06	10.72	9.38
52F883	223A-1-120	4	1.3	11.70	10.53	9.36	8.19
53F884	223A-3-120	10	1.3	13.40	12.06	10.72	9.38

SIGMA Photo-Electric & Opto Isolator Components

SERIES B

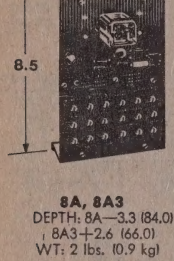
Photocontrols operate on a light beam interruption. Available in models with an integral output relay in Receiver or with an amplifier and output relay remote from receiving head.

- **NEMA Type 1 housings.**
- **Plug-in and conduit mountings available.**
- **Easily replaceable lamps.**
- **Operating distances up to 25 feet.**

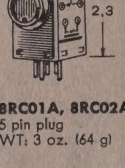
UL recognized File E36169

CSA certified File LR20954

for model 8RC01A only.



8A, 8A3
DEPTH: 8A—3.3 (84.0)
8A3+2.6 (66.0)
WT: 2 lbs. (0.9 kg)



8RC01A, 8RC02A
5 pin plug
WT: 3 oz. (64 g)

Plastic Shield for 8RC02A

Specifications

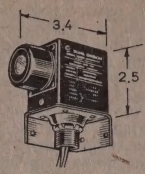
Receivers and Amplifiers

- Expected electrical life (operations at rated load): 200,000 for 8P3 and 8P5; 1,000,000 for 8RC01A and 8RC02A.
- Power consumption: 8P3, 8P5—2.5 VA; 8RC01A, 8RC02A—0.7 VA; 8A, 8A3 with 8L4—7.5 VA; 8A, 8A3 with 8L7—5.0 VA.
- Temperature range: 8RC01A, 8RC02A; −40°C to +60°C. All others: 0°C to +50°C.
- Time Delay (Model 8A3 amplifier): 50 msecs to 20 seconds: ±10% repeatability.

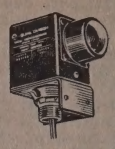
Light Sources

- Lamp life 8L3—10,000 hours; 8L4—4,000 hours @ 5.5 V; 40,000 hours @ 4.5 V; 8L7—4,000 hours.
- Power consumption: 8L3—6VA; 8L4, 8L7—see 8A and 8A3.
- Temperature range: 0°C to +50°C.

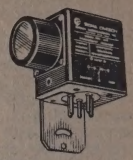
Mechanical Data



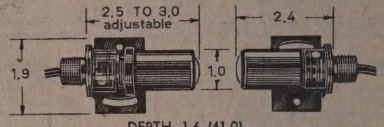
8P3
Width: 1.9 (48.0)
½" CONDUIT
#18 AWG Leads. 19" long
WT: 13 oz. (364 g)



8L3
DATA SAME AS FOR 8P3



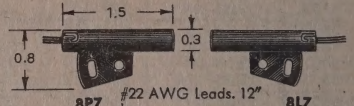
8P5
DIMENSIONS SAME AS FOR 8P3
8-pin plug.
WT: 9 oz. (252 g)



8L4

DEPTH: 1.6 (41.0)
#18 AWG leads, 10" long
WT: 2.8 oz. (78.4 g)

8P4



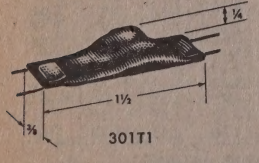
8P7

#22 AWG Leads. 12" long
WT: 0.3 oz. (8.4 g)

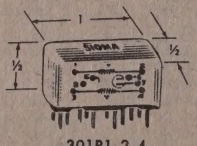
8L7

Ordering Information

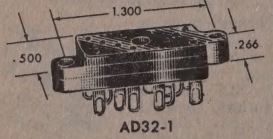
STOCK NO.	TYPE	CONTACTS	CONTACT RATING (amps.)	OPERATIONS PER MINUTE (max.)	OPERATING DISTANCE (max.)	LINE VOLTAGE (VAC)	TERM. STYLE	USE WITH LIGHT SOURCE	1-49	50-74	75-99	100-249
RECEIVERS WITH BUILT-IN OUTPUT RELAY												
24F427	8P3-115	SPDT	10	600	12 ft.	.....	wire leads	8L3	**47.70**	**45.32**	**42.93**	**38.16**
24F437	8P5-115	DPDT	10	600	12 ft.	.....	8 pin plug	8L3	**47.65**	**45.27**	**42.89**	**38.12**
24F1719	8RC01A	SPDT	3	120	12 ft.	.....	5 pin plug	8L3	**39.65**	**37.67**	**35.69**	**31.72**
24F1720	8RC02A	SPDT	3	120	12 ft.	.....	5 pin plug	8L3	**39.65**	**37.67**	**35.69**	**31.72**
RECEIVERS WITHOUT AMPLIFIER												
24F431	8P7	.....	Use 8A or 8A3 amplifier.	600	12 in.	.....	wire leads	8L7	**31.60**	**30.02**	**28.44**	**25.28**
24F433	8P4	.....		600	25 ft.	.....	wire leads	8L4	**34.75**	**33.02**	**31.28**	**27.80**
LIGHT SOURCES												
24F430	8L3-115	.....	.....	.....	12 ft.	115 from	wire leads	.....	**34.75**	**33.02**	**31.28**	**27.80**
24F434	8L4	.....	.....	.....	25 ft.	8A or 8A3	wire leads	.....	**30.40**	**28.88**	**27.36**	**24.32**
24F432	8L7	.....	.....	.....	12 in.	amplifier	wire leads	.....	**22.90**	**21.76**	**20.61**	**18.32**
AMPLIFIERS												
24F435	8A	DPDT	5	.....	.....	115/230	.....	.....	**130.25**	**123.74**	**117.23**	**104.20**
24F436	8A3	DPDT	10	.....	.....	115/230	.....	.....	**175.15**	**166.40**	**157.64**	**140.12**



301T1



301R1, 2, 4



AD32-1

Opto-isolators feature solid state construction, 1000 Vrms min. isolation between output and input circuits. Signal applied to the input is coupled by means of light to one, two or four mutually isolated photoconductive cells. Suitable for AC/DC input/output. Cell has 300mW dissipation capability. Visual on/off state indication in plug-in models. High reliability switching functions include logic circuits, data sampling, audio switching and data processing. Other applications: noiseless audio level control, tremolo circuits, RC oscillator tuning. Temp.: −40°C to +50°C.

SERIES 301—1, 2 and 4 POLE

Stock No.	Type No. after "R" ind. no. of poles	Input Characteristics Lamp Voltage	Input Characteristics Lamp Current (milliamperes)	Output Characteristics—Photocell (at 25°C) On Resistance, R_L (ohms, max.)	Output Characteristics—Photocell (at 25°C) Voltage Rating (DC or AC peak)	Output Characteristics—Photocell (at 25°C) Power Dissipation, Each Cell (mw)	1-49	50-74	75-99	100-249
24F1588	301R1-6	6	40	400	250	500				
24F1589	301R1-12	12	19	500	250	500	4.95	4.71	4.46	3.96
24F1590	301R1-24	24	40	200	250	175				
24F1591	301R1-150	150	2	500	250	500				
24F1592	301R2-6	6	40	400	250	400				
24F1593	301R2-12	12	19	500	250	400	7.85	7.46	7.07	6.28
24F1594	301R2-24	24	40	200	250	175				
24F1595	301R2-150	150	2	500	250	400				
24F1596	301R4-6	6	80	650	250	175				
24F1597	301R4-12	12	38	1000	250	175	10.95	10.41	9.86	8.76
24F1598	301R4-24	24	40	500	250	75				
24F3042	301T1-2A1	2	40	2000	250	200	**2.10**	**1.89**	**1.68**	**1.47**
24F3043	301T1-2A2	2	40	800	100	200	**2.10**	**1.89**	**1.68**	**1.47**
24F3044	301T1-2B1	2	25	1000	250	400	**3.15**	**2.84**	**2.52**	**2.21**
45F344	301T1-6B1	6	50	400	250	400	**2.05**	**1.85**	**1.64**	**1.44**
45F345	301T1-12B1	12	24	400	250	400	**2.05**	**1.85**	**1.64**	**1.44**
24F3045	301T1-120A1	120	1.3	1200	250	400	**2.20**	**1.98**	**1.76**	**1.54**
24F1599	AD32-1	Socket for solder Term. mounting					**1.20**	**1.14**	**1.08**	**.96**
45F347	AD58-1	PC Board Socket					**1.20**	**1.14**	**1.08**	**.96**

Struthers-Dunn Time Delay Relays

S-D

TYPE 306 SQUARE BASE DELAY-ON-OPERATE RELAY*

Type 306 delays transfer of contacts when relay is energized. 1 15/16"w x 1½"d x 1⅞"h, plus knob. Contacts: 10A per pole @ 120 VAC. Coil: 24V or 120V/60 Hz.

Type 306XDXC, 24VAC, 4PDT, 10 Amps, Delay-On-Operate

Stock No.	Type No.	Volts	Seconds	Contacts	1-24	25-49
28F1730	306XDXC-001	24VAC	0.1-1	4PDT	29.62	28.14
28F1731	306XDXC-010	24VAC	1.0-10	4PDT	29.62	28.14
28F1732	306XDXC-060	24VAC	6.0-60	4PDT	29.62	28.14
28F1733	306XDXC-300	24VAC	30.0-300	4PDT	32.84	31.20

Type 306XDXC, 120VAC, 4PDT, 10 Amps, Delay-On-Operate

28F1734	306XDXC-001	120VAC	0.1-1	4PDT	29.62	28.14
28F1735	306XDXC-010	120VAC	1.0-10	4PDT	29.62	28.14
28F1736	306XDXC-060	120VAC	6.0-60	4PDT	29.62	28.14
28F1737	306XDXC-300	120VAC	30.0-300	4PDT	32.84	31.20

TYPE A45 OCTAL BASE DELAY-ON-RELEASE RELAY
TYPE A42 OCTAL BASE DELAY-ON-OPERATE RELAY

Solid state timing network with transient protection. Type A45 contacts transfer after pre-set delay when energized. Type A42 contacts transfer after pre-set delay when de-energized. Accuracy ±10% with ±2% repeatability. DPDT 10-amq contacts. NOTE: Power interruption during timing may cause momentary transfer of contacts.

Type 42 Delay-on-Release, DPDT Relay, 10 Amps

Stock No.	Type No.	Coil	Seconds	Contacts	1-24	25-49
67F681	A42-010	120VAC	0.1-10	DPDT	34.67	32.84
67F682	A42-010	24VAC	0.1-10	DPDT	34.67	32.84
67F683	A42-010	48VDC	0.1-10	DPDT	31.74	30.15
67F684	A42-010	24VDC	0.1-10	DPDT	31.74	30.15
67F685	A42-060	120VAC	0.6-60	DPDT	34.67	32.94
67F686	A42-060	24VAC	0.6-60	DPDT	34.67	32.94
67F688	A42-060	24VDC	0.6-60	DPDT	31.74	30.15
67F689	A42-180	120VAC	1.8-180	DPDT	34.67	32.94
67F690	A42-180	24VAC	1.8-180	DPDT	34.67	32.94
67F692	A42-180	24VDC	1.8-180	DPDT	31.74	30.15

Type 45 Delay-on-Operate, DPDT Relay, 10 Amps

67F693	A45-010	120VAC	0.1-10	DPDT	28.83	27.39
67F694	A45-010	24VAC	0.1-10	DPDT	28.83	27.39
67F695	A45-010	48VDC	0.1-10	DPDT	27.37	26.00
67F697	A45-060	120VAC	0.6-60	DPDT	28.83	27.39
67F698	A45-060	24VAC	0.6-60	DPDT	28.83	27.39
67F699	A45-060	48VDC	0.6-60	DPDT	27.37	26.00
67F701	A45-180	120VAC	1.8-180	DPDT	28.83	27.39
67F702	A45-180	24VAC	1.8-180	DPDT	28.83	27.39
67F703	A45-180	48VDC	1.8-180	DPDT	27.37	26.00

TYPE 282 MINIATURE DELAY-ON-OPERATE RELAY**

Hybrid thick film timing element. Contacts transfer after pre-set delay when relay is energized. Transient protection for 20 microsecond peaks of ±2000V. Contacts 4PDT, 3 amps or DPDT, 10 amp. Timing available: Fixed, remote adjustment or adjustable 0.1 to 1, 0.2 to 2, 1 to 10, 3 to 30, 6 to 60, 18 to 180, or 30 to 300 seconds. Stock items are adjustable 0.1 to 1, 3 to 30, and 30 to 300 seconds. Accuracy ±10% with ±3% repeatability.

Type 282XDX100 4PDT, 3-Amp Delay-on-Operate (Miniature)

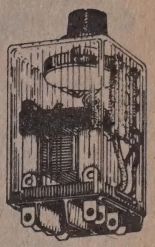
Stock No.	Type No.	Volts	Seconds	Contacts	1-24	25-49
29F2840	282XDX100-001	24AC	0.1-1	4PDT	25.33	24.06
29F2841	282XDX100-001	120AC	0.1-1	4PDT		
29F2843	282XDX100-030	24AC	3-30	4PDT		
29F2844	282XDX100-030	120AC	3-30	4PDT		
29F2846	282XDX100-300	24AC	30-300	4PDT	28.54	27.11
29F2847	282XDX100-300	120AC	30-300	4PDT	28.54	27.11

Type 282XBX410 DPDT, 10-Amp Delay-on-Operate (Miniature)

29F2849	282XBX411-001	24AC	0.1-1	DPDT	25.98	24.68
29F2850	282XBX411-001	120AC	0.1-1	DPDT		
29F2851	282XBX411-001	24DC	0.1-1	DPDT		
29F2852	282XBX411-300	24AC	30-300	DPDT	29.19	27.73
29F2853	282XBX411-300	120AC	30-300	DPDT		
29F2854	282XBX411-300	24DC	30-300	DPDT		

**See page T-351 for sockets (C281)*

TYPE 286 SQUARE BASE DELAY-ON-OPERATE RELAY*
TYPE 287 SQUARE BASE DELAY-ON-RELEASE RELAY*



Hybrid thick film timing element. Type 286 delays transfer of contacts when energized. Type 287 delays transfer of contacts when de-energized. Transient protection for 20 microsecond peaks of ±2000V. Timing available: Fixed, remote adjustment, or adjustable 0.1 to 1, 0.2 to 2, 1 to 10, 3 to 30, 6 to 60, 18 to 180 or 30 to 300 seconds. SPDT, DPDT, or 3PDT. Plug-in, bracket mount, or stud mount. Stock items are enclosed plug-in, 0.1 to 1, 3 to 30, and 30-300 second adjustable timing. Accuracy ±10% with ±3% repeatability. Contacts rated at 10 amps, 120VAC.

Type 286XBXC DPDT, 10-Amp Delay-on-Operate (Square Base)

Stk. No.	Type No.	Volts	Seconds	Contacts	1-24	25-49
29F2810	286XBXC-001	24AC	0.1-1	DPDT	24.75	23.51
29F2811	286XBXC-001	120AC	0.1-1	DPDT		
29F2813	286XBXC-030	24AC	3-30	DPDT		
29F2814	286XBXC-030	120AC	3-30	DPDT		
29F2816	286XBXC-300	24AC	30-300	DPDT	27.96	26.56
29F2817	286XBXC-300	120AC	30-300	DPDT	27.96	26.46

Type 286XCXC 3PDT, 10-Amp Delay-on-Operate (Square Base)

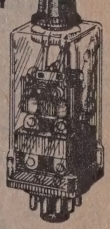
29F2820	286XCXC-001	120AC	0.1-1	3PDT	25.60	24.32
29F2821	286XCXC-001	24DC	0.1-1	3PDT		
29F2823	286XCXC-030	120AC	3-30	3PDT		
29F2824	286XCXC-030	24DC	3-30	3PDT		
29F2826	286XCXC-300	120AC	30-300	3PDT	28.81	27.37
29F2827	286XCXC-300	24DC	30-300	3PDT	28.81	27.37

Type 287XBXC DPDT, 10-Amp Delay-on-Release (Square Base)

29F2828	287XBXC-001	24AC	0.1-1	DPDT	37.48	35.61
29F2829	287XBXC-001	120AC	0.1-1	DPDT		
29F2830	287XBXC-001	24DC	0.1-1	DPDT		
29F2831	287XBXC-300	24AC	30-300	DPDT	40.70	38.67
29F2832	287XBXC-300	120AC	30-300	DPDT		
29F2833	287XBXC-300	24DC	30-300	DPDT		

**See page T-353 for sockets (A283).*

TYPE 326 OCTAL BASE DELAY-ON-OPERATE RELAY



Hybrid thick film timing element. Contacts transfer after pre-set delay when energized. Timing available: fixed, remote adjustment, or adjustable 0.1 to 1, 0.2 to 2, 1 to 10, 3 to 30, 6 to 60, 18 to 180 or 30 to 300 seconds. SPDT, DPDT, or 3PDT contacts. Stock items are DPDT or 3PDT with 0.1 to 1, 3 to 30 or 30 to 300 second timing. Accuracy ±10% with ±3% repeatability. Rated at 10 amps, 120VAC. Transient protection for 20 microsecond peaks of ±2000V. No false transfer of contacts if power is interrupted during timing.

Type 326XBX48P DPDT, 10-Amp Delay-on-Operate (Octal Plug-in)

Stock No.	Type No.	Volts	Seconds	Contacts	1-24	25-49
29F2855	326XBX48P-001	24AC	0.1-1	DPDT	27.16	25.80
29F2856	326XBX48P-001	120AC	0.1-1	DPDT		
29F2857	326XBX48P-001	24DC	0.1-1	DPDT		
29F2858	326XBX48P-030	24AC	3-30	DPDT	27.16	25.80
29F2859	326XBX48P-030	120AC	3-30	DPDT		
29F2860	326XBX48P-030	24DC	3-30	DPDT		
29F2861	326XBX48P-300	24AC	30-300	DPDT	30.37	28.85
29F2862	326XBX48P-300	120AC	30-300	DPDT		
29F2863	326XBX48P-300	24DC	30-300	DPDT		

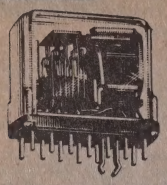
Type 326XCX48P 3PDT, 10-Amp Delay-on-Operate (11-pin Plug-in)

29F2865	326XCX48P-001	120AC	0.1-1	3PDT	29.87	28.38
29F2866	326XCX48P-001	24DC	0.1-1	3PDT		
29F2868	326XCX48P-030	120AC	3-30	3PDT		
29F2869	326XCX48P-030	24DC	3-30	3PDT		
29F2871	326XCX48P-300	120AC	30-300	3PDT	33.09	31.44
29F2872	326XCX48P-300	24DC	30-300	3PDT	33.08	31.43

9

Struthers-Dunn Industrial Plug-in Relays

TYPE 219 12-PIN GENERAL PURPOSE RELAY



Clear thermoplastic enclosure, plugs into 12-pin socket. 10-amp contacts. Insulation: ¼" surface, ⅛" air. 1500V dielectric. Max. Amb. 53°C. 20,000,000 cycles no-load. Overload 110% nominal voltage. Must operate 85%AC, 80%DC volts. Base 1-1/2 x 2-5/8", Ht. 2-19/32" less pins. Wt. 7 oz. UL listed.

Type 219 General Purpose 12-Pin Plug-in Relay

Stock No.	Type No.	Volts	Contacts	1-24	25-49	50-74
60F3101	219XBXP	24DC	DPDT	23.46	22.29	21.11
60F3102	219XBXP	125DC	DPDT			
60F3100	219XBXP	120AC	DPDT			
60F3104	219BBXP	24DC	DPDT + 2NO	28.05	26.65	25.25
60F3105	219BBXP	125DC	DPDT + 2NO			
60F3103	219BBXP	120AC	DPDT + 2NO			
60F3107	219ABAP	24DC	DPDT, 1NO, 1NC	28.05	26.65	25.25
60F3108	219ABAP	125DC	DPDT, 1NO, 1NC			
60F3106	219ABAP	120AC	DPDT, 1NO, 1NC			

TYPE 219 RELAY WITH INDICATING LAMP

Neon lamp across relay coil indicates when relay is energized.

Stock No.	Type No.	Volts	Contacts	1-24	25-49	50-74
60F3194	219BBXPL	120AC	DPDT + 2 NO	30.41	28.89	27.37
60F3193	219ABAPL	120AC	DPDT, 1NO, 1NC			

TYPE 219 14-PIN GENERAL PURPOSE RELAY

Plugs into 14-pin socket. 10-amp contacts. 20,000,000 cycles no-load. Operate and release time 25ms max. Must operate 85% AC, 80% DC volts. Overload, 110% nominal volts. Manual actuator available.

Type 219 General Purpose 14-Pin Plug-in Relay

Stock No.	Type No.	Volts	Contacts	1-24	25-49	50-74
60F3050	219XDXP	24DC	4PDT	31.83	30.24	28.65
60F3051	219FXXP	24DC	6PNO			
60F3052	219DXBP	24DC	4 NO + 2 NC			
60F3053	219XDXP	120AC	4PDT	31.83	30.24	28.65
60F3054	219FXXP	120AC	6NO			
60F3055	219DXBP	120AC	4 NO + 2NC			

TYPE A311 12-PIN SEQUENCE RELAY

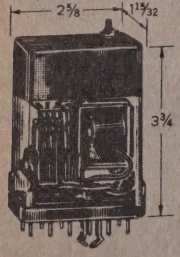
Contacts transfer on each impulse. 8-tooth ratchets provide eight steps with double-cam action each step. 150V insulation meets UL requirements. Rated at 5 amps, 120VAC. Must operate at 85% AC or 80% DC volts. 1,000,000 cycles no-load. Base 2-5/8" x 1-15/32", Ht. 3-3/4". Wt. 6 oz.

Type A311 12-Pin Plug-in Sequence Relay

Stock No.	Type No.	Volts	Contacts	1-24	25-49	50-74
29F2873	A311X8XP*	120AC	DPDT*	50.45	47.93	45.41
29F2874	A311X8XPR**	120AC	DPDT**			

*Contacts transfer when coil is energized.
**Contacts transfer on release.

TYPE 236 12-PIN DELAY-ON-OPERATE RELAY
TYPE 237 12-PIN DELAY-ON-RELEASE RELAY



Solid state timing network. 90:1 range. Contact rating 10-amps at 120VAC. Repeat accuracy ±5% at fixed voltage. Will operate at 95 to 125VAC, but timing varies inversely with voltage. 20,000,000 mechanical operations. Type 236: Contacts transfer after pre-set delay when power is applied. Type 237: Contacts transfer after pre-set delay when control circuit is de-energized.

Type 236XBXP 12-Pin Plug-in Delay-on-Operate Relay

Stock No.	Type No.	Volts	Delay	1-24	25-49	50-74
60F3115	236ABXP	120AC	0.2-20 Sec.	107.77	102.38	96.99
60F3116	236ABXP	120AC	2-200 Sec.			

Type 237XBXP 12-Pin Plug-in Delay-on-Release Relay

29F2702	237XBXP	120AC	0.2-20 Sec.	126.57	120.24	113.91
29F2703	237XBXP	120AC	2-200 Sec.			

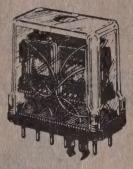
TYPE A255 12-PIN LATCHING RELAY

Contacts latch mechanically when operate coil is energized momentarily. To reset, energize separate reset coil. Continuous duty coils. 10,000,000 mechanical operations. Contacts rated 10 amps at 120VAC. Insulation 1/4" air, 1/8" surface. Base 1-15/32 x 2-5/8". Ht. 3-3/4". Common armature prevents contact overlap.

Type A255 12-Pin Plug-in Relay

Stock No.	Type No.	Volts	Contacts	1-24	25-49	50-74
60F3112	A255XBXP	120AC	DPDT	46.16	43.85	41.54
60F3113	A255XCXP	120AC	3PDT	49.81	47.32	44.83
60F3114	A255BXBP	120AC	2 NO, 2 NC	49.81	47.32	44.83

TYPE RSX1440 12-PIN ALARM RELAY

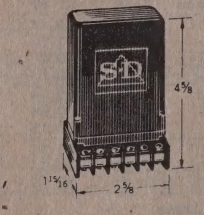


Type RSX1440Z is initiated by momentary, intermittent, or sustained signal from N.O. trouble contacts. RSX1440S is initiated by signal from N.C. contacts. Operator silences alarm with push-button. Alarm can be turned off manually or automatically when condition clears. Contact rating 10 amps at 120VAC.

Type RSX1440 12-Pin Plug-in Alarm Relay

Stock No.	Type No.	Volts	Signal	1-24	25-49	50-74
29F2700	RSX1440Z	120AC	N.O.	39.83	37.84	35.85
29F2701	RSX1440S	120AC	N.C.			

TYPE S.S.96 12-PIN SOLID STATE RELAY

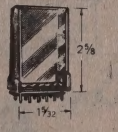


100% solid state. Load rating of 1 amp continuous and 25 amps inrush. Available 2 N.O. and 2 N.C. or 4PST-N.O. Total isolation between input and outputs. Requires continuous primary voltage of 90 to 132V 50/60 Hz. Continues to carry load at 65VAC minimum. One N.O. contact may be used for latch. Transient suppression recommended. (Type GE V130LA10 MOV typical.)

Type S.S.96 12-Pin Plug-in Solid State Relay

Stock No.	Type No.	Volts	Contacts	1-24	25-49	50-74
60F3806	SS96BXB	120AC	2 NO, 2 NC	73.82	70.13	66.44
60F3805	SS96DXX	120AC	4 NO			

CX3671, CX3672 PLASTIC ENCLOSURE



12-pin plug-in base. Use for experimental circuits, timing devices, etc. Same construction as enclosures for relays on this page. Fits type 27390 socket. CX3671 is 2-5/8" high, CX3672 is 3-3/4" high.

Plastic Enclosures for 12-Pin Plug-in Modules

Stock No.	Type No.	Size	1-24	25-49	50-74
60F3131	CX3671	2-19/32" high, less pins	5.40	5.13	4.86
60F3132	CX3672	3-3/4" high, less pins			

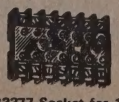
TYPE 27390 12-PIN SOCKET

Heavy duty socket for all 12-pin relays on this page. Front connected screws with clamp plates for No. 14 wires. 2-3/16 W x 2-21/32 L x 27/32 H.

Type 27390 Socket for 12-Pin Plug-in Relays on this Page

Stock No.	Type No.	Net Price
60F3117	27390	3.66

TYPE 33377 14-PIN SOCKET



Socket for 14-pin type 219 4PDT and 6-pole relays. Front connected screws with clamp plates for No. 14 wires. 2-3/16 W x 3-3/32 L x 27/32 H.

Type 33377 Socket for 14-Pin 4PDT and 6-Pole Type 219 Relays

Stock No.	Type No.	Net Price
60F3065	33377	4.14

Struthers-Dunn Relays—G.P. and Sensitive

TYPE A314 OPEN TYPE OR OCTAL BASE RELAY

Open types have solder lugs, and enclosed types plug into octal type base. General purpose relays rated at 10 amps. 120VAC. Available with neon indicating lamp and/or push-to-test manual actuator. Enclosed relay is 2¼" high x 1½" x 1½". Open type is 1⅞" high x 1⅛" x 1⅜". UL recognized.

Type A314 General Purpose 10-Amp Relay (Open type)

Stock No.	Type No.	Contacts	Volts	Ohms	1-24	25-49	50-74
29F2704	A314XAX	SPDT	24AC	85	4.80	4.56	4.32
29F2705	A314XAX	SPDT	120AC	2,250	4.80	4.56	4.32
29F2707	A314XAX	SPDT	125DC	10,000	5.43	5.16	4.89
29F2708	A314XBX	DPDT	24AC	85	5.82	5.53	5.24
29F2709	A314XBX	DPDT	120AC	2,250	5.82	5.53	5.24
29F2711	A314XBX	DPDT	125DC	10,000	6.07	5.77	5.46
29F2712	A314XCX	3PDT	24AC	85	6.46	6.14	5.81
29F2713	A314XCX	3PDT	120AC	2,250	6.46	6.14	5.81
29F2715	A314XCX	3PDT	125DC	10,000	6.99	6.64	6.29

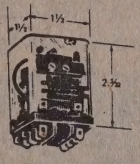
Type A314 — 48P General Purpose 10-Amp Relay (Enclosed, Octal Plug)

29F2716	A314XAX48P	SPDT	24AC	85	8.11	7.70	7.30
29F2717	A314XAX48P	SPDT	120AC	2,250	8.11	7.70	7.30
29F2718	A314XAX48P	SPDT	24DC	472	8.11	7.70	7.30
29F2719	A314XAX48P	SPDT	125DC	10,000	8.85	8.41	7.97
60F3187	A314XBX48P	DPDT	120AC	2,250	8.73	8.29	7.86
60F3188	A314XBX48P	DPDT	24DC	472	8.73	8.29	7.86
29F2721	A314XBX48P	DPDT	125DC	10,000	9.48	9.01	8.53
60F3189	A314XCX48P	3PDT	120AC	2,250	11.34	10.77	10.21
60F3190	A314XCX48P	3PDT	24DC	472	11.34	10.77	10.21
29F2723	A314XCX48P	3PDT	125DC	10,000	11.97	11.37	10.77

Type A314 General Purpose Indicator Light (Enclosed, Octal Plug)

29F2724	A314XAX48PL	SPDT	120AC	2,250	9.24	8.78	8.32
67F640	A314XBX48PL	DPDT	120AC	2,250	9.87	9.38	8.88
67F641	A314XCX48PL	3PDT	120AC	2,250	12.47	11.85	11.22

TYPE A283 SQUARE BASE 10-AMP RELAY



General purpose industrial relay. Long-life 10-amp contacts. Clear polycarbonate covers. 0.187" flat male quick connect terminals pieced for solder connection or relay plugs into matching socket. Bracket mounting or stud mounting available. SPDT, DPDT or 3PDT. UL recognized.

Type A283 10-Amp General Purpose Relay (Enclosed, Plug-in Square Base)

Stock No.	Type No.	Volts	Ohms	Contacts	1-24	25-49	50-74
67F644	A283XAXC	120AC	2,250	SPDT	5.03	4.78	4.53
67F647	A283XAXC	125DC	10,000	SPDT	5.82	5.53	5.24
67F649	A283XBXC	24AC	85	DPDT	6.29	5.98	5.66
67F650	A283XBXC	120AC	2,250	DPDT	6.29	5.98	5.66
67F653	A283XBXC	125DC	10,000	DPDT	6.51	6.18	5.86
67F656	A283XCXC	120AC	1,700	3PDT	7.09	6.74	6.38
67F658	A283XCXC	24DC	472	3PDT	6.51	6.18	5.86
67F659	A283XCXC	125DC	10,000	3PDT	7.09	6.74	6.38

Type A283 10-Amp General Purpose Relay (Enclosed, Bracket Mount)

67F662	A283XAXC1	120AC	2,250	SPDT	5.03	4.78	4.53
67F664	A283XAXC1	24DC	472	SPDT	4.91	4.66	4.42
67F665	A283XAXC1	125DC	10,000	SPDT	5.82	5.53	5.24
67F667	A283XBXC1	24AC	85	DPDT	6.29	5.98	5.66
67F668	A283XBXC1	120AC	2,250	DPDT	6.29	5.98	5.66
67F671	A283XBXC1	125DC	10,000	DPDT	6.51	6.18	5.86
66F673	A283XCXC1	24AC	72	3PDT	7.09	6.74	6.38
67F674	A283XCXC1	120AC	1,700	3PDT	7.09	6.74	6.38
67F677	A283XCXC1	125DC	10,000	3PDT	7.09	6.74	6.38

Type A283 10-Amp General Purpose Relay, Manual Actuator, Indicating Lamp

29F2625	A283XAXC1M	120AC	2,250	SPDT	6.78	6.44	6.10
29F2727	A283XCXC1M	120AC	2,250	3PDT	8.84	8.40	7.96

SOCKETS FOR TYPE A283, 286, 287 AND 292 PLUG-IN RELAYS

Stock No.	Type No.	Termination	1-24	25-49	50-74
67F678	36579	P. C. Terminals	1.17	1.11	1.05
67F679	36580	0.187 Quick Connect	1.17	1.11	1.05
67F680	36581	Solder Terminals	1.17	1.11	1.05

TYPE C281 MINIATURE PLUG-IN RELAY

General purpose relay available with 4PDT 3-amp contacts, 4PDT 1-amp bifurcated contacts, or DPDT 10-amp contacts. Available for plug-in, solder connect, or p.c. mounting. Clear plastic cover standard, available hermetically sealed. 50,000,000 mechanical operations. 1⅝₃₂ high x 1⅛ x ⅞. Standard 3-amp models are UL recognized.

Type C281XDX100 4 PDT Miniature Relay, 3-Amp Silver Contacts, Solder/Plug-in

Stock No.	Type No.	Volts	Ohms	1-24	25-49	50-74
60F3281	C281XDX100	24AC	170	7.28	6.92	6.55
60F3282	C281XDX100	120AC	4,500	7.80	7.41	7.02
60F3284	C281XDX100	24DC	560	6.23	5.92	5.61

Type C281XDX320 4PDT Miniature Relay, 1-Amp Bifurcated Contacts, Solder/Plug-in

29F2728	C281XDX320	120AC	4,500	10.14	9.63	9.13
29F2729	C281XDX320	12DC	150	8.57	8.14	7.71
29F2730	C281XDX320	24DC	560	8.57	8.14	7.71

Type C281XDX103 4PDT Miniature Relay, 3-Amp Silver Contacts, Printed Circuit

29F2734	C281XDX103	120AC	4,500	7.80	7.41	7.02
29F2735	C281XDX103	12DC	150	6.23	5.92	5.61
29F2736	C281XDX103	24DC	560	6.23	5.92	5.61

Type C281XBX411 DPDT Miniature Relay, 10-Amp SCO Contacts, Solder/Plug-in

29F2738	C281XBX411	24AC	170	7.66	7.28	6.89
29F2739	C281XBX411	120AC	4,500	8.19	7.78	7.37
29F2740	C281XBX411	24DC	650	6.62	6.29	5.96
29F2741	C281XBX411	125DC	11,000	8.30	7.89	7.47

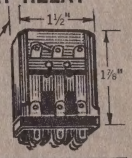
Type C281XBX413 DPDT Miniature Relay, 10-Amp SCO Contacts, Printed Circuit

29F2742	C281XBX413	120AC	4,500	8.19	7.78	7.37
29F2743	C281XBX413	12DC	160	6.62	6.29	5.96
29F2744	C281XBX413	24DC	650	6.62	6.29	5.96

SOCKETS FOR C281 AND 282 RELAYS

Stock No.	Type No.	Termination	1-24	25-49	50-74
60F3286	32884	Solder (except 10A)	.95	.90	.86
29F2745	39830	P. C. (except 10A)	.95	.90	.86
29F2746	40050	Wire Wrap (except 10A)	1.51	1.43	1.36
29F2747	40051	Solder (10 Amp)	.95	.90	.86
29F2748	41463	P. C. (10 Amp)	.95	.90	.86

TYPE 285XBX MAGNETIC LATCH RELAY



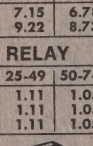
Compact magnetic latch relay rated at 10 amps 120-240 VAC. Terminals pierced for solder connection or plugs into mating socket.

Stock No.	Type No.	Contacts	Volts	Ohms	1-24	25-49	50-74
28F1738	285XBXC	DPDT	24DC	472	7.53	7.15	6.78
28F1739	285XBXC	DPDT	120VAC	10,000	9.70	9.22	8.73

SOCKETS FOR TYPE 285 PLUG-IN RELAY

Stock No.	Type No.	Termination	1-24	25-49	50-74
67F678	36579	P. C. terminals	1.17	1.11	1.05
67F679	36580	.187 Quick Connect	1.17	1.11	1.05
67F680	36581	Solder Terminals	1.17	1.11	1.05

TYPE 292 OR 392 SENSITIVE RELAY



Requires only 125mW per pole to operate. Contact rated at 5 amps. Square base or octal type plug-in. SPDT, DPDT or 3PDT models available.

Type 292XBXC* Sensitive Relay — DPDT, 250 mW, Plug-in

Stock No.	Type No.	Ohms	mA	Contacts	1-24	25-49	50-74
29F2756	292XBXC	2,500	10.0	DPDT	6.46	6.14	5.81
29F2757	292XBXC	5,000	7.0	DPDT	6.71	6.37	6.04
29F2758	292XBXC	10,000	5.0	DPDT	6.83	6.49	6.15

Type 292XCXC* Sensitive Relay — 3PDT, 375 mW, Plug-in

29F2759	292XCXC	2,500	12.0	3PDT	7.03	6.68	6.33
29F2760	292XCXC	5,000	8.5	3PDT	7.15	6.79	6.44
29F2761	292XCXC	10,000	6.0	3PDT	7.40	7.03	6.66

*Mates with sockets listed for A283 Relay on this page.

Type 392XBX48P Sensitive Relay — DPDT, 250 mW, Octal Base

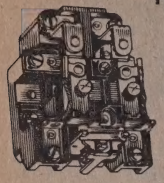
29F2762	392XBX48P	2,500	10.0	DPDT	9.05	8.60	8.15
29F2763	392XBX48P	5,000	7.0	DPDT	9.20	8.74	8.28
29F2764	392XBX48P	10,000	5.0	DPDT	9.84	9.35	8.86

Type 392XCX48P Sensitive Relay — 3PDT, 375 mW, 11-Pin Base

29F2782	392XCX48P	2,500	12.0	3PDT	11.15	10.59	10.04
29F2783	392XCX48P	5,000	8.5	3PDT	11.30	10.74	10.17
29F2784	392XCX48P	10,000	6.0	3PDT	11.94	11.34	10.75

Struthers-Dunn Relays and Contactors

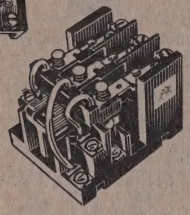
TYPE 425 30-AMP POWER RELAY



425XAX

425BXX

425XBX



425XCX

425CXX

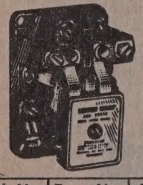
Suitable for all general purposes ON/OFF applications. Continuous duty coils. Motor load 1 HP at 120-240VAC (80% P.F.) Base 2½ x 2½, except 2½ x 3½ for models with auxiliary switch. Screw terminals standard. UL listed. **425XAX, 425BXX, and 425XBX** are rated 30A @ 28VDC or 120-240VAC and 10A @ 600VAC. **425XCX** (3PDT) and **425CXX** (3PNO) are rated for loads up to 10A @ 600VAC and 25A @ 240VAC.

Type 425 General Purpose 30-Amp Power Relays

Stock No.	Type No.	Coil Volts	Contacts	1-24	25-49	50-74
67F602	425XAX	120AC	SPDT	6.74	6.40	6.07
67F605	425XAX	12DC	SPDT	6.74	6.40	6.07
67F616	425BXX	12AC	DPST-NO	7.55	7.17	6.80
67F617	425BXX	24AC	DPST-NO	7.55	7.17	6.80
67F618	425BXX	120AC	DPST-NO	7.55	7.17	6.80
67F620	425BXX	240AC	DPST-NO	8.26	7.85	7.43
67F621	425BXX	12DC	DPST-NO	7.55	7.17	6.80
67F623	425BXX	125DC	DPST-NO	8.62	8.19	7.76
67F624	425XBX	12AC	DPDT	10.04	9.54	9.04
67F625	425XBX	24AC	DPDT	10.04	9.54	9.04
67F626	425XBX	120AC	DPDT	10.04	9.54	9.04
67F628	425XBX	240AC	DPDT	10.87	10.33	9.78
67F630	425XBX	12DC	DPDT	10.04	9.54	9.04
67F631	425XBX	24DC	DPDT	10.87	10.33	9.78
67F634	425XBX90*	120AC	DPDT*	12.70	12.07	11.43
67F636	425XBX90*	240AC	DPDT*	13.51	12.83	12.16
67F5940	425XCX	120AC	3PDT	20.00	19.00	18.00
67F5941	425XCX	240AC	3PDT	20.40	19.38	18.36
67F5942	425XCX	12DC	3PDT	19.25	18.29	17.33
67F5943	425XCX	24DC	3PDT	19.25	18.29	17.33
67F5944	425XCX	110/125DC	3PDT	20.75	19.71	18.68
67F5945	425CXX	120AC	3PNO	17.55	16.67	15.80
67F5946	425CXX	240AC	3PNO	17.95	17.05	16.16
67F5947	425CXX	12DC	3PNO	16.80	15.96	15.12
67F5948	425CXX	24DC	3PNO	16.80	15.96	15.12
67F5949	425CXX	48DC	3PNO	16.80	15.96	15.12
67F5950	425CXX	110/125DC	3PNO	18.30	17.39	16.47

**SPDT Auxiliary Contacts.*

TYPE 415XBX DPDT COMPACT POWER RELAYS



DPDT contacts rated at 15 amperes, 120VAC. Motor load ½ HP at 120VAC. Screw terminals for two No. 14 wires. Epoxy encapsulated coil. 20,000,000 mechanical operations. 1¾ high x 1⅞ x 2¾. Wt. 8 oz. UL listed.

Stock No.	Type No.	Contacts	Volts	1-49	50-99	100-249
60F3129	415XBX	DPDT	24DC	14.97	13.47	11.98
60F3130	415XBX	DPDT	125DC	14.97	13.47	11.98
60F3128	415XBX	DPDT	120AC	14.97	13.47	11.98

TYPE B1 OPEN-TYPE MIDGET RELAY

Resistive rating 6 amps at 24 or 120-VAC or 24VDC; 3 amps at 240VAC or 0.5 amps at 115VDC. Inrush, motor, or lamp loads should not exceed 20 amperes. Insulation spacing meets UL requirements for 300 volts. Base 1⅞ x 2¾. Wt. 1 pound.

Type B1 Midget Relay — 120VAC

Stock No.	Type No.	Contacts	1-49	50-99	100-249
60F3118	B1HXX	SP-NO-DB	20.22	18.20	16.18
60F3119	B1XAX*	SPDT	22.84	20.56	18.27
60F3120	B1XBX*	DPDT	28.09	25.28	22.47

**UL and CSA Listed.*

TYPE 8 OPEN-TYPE INDUSTRIAL POWER RELAY

Single break contacts rated at 30 amps, at 24VAC, 120VAC, or 240VAC; or 24 VDC; 3 amps at 115 VDC or ¾ amp at 230VDC. 600 volt, electrical spacing. Stud terminals. 3 x 4¼ base, Wt., 1 lb. UL and CSA listed.

Type 8 Open-Type 30-Amp Power Relay — 120 VAC

Stock No.	Type No.	Contacts	1-49	50-99	100-249
60F3121	8BXX	DP-NO	46.59	41.93	37.27
60F3123	A8CXX	3P-NO	52.49	47.24	41.99

TYPE B11 6-AMP SEQUENCE RELAY

Cam-operated contacts repeat predetermined sequence as coil is energized and de-energized. DPST contacts open and close together in Type B11BXX. The contacts open and close alternately in Type B11AXA. Rated at 6 amps for 120VAC or 24VDC. 3 amps at 240VAC and ½ amp at 115VDC. Eight-tooth ratchets. Stud terminals. Base is 2 x 3 13/16 inch. Wt. 1 lb. CSA listed.

Type B11 6-Amp Sequence Relay — 120VAC

Stock No.	Type No.	Contacts	Cont. Transfer	1-49	50-99	100-249
60F3124	B11BXX	DP-NO	Together	54.33	48.90	43.46
60F3125	B11AXA	1 NO, 1 NC	Alternately	54.33	48.90	43.46

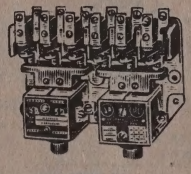
TYPE C85 POWER SEQUENCE RELAY

Cam operated contacts repeat predetermined sequence as coil is energized and de-energized. Contacts open and close alternately. Contacts rated at 20 amps, 120VAC. Eight-tooth ratchets. Stud terminals. Base is 3 x 5. Wt. 1 lb. CSA listed.

Type C85AXA 20-Amp Sequence Relay — 120VAC

Stock No.	Type No.	Contacts	Cont. Transfer	1-49	50-99	100-249
60F3127	C85AXA	1 NO, 1NC	Alternately	85.69	77.12	68.55

TYPE B175KXX 3HP REVERSING CONTACTOR



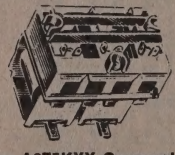
Controls reversal of AC/DC motors. Withstands frequent jogging service, shock and vibration. Two 3PDB contactors mounted on single frame. Mechanically interlocked to prevent simultaneous closure. Two HP at 120-240-VAC 2-3 phase; 3 HP at 440-450VAC 2-3 phase, 1 HP at 120VAC, 1½ HP at 240VAC single phase. 5¼ x 4-7/16 x 3. Wt. 2½ lbs. UL and CSA listed.

Type B175KXX Reversing Contactor — 3 HP, 3P-NO-DB

Stock No.	Type No.	Coil-Volts	1-49	50-99	100-249
67F637	B175KXX90*	24AC	52.49	47.24	41.99
67F638	B175KXX90*	120AC	52.49	47.24	41.99
67F639	B175KXX90*	240AC	52.49	47.24	41.99
60F3174	B175KXX	24AC	44.86	40.37	35.89
60F3175	B175KXX	120AC	44.86	40.37	35.89
60F3176	B175KXX	240AC	44.86	40.37	35.89

**2 SPDT Auxiliary contacts for coil interlock or electrical lockup.*

TYPE 275KXX COMPACT REVERSING CONTACTOR



Controls reversal of AC motors. For continuous heavy duty service. Two 3PDB contactors mounted on a single frame. Mechanically interlocked to prevent simultaneous closure. Rated at 120VAC 1, 2 or 3 phase for 1 HP (15 amps) or 480VAC 3 phase for 1 HP (5 amps). 0.250″ tab terminals. 2-3/16 x 2⅞ x 3-7/32. UL and CSA listed.

Type A275KXX Compact Reversing Contactor — 1 HP, 3P-NO-DB

Stock No.	Type No.	Coil-Volts	1-49	50-99	100-249
60F3177	A275KXX	24AC	24.68	22.21	19.74
60F3178	A275KXX	120AC	24.68	22.21	19.74
60F3179	A275KXX	240AC	24.68	22.21	19.74
60F3062	A275KXX91*	24AC	29.72	26.75	23.78
60F3063	A275KXX91*	120AC	29.72	26.75	23.78
60F3064	A275KXX91*	240AC	29.72	26.75	23.78

**Two DPDT Auxiliary Contacts for coil interlock or electrical lockup.*

9

Struthers-Dunn Reed Relays

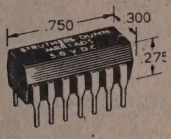
S-D

BASIC CHARACTERISTICS

Contamination-proof, glass-sealed reed switches, non-critical mounting, and complete magnetic shielding for exceptionally fast low-level and light duty switching. Most are available with either miniature or standard size reed switches, in a wide selection of Form A (SPST-NO), Form B (SPST-NC), or Form C (SPDT) contact arrangements. NOTES: (1) Voltage current and power ratings are independent maximums and no single value is to be exceeded. (2) Operate & Release times do not include bounce time, which is shown separately. Insulation Resistance: 1,000 megohms, min. Operating Ambient Range: −20° to +60°C Dielectric Strength: Min. 250V rms. Stand. 400V rms.

	MINIATURE SWITCHES			STANDARD SWITCHES		
	Form A	Form B	Form C	Form A	Form B	Form C
Maximum Ratings (1)—ac or dc resistive loads without inrush						
Volts	250	250	100	250	250	250
Amperes	0.500	0.500	0.250	1.0	1.0	0.5
Volt Amperes	10	10	3	15	15	10
Performance Time—millisecond, max.						
Operate Time (2)	0.5–1.5	0.5–1.5	0.5–1.5	1.5–2.0	1.5–2.0	1.5–2.0
Release Time (2)	0.5–1.5	0.5–1.5	0.5–1.5	0.5–1.5	0.5–1.5	0.5–1.5
Bounce on Operate	0.5	—	0.5	0.5	—	4.0
Bounce on Release	—	0.5	2.0	—	0.5	4.0
Life Expectancy—millions of operations						
Dry circuit	200	200	50	200	200	200
Half rating	20	20	20	100	100	50
Full rating	10	10	10	20	20	20

MRR-D AND MRRQ REED RELAYS



Truly compatible with dual-in-line IC's including size and operating sensitivities that eliminate or minimize interface buffering. Pin spacing is industry standard for 14 pin dual-in-line IC's. Height above PC Board is .275″. Contact rated at 10 VA max., .250 Amp max., 100 volt max. Wt. 1 oz.

DUAL-IN-LINE REED RELAY, 14-PIN CASE

Stock No.	Type No.	Contacts	Volts DC	Ohms	1-24	25-49	50-7
60F3800	MRR1ADSR	1A	5	500	4.14	3.93	3.73
60F3801	MRR1ADS	1A	5	360	3.54	3.36	3.19
60F3802	MRR1ADS	1A	12	1440	3.54	3.36	3.19
29F2771	MRR1BDS	1B	5	125	5.91	5.61	5.32
29F2772	MRR1BDS	1B	12	500	5.91	5.61	5.32
29F2773	MRR1CDL	1C	5	100	7.09	6.74	6.38
29F2774	MRR1CDL	1C	12	500	7.09	6.74	6.38
29F2775	MRR2ADLX	2A	5	125	5.91	5.61	5.32
29F2776	MRR2ADLX	2A	12	500	5.91	5.61	5.32

DUAL-IN-LINE REED RELAY, 8-PIN CASE

29F2777	MRR1ADS8	1A	5	360	3.54	3.36	3.19
29F2778	MRR1ADS8	1A	12	1440	3.54	3.36	3.19
29F2779	MRR1BDS8	1B	5	125	5.91	5.61	5.32
29F2780	MRR1BDS8	1B	12	500	5.91	5.61	5.32
29F2781	MRR1CDL8	1C	5	100	7.09	6.74	6.38
29F2799	MRR1CDL8	1C	12	500	7.09	6.74	6.38
29F2800	MRR2ADLX8	2A	5	125	5.91	5.61	5.32
29F2801	MRR2ADLX8	2A	12	500	5.91	5.61	5.32

SINGLE-IN-LINE REED RELAY, 4-PIN CASE

29F2802	MRRQ1AR	1A	5	500	5.61	5.33	5.05
29F2803	MRRQ1AR	1A	12	1000	5.61	5.33	5.05
29F2804	MRRQ1A	1A	5	200	4.37	4.15	3.93
29F2805	MRRQ1A	1A	12	500	4.37	4.15	3.93
29F2806	MRRQ1BR	1B	5	500	8.03	7.63	7.23
29F2807	MRRQ1BR	1B	12	1000	8.03	7.63	7.23
29F2808	MRRQ1B	1B	5	200	6.85	6.51	6.17
29F2809	MRRQ1B	1B	12	500	6.85	6.51	6.17

MR-Y ENCAPSULATED REED RELAYS

End pin termination on 1-inch centers. Form A and B contacts rated 10 watts max at 200 volts max or 0.5 amps max. Form C contacts rated 3 watts at 28 volts max. or 0.250 amps max. Electrostatic shielding and/or internal clamping diode are available. 1″ x 0.4″ x 0.312″ high above PC board.

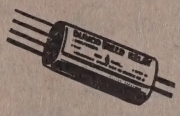
Molded Case Reed Relays — Axial Leads — 0.100″ Grid Spacing

Stock No.	Type No.	Contacts	Volts DC	Ohms	1-24	25-49	50-74
29F2785	MR30Y1A	1A	5	150	3.54	3.36	3.19
29F2786	MR30Y1A	1A	12	575	3.54	3.36	3.19
29F2787	MR30Y1B	1B	5	150	5.91	5.61	5.32
29F2788	MR30Y1B	1B	12	575	5.91	5.61	5.32
29F2789	MR30Y1C	1C	5	150	7.09	6.74	6.38
29F2790	MR30Y1C	1C	12	575	7.09	6.74	6.38
29F2791	MR30Y2A	2A	5	80	5.91	5.61	5.32
29F2792	MR30Y2A	2A	12	320	5.91	5.61	5.32
29F2793	MR30Y2C	2C	5	80	11.80	11.21	10.62
29F2794	MR30Y2C	2C	12	320	11.80	11.21	10.62

Molded Case Reed Relays — Axial Leads — 0.150″ Grid Spacing

29F2795	MR35Y1A	1A	5	150	3.54	3.36	3.19
29F2796	MR35Y1A	1A	12	575	3.54	3.36	3.19
29F2797	MR35Y1B	1B	5	150	5.91	5.61	5.32
29F2798	MR35Y1B	1B	12	575	5.91	5.61	5.32
29F2765	MR35Y1C	1C	5	150	7.09	6.74	6.38
29F2766	MR35Y1C	1C	12	575	7.09	6.74	6.38
29F2767	MR35Y2A	2A	5	80	5.91	5.61	5.32
29F2768	MR35Y2A	2A	12	320	5.91	5.61	5.32
29F2769	MR35Y2C	2C	5	80	11.80	11.21	10.62
29F2770	MR35Y2C	2C	12	320	11.80	11.21	10.62

TYPE MRR MINIATURE MOLDED SHIELD REEDS



Operating time is .5—2.5 msec. Release time less than 0.3 msec. Insulation resistance: 10,000 megs. MRR1A, 1 Form A, N.O.; .425″ dia. x 1.062″. MRR2A, 2 Form A, N.O.; 424 x .515 x 1.062″.

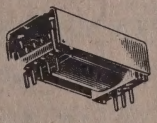
Stock No.	Type No.	Contacts	Volts DC	Ohms	1-24	25-49	50-74
60F3154	MRR1A	1A	6	288	5.60	5.32	5.04
60F3155	MRR1A	1A	12	1152	5.60	5.32	5.04
60F3156	MRR1A	1A	24	4600	8.24	7.83	7.42
60F3157	MRR2A	2A	6	144	8.24	7.83	7.42
60F3158	MRR2A	2A	12	576	8.24	7.83	7.42
60F3159	MRR2A	2A	24	2300	10.21	9.70	9.19

TYPE RR STANDARD MOLDED REED RELAYS

Axial leads, encapsulated with wrap around shielding. Operating time: .5 to 2.5 milliseconds, 10,000 megohms insulating res. Contact arrangement indicated by type number as follows: RR1A (1 Form A) and RR1B (1 Form B), .655″ dia x 1.875″; RR2A (2 Form A), .67 x .84 x 1.875″. Shpg. wt. 4 oz.

Stock No.	Type No.	Contacts	Volts DC	Ohms	1-24	25-49	50-74
60F3133	RR1A	1A	6	90	4.30	4.09	3.87
60F3134	RR1A	1A	12	360	4.30	4.09	3.87
60F3135	RR1A	1A	24	1440	4.30	4.09	3.87
60F3136	RR1B	1B	12	360	5.49	5.22	4.94
60F3137	RR1B	1B	24	1440	5.49	5.22	4.94
60F3138	RR2A	2A	6	36	6.62	6.29	5.96
60F3139	RR2A	2A	12	145	6.62	6.29	5.96
60F3140	RR2A	2A	24	580	6.62	6.29	5.96

TYPE MRRN MINIATURE OPEN-TYPE REED RELAYS



Low cost open dry reed relay designed for applications requiring reliability over long life. Snap-on metal covers for magnetic shielding. Contacts rated for low level to 12 volt-amperes. Non-magnetic P/C in-line terminals on 0.1″ grid spacing. Size: 1⅛″ long by ⅜″ above the mounting board.

Stock No.	Type No.	Contacts	Volts DC	Ohms	1-24	25-49	50-74
60F3088	MRRN1A	1A	12	750	4.37	4.15	3.93
60F3089	MRRN2A	2A	12	500	6.14	5.83	5.53
60F3090	MRRN3A	3A	12	400	8.39	7.97	7.55
60F3091	MRRN4A	4A	12	250	10.45	9.93	9.41
60F3092	MRRN1C	1C	12	750	8.50	8.08	7.65
60F3093	MRRN2C	2C	12	400	12.40	11.78	11.16
60F3094	MRRN1A	1A	24	3000	4.85	4.61	4.37
60F3095	MRRN2A	2A	24	2000	6.56	6.23	5.90
60F3096	MRRN3A	3A	24	1600	8.39	7.97	7.55
60F3097	MRRN4A	4A	24	1000	10.45	9.93	9.41
60F3098	MRRN1C	1C	24	3000	8.50	8.08	7.65
60F3099	MRRN2C	2C	24	1600	12.40	11.78	11.16

TYPE MRRS LOW PROFILE P.C. REED RELAYS

Shielded internally. Maximum environmental protection. Rated at 10 watts. Ambient temp. 0° to 50°C. Shock resistance 50g. 200,000,000 mechanical operations. Standard 0.172″ grid spacing. Right angle leads. Insulation resistance 100 megohms. 1.3″ long x 0.35″ high above PC board. Wt. 4 oz.

Stock No.	Type No.	Contacts	Volts DC	Ohms	1-24	25-49	50-74
60F3206	MRRS1A	1A	12	576	5.85	5.56	5.27
60F3207	MRRS1A	1A	24	2300	5.85	5.56	5.27
60F3202	MRRS2A	2A	12	380	8.11	7.70	7.30
60F3203	MRRS2A	2A	24	1440	8.11	7.70	7.30
60F3204	MRRS4A	4A	12	125	10.21	9.70	9.19
60F3205	MRRS4A	4A	24	500	10.21	9.70	9.19

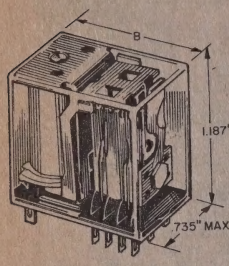
9

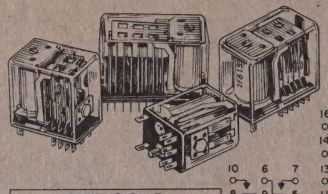
GOULD

Allied Control Cradle Series Relays

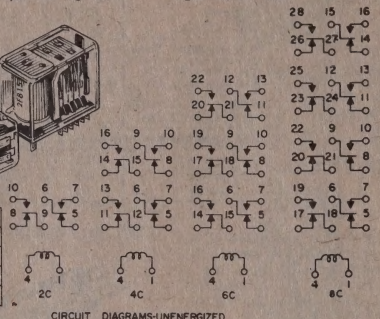
VOLTAGE ADJUSTED—DC RELAYS

Industrial relays with versatile mounting means including solder, printed circuit board and socket options. Sensitivity selection to match applications ranging from 20 to 140 mW per pole. Contact selection to match load switching requirements. U/L Recognized File #E206041. Voltage relays adjusted for maximum pickup of 75% of nominal coil voltage. Wt. 1.0 to 6.0 ounces. Contacts are of the tape or ribbon type, with gold finished silver contacts to protect against corrosion and assure low contact resistance.

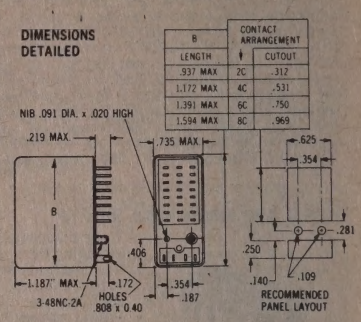




DIMENSION B	
2C	.937
4C	1.172
6C	1.391
8C	1.594



CIRCUIT DIAGRAMS-UNENERGIZED



B LENGTH	CONTACT ARRANGEMENT	CUTOUT
.937 MAX	2C	.312
1.172 MAX	4C	.531
1.391 MAX	6C	.750
1.594 MAX	8C	.969

T-154 STANDARD/SINGLE POINT CONTACTS

Contact arrangement specified in Type No. Example: 2C indicates 2 Form C.

Solder/Plug In		Coils					
Stk. No.	Type	Res. in Ohms	Nom. Power	1-9	10-49	50-99	100-499
59F459	T154-2C-6VDC	52	690mW	4.13	3.72	3.10	2.89
59F460	T154-2C-12VDC	185	690mW				
59F461	T154-2C-24VDC	700	690mW				
59F462	T154-2C-48VDC	2,500	690mW				
59F463	T154-2C-115VDC	15,000	690mW	6.59	5.93	4.94	4.61
59F464	T154-4C-6VDC	52	690mW	4.58	4.12	3.44	3.21
59F465	T154-4C-12VDC	185	690mW				
59F466	T154-4C-24VDC	700	690mW				
59F467	T154-4C-48VDC	2,500	690mW				
59F468	T154-4C-115VDC	15,000	690mW	6.99	6.29	5.24	4.89
59F469	T154-6C-6VDC	25	1.4W	5.92	5.33	4.44	4.14
59F470	T154-6C-12VDC	90	1.4W				
59F471	T154-6C-24VDC	430	1.4W				
59F472	T154-6C-48VDC	1,550	1.4W				
59F473	T154-6C-115VDC	9,000	1.4W	7.82	7.04	5.87	5.47
11F300	T154-8C-12VDC	75	1.9W	9.11	8.20	6.83	6.38
11F301	T154-8C-24VDC	430	1.9W	9.11	8.20	6.83	6.38

TF SERIES—5 AMP TYPES

59F484	TF154-2C-6VDC	52	690mW	4.30	3.87	3.23	3.01
59F485	TF154-2C-12VDC	185	690mW				
59F486	TF154-2C-24VDC	700	690mW				
59F487	TF154-2C-48VDC	2,500	690mW				
59F488	TF154-2C-115VDC	15,000	690mW	6.71	6.04	5.03	4.70
59F489	TF154-4C-6VDC	52	690mW	4.86	4.37	3.65	3.40
59F490	TF154-4C-12VDC	185	690mW				
59F491	TF154-4C-24VDC	700	690mW				
59F492	TF154-4C-48VDC	2,500	690mW				
59F493	TF154-4C-115VDC	15,000	690mW	7.32	6.59	5.49	5.12
59F494	TF154-6C-6VDC	25	1.4W	6.42	5.78	4.82	4.49
59F495	TF154-6C-12VDC	90	1.4W				
59F496	TF154-6C-24VDC	430	1.4W				
59F497	TF154-6C-48VDC	1,550	1.4W				
59F498	TF154-6C-115VDC	9,000	1.4W	7.49	6.74	5.62	5.24
11F310	TF154-8C-12VDC	75	1.9W	9.78	8.80	7.34	6.85
11F311	TF154-8C-24VDC	430	1.9W	9.78	8.80	7.34	6.85

T SERIES STANDARD/BIFURCATED CONTACTS

Solder/Plug-In		Coils					
Stk. No.	Type	Res. in Ohms	Nom. Power	1-9	10-49	50-99	100-499
59F527	T163-2C-12VDC	185	690mW	4.63	4.17	3.47	3.24
59F528	T163-2C-24VDC	700	690mW				
59F529	T163-2C-48VDC	2,500	690mW				
59F531	T163-4C-6VDC	52	690mW	5.20	4.68	3.90	3.64
59F532	T163-4C-12VDC	185	690mW				
59F533	T163-4C-24VDC	700	690mW				
59F534	T163-4C-48VDC	2,500	690mW				
59F536	T163-6C-6VDC	25	1.4W	6.71	6.04	5.03	4.70
59F537	T163-6C-12VDC	90	1.4W				
59F538	T163-6C-24VDC	430	1.4W				
59F539	T163-6C-48VDC	1,550	1.4W				
11F320	T163-8C-12VDC	75	1.9W	9.89	8.90	7.42	6.92
11F321	T163-8C-24VDC	430	1.9W				

SENSITIVE/SINGLE POINT CONTACTS

11F330	TS154-2C-12VDC	800	100mW	4.53	4.08	3.40	3.17
11F331	TS154-2C-24VDC	3,200	100mW	5.08	4.57	3.81	3.56
11F332	TS154-4C-12VDC	430	175mW	4.97	4.47	3.73	3.48
11F333	TS154-4C-24VDC	1,800	175mW	4.97	4.47	3.73	3.48
11F334	TS154-6C-12VDC	350	250mW	6.42	5.78	4.82	4.49
11F335	TS154-6C-24VDC	1,275	250mW	6.42	5.78	4.82	4.49
11F336	TS154-8C-12VDC	190	400mW	9.67	8.70	7.25	6.77
11F337	TS154-8C-24VDC	800	400mW	9.67	8.70	7.25	6.77

SENSITIVE/BIFURCATED CONTACTS

11F346	TS163-2C-12VDC	800	100mW	4.97	4.47	3.73	3.48
11F347	TS163-2C-24VDC	3,200	100mW	4.97	4.47	3.73	3.48
11F348	TS163-4C-12VDC	430	175mW	5.59	5.03	4.19	3.91
11F349	TS163-4C-24VDC	1,800	175mW	5.59	5.03	4.19	3.91
11F350	TS163-6C-12VDC	350	250mW	7.04	6.34	5.28	4.93
11F351	TS163-6C-24VDC	1,275	250mW	7.04	6.34	5.28	4.93
11F352	TS163-8C-12VDC	190	400mW	10.45	9.41	7.84	7.32
11F353	TS163-8C-24VDC	800	400mW	10.45	9.41	7.84	7.32

ULTRA-SENSITIVE RELAYS/SINGLE POINT CONTACTS

11F362	TSS154-2C-24VDC	7,500	40mW	5.92	5.33	4.44	4.14
11F363	TSS154-4C-24VDC	3,700	80mW	6.65	5.99	4.99	4.66

ULTRA-SENSITIVE RELAYS/BIFURCATED CONTACTS

11F366	TSS163-2C-24VDC	7,500	40mW	6.42	5.78	4.82	4.49
11F367	TSS163-4C-24VDC	3,700	80mW	7.26	6.53	5.45	5.08

DC RELAYS CURRENT ADJUSTED

SENSITIVE/SINGLE POINT CONTACTS—2 AMP RELAYS

Contact arrangement specified in Type No. Example: 2C indicates 2 Form C

Solder Plug-in		Coils					
Stk. No.	Type	Res. in Ohms	Nom. Power	1-9	10-49	50-99	100-499
59F509	TS154-2C-5.8 mADC	2,500	85mW	4.47	4.02	3.35	3.13
59F510	TS154-2C-4.1 mADC	5,000	85mW	5.08	4.57	3.81	3.56
59F512	TS154-4C-8.4 mADC	2,500	175mW	4.92	4.43	3.69	3.44
59F513	TS154-4C-6.2 mADC	5,000	175mW	5.53	4.98	4.15	3.87
59F544	TS154-6C-10.0 mADC	2,500	250mW	6.37	5.73	4.78	4.46
59F545	TS154-6C-7.2 mADC	5,000	250mW	6.93	6.24	5.20	4.85
59F546	TS154-8C-13.0 mADC	2,500	400mW	9.62	8.66	7.22	6.73
59F547	TS154-8C-9.0 mADC	5,000	400mW	10.22	9.20	7.67	7.15

SENSITIVE/BIFURCATED CONTACTS—2 AMP RELAYS

59F556	TS163-2C-5.8 mADC	2,500	85mW	4.92	4.43	3.69	3.44
59F557	TS163-2C-4.1 mADC	5,000	85mW	5.53	4.98	4.15	3.87
59F558	TS163-4C-8.4 mADC	2,500	175mW	5.53	4.98	4.15	3.87
59F559	TS163-4C-6.2 mADC	5,000	175mW	6.09	5.48	4.57	4.26
59F560	TS163-6C-10.0 mADC	2,500	250mW	6.99	6.29	5.24	4.89

SENSITIVE/BIFURCATED CONTACTS—2 AMP RELAYS

Solder Plug-in		Coils					
Stk. No.	Type	Res. in Ohms	Nom. Power	1-9	10-49	50-99	100-499
59F561	TS163-6C-7.2 mADC	5,000	250mW	7.60	6.84	5.70	5.32
59F562	TS163-8C-13.0 mADC	2,500	400mW	10.39	9.35	7.79	7.27
59F563	TS163-8C-9.0 mADC	5,000	400mW	10.96	9.86	8.22	7.67

ULTRA-SENSITIVE/SINGLE POINT CONTACTS—1 AMP

59F572	TSS154-2C-4.1 mADC	2,500	40mW	4.80	4.32	3.60	3.36
59F573	TSS154-2C-2.9 mADC	5,000	40mW	5.42	4.88	4.07	3.79
59F574	TSS154-4C-5.8 mADC	2,500	80mW	5.97	5.37	4.48	4.18
59F575	TSS154-4C-4.1 mADC	5,000	80mW	6.59	5.93	4.94	4.61

ULTRA-SENSITIVE/BIFURCATED CONTACTS—1 AMP

59F580	TSS163-2C-4.1 mADC	2,500	40mW	5.25	4.73	3.94	3.68
59F581	TSS163-2C-2.9 mADC	5,000	40mW	5.87	5.28	4.40	4.11
59F582	TSS163-4C-5.8 mADC	2,500	80mW	6.65	5.99	4.99	4.66
59F583	TSS163-4C-4.1 mADC	5,000	80mW	7.21	6.49	5.41	5.05

Allied Control Cradle Series Relays

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AC RELAYS—VOLTAGE ADJUSTED

SINGLE POINT CONTACTS

Solder/Plug-In Stk. No.	Type	Con. Rtg.	Res. in Ohms	Nom. Power	1-9	10-49	50-99	100-499
59F588	T154-2C-115VAC	2 Amp	6,000	1.3VA	5.08	4.57	3.81	3.56
59F589	T154-4C-115VAC	2 Amp	6,000	1.3VA	5.81	5.23	4.36	4.07
59F590	TF154-2C-115VAC	5 Amp	6,000	1.3VA	5.25	4.73	3.94	3.68
59F591	TF154-4C-115VAC	5 Amp	6,000	1.3VA	6.04	5.44	4.53	4.23

BIFURCATED CONTACTS

Solder/Plug-In Stk. No.	Type	Con. Rtg.	Res. in Ohms	Nom. Power	1-9	10-49	50-99	100-499
59F596	T163-2C-115VAC	2 Amp	6,000	1.3VA	5.59	5.03	4.19	3.91
59F597	T163-4C-115VAC	2 Amp	6,000	1.3VA	6.42	5.78	4.82	4.49

MAGNETIC LATCH RELAYS

Magnetic latch relays with single and dual coil construction. Versatile mounting means, including solder, printed circuit board and socket options. U.L. recognized File E-20604. Weight: 1.5 to 4.0 ounces.

Contact arrangement specified in Type No. Example: 2C indicates 2 Form C.

SINGLE COIL—SINGLE POINT CONTACTS—2 AMPS

Solder/Plug In Stk. No.	Type	Res. in Ohms	Nom. Power	1-9	10-49	50-99	100-499
59F1212	T351-2C-24VDC	630	300mW	6.15	5.54	4.61	4.31
59F1217	T351-4C-24VDC	630	300mW	6.76	6.08	5.07	4.73

SINGLE COIL—5 AMPS

59F1222	TF351-2C-24VDC	630	300mW	6.26	5.63	4.70	4.38
59F1218	TF351-4C-24VDC	630	300mW	7.04	6.34	5.28	4.93

SINGLE COIL BIFURCATED CONTACTS—2 AMPS

59F602	T362-2C-24VDC	630	300mW	6.65	5.99	4.99	4.66
59F603	T362-4C-24VDC	630	300mW	7.71	6.94	5.78	5.40

DUAL COIL SINGLE POINT CONTACTS—2 AMPS

Solder/Plug-In Stk. No.	Type	Res. in Ohms	Nom. Power	1-9	10-49	50-99	100-499
59F1227	T351-2C-2/24VDC	485/485	600mW	7.38	6.64	5.54	5.17
59F1232	T351-4C-2/24VDC	485/485	600mW	7.71	6.94	5.78	5.40

DUAL COIL SINGLE POINT CONTACTS—5 AMPS

59F1237	TF351-2C-2/24VDC	485/485	600mW	7.49	6.74	5.62	5.24
59F608	TF351-4C-2/24VDC	485/485	600mW	8.28	7.45	6.21	5.80

DUAL COIL BIFURCATED CONTACTS—2 AMPS

59F611	T362-2C-2/24VDC	485/485	600mW	7.83	7.05	5.87	5.48
59F612	T362-4C-2/24VDC	485/485	600mW	8.88	7.99	6.66	6.22

9

CRADLE SOCKETS AND HARDWARE

2 POLE

Stock No.	Type	For	NET
59F621	0211-011-001-000	Solder Lug	.67
59F622	0211-011-005-000	PC Mount	
59F623	0211-011-003-000	.1x.1 Grid	

4 POLE

59F624	0211-011-008-000	Solder Lug	1.05
59F625	0211-011-002-000	Solder Lug	.91
59F626	0211-011-006-000	PC Mount	.91
59F627	0211-011-004-000	.1x.1 Grid	.91

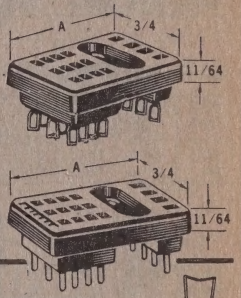
6 POLE

Stock No.	Type	For	Net
59F628	0211-011-020-000	Solder Lug	1.28
59F629	0211-011-024-000	PC Mount	
59F630	0211-011-028-000	.1x.1 Grid	

8 POLE

59F631	0211-011-030-000	Solder Lug	1.62
59F632	0211-011-031-000	PC Mount	
59F633	0211-011-032-000	.1x.1 Grid	

Dimensions	
Poles	A
2 Pole	31/32
4 Pole	1-13/64
6 Pole	1-13/32
8 Pole	1-41/64



GROUND WIRE

Stock No.	Type	For	Net
59F615	30052-1	Solder & Std. PC	.11

GROUND WIRE

Stock No.	Type	For	Net
59F616	30174-1	.100 PC Sockets	.16

STANDARD RETAINERS

Stock No.	Type	For	Net
59F617	30040-1	2 pole	.11
59F618	30040-2	4 pole	
59F619	30040-3	6 pole	

FLAT RETAINER

Stock No.	Type	For	Net
59F620	0330-031-001	8 pole	.16

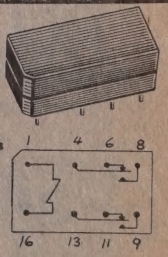
SAVE WORK! Make Newark your Complete 1-Point Stock Source
SAVE TIME! At Newark—fast, efficient service always!

LOW PROFILE DIP RELAY

Fits 16 pin IC socket or PCB with .5" spacing. 4 ms operate time, 1 ms release time with 5 ms N.C. and 1 ms N.O. bounce time. Rated at 1 amp. at 28 VDC switching, 5 amps. carry. Max. pull-in sensitivity: 200 mW. Coil to contacts: 2.8 pf, between contacts: 1.5 pf, between circuits: 1.3 pf. Expected mechanical life: 10 x 10^6 operations. Operating temp: −55°C to 70°C. Weight: 5 g.

Stock No.	Type	Nom. Volt	Coil VDC Max.	Coil Drop Out	Coil. Res.*	1-9	10-49	50-99	100-499
29F310	DR-5VDC	5V	7.5V	.19V	63Ω	4.00	3.60	3.00	2.80
29F311	DR-6VDC	6V	9V	.23V	100Ω	4.00	3.60	3.00	2.80
29F312	DR-12VDC	12V	18V	.68V	400Ω	4.00	3.60	3.00	2.80
29F313	DR-24VDC	24V	36V	.9V	1600Ω	4.50	4.05	3.38	3.15
29F314	DR-48VDC	48V	72V	1.8V	6400Ω	4.50	4.05	3.38	3.15

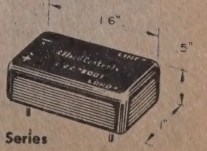
*±10%.



SERIES E22 SOLID STATE RELAY

Full-wave power switches which can control either resistive or inductive loads up to 4 amps. Ideal for use with logic having low noise immunity. Toroidal transformer isolates input and outputs, thereby eliminating interfacing problems. Unit is encased in a thermal-conductive epoxy filled aluminum housing, allowing use in hostile conditions. Units are single-pole type. Size: 1.6" x 1.0" x .5". Input voltage: 3-30VDC. Output: 260VAC, 4 amp., 50-60 Hz. TYPE E22N.

Stock No.	Type	1-9	10-49	50-99	100-up
29F315	E22	18.56	16.70	13.92	12.99



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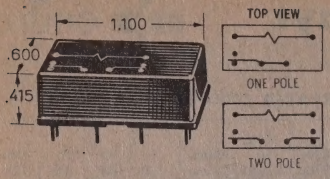
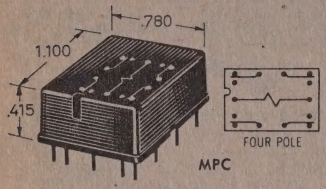
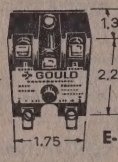
Allied Control Relays

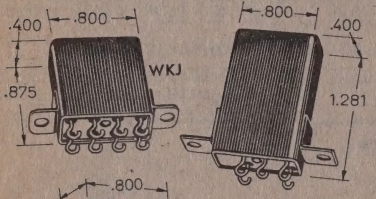




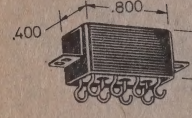
MPC



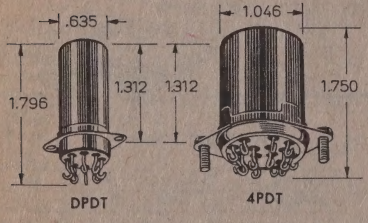
E-6



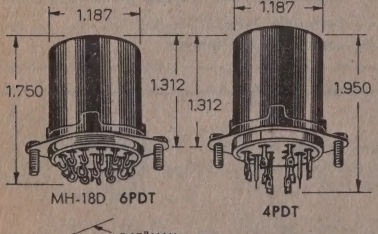
WJS



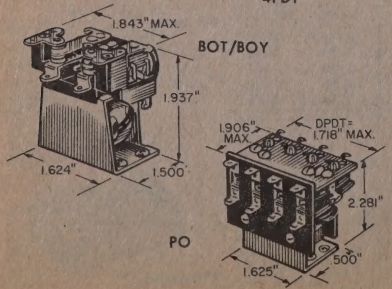
S6A1



DPDT 4PDT



MH-18D 6PDT 4PDT



PO

MINIATURE PRINTED CIRCUIT RELAYS

Series MPC. Low profile, high density packaging. Can switch low level up to 2 amps (50 watts max. per hole). Interlocking housing provides protection from contamination and increases reliability.

Series MPCL. Latch time is 3 ms. Designed for continuous duty with identical low power consumption. Both have hingeless armature which increases long life. Both have gold plated contacts.

Stock No.	Type	Coil Input VDC	Coil Resis. Ohms	Coil Power mW	Contacts	1-9	10-49	50-99	100-499
11F370	MPC-1C	6	50	720	1PDT	3.13	2.82	2.34	2.19
11F371	MPC-1C	12	200	720	1PDT	3.13	2.82	2.34	2.19
11F372	MPC-1C	24	800	720	1PDT	3.29	2.96	2.46	2.30
11F373	MPC-2C	6	50	720	2PDT	4.13	3.72	3.10	2.89
11F374	MPC-2C	12	200	720	2PDT	4.13	3.72	3.10	2.89
11F375	MPC-2C	24	800	720	2PDT	4.25	3.83	3.18	2.97
11F376	MPC-2C	48	3200	720	2PDT	4.25	3.83	3.18	2.97
11F377	MPC-4C	6	38	960	4PDT	5.03	4.53	3.78	3.52
11F378	MPC-4C	12	150	960	4PDT	5.03	4.53	3.78	3.52
11F379	MPC-4C	24	600	960	4PDT	5.09	4.58	3.82	3.56
11F380	MPC-4C	48	2400	960	4PDT	5.09	4.58	3.82	3.56
MPC SENSITIVE RELAYS									
28F1700	MPCS-2C	5	80	720	DPDT	4.45	4.01	3.34	2.12
28F1701	MPCS-2C	6	125	720	DPDT	4.45	4.01	3.34	3.12
28F1702	MPCS-2C	12	500	720	DPDT	4.45	4.01	3.34	3.12
28F1703	MPCS-2C	24	2000	720	DPDT	4.55	4.10	3.41	3.18
MPC LATCHING RELAYS									
28F1704	MPCL-2C	5	28	720	DPDT	7.50	6.75	5.63	5.25
28F1705	MPCL-2C	6	40	720	DPDT	7.50	6.75	5.63	5.25
28F1706	MPCL-2C	12	160	720	DPDT	7.50	6.75	5.63	5.25
28F1707	MPCL-2C	24	640	720	DPDT	8.00	7.20	6.00	5.60

SERIES E-6 SOLID STATE RELAYS

Completely Solid State, using inverse parallel matched SCR's. Low voltage. Automatic load surge compensation into reactive loads. Oper. temp: −30°C to +80°C.

Stk. No.	Type	Control Volt.	Output Volt.	Output Curr.	Input Resis.	1-9	10-49	50-99	100-499
28F1708	E6-1010	3-32VDC	120VAC	10A	1000 ohms	33.00	29.70	24.75	23.10
28F1709	E6-1025	3-32VDC	120VAC	25A	1000 ohms	43.00	38.70	32.25	30.10
28F1710	E6-1040	3-32VDC	120VAC	40A	1000 ohms	53.00	47.70	39.75	37.10
28F1711	E6-2010	3-32VDC	240VAC	10A	1000 ohms	33.00	29.70	24.75	23.10
28F1712	E6-2025	3-32VDC	240VAC	25A	1000 ohms	43.00	38.70	32.25	30.10
28F1713	E6-2040	3-32VDC	240VAC	40A	1000 ohms	53.00	47.70	39.75	37.10

MILITARY RELAYS

Series WKJ. High performance. Bifurcated contacts make relay ideal for dry circuit loads up to 3 amp. All welded. **Series WKJ,** MIL-R-5757/10 as applicable. **Series WJS,** MIL-R-5757/13 as applicable. **Series S,** MIL-R-5757/9 as applicable.

CRYSTAL CAN/SERIES WKJ

Stock No.	Type	Con. Rtg.	Cont.	Coils Input	Coils Coil Resist.	1-9	10-49	50-99	100-499
11F381	WKJ-6D	3 amp	DPDT	26.5 VDC	600	13.59	12.23	10.19	9.51
SENSITIVE, LONG CRYSTAL CAN/SERIES WJS									
59F667	WJS-6D	3 amp	DPDT	4.0 mADC	2,500	15.40	13.86	11.55	10.78
½ SIZE CRYSTAL CAN/SERIES S									
59F1246	S6A1	2 amp	DPDT	26.5 VDC	700	13.58	12.22	10.19	9.51

MILITARY RELAYS/MINIATURE ROUND CAN STYLE

5 AMP/SERIES MH/MHB/MHJ

CRYSTAL CAN STYLE

Stock No.	Type	Cont.	Coils Input	Coils Resist.	1-9	10-49	50-99	100-499
59F439	MH-6D	2PDT	26.5 VDC	400	17.72	15.95	13.29	12.40
59F440	MH-12D	4PDT	26.5 VDC	300	26.61	23.95	19.96	18.63
59F441	MH-18D	6PDT	26.5 VDC	200	32.43	29.19	24.32	22.70
ROUND CAN STYLE—10 AMP								
11F384	MHY-12D	4PDT	26.5 VDC	200	31.59	28.43	23.69	22.11

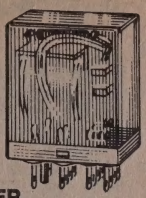
BOT/BOY SERIES—OPEN FRAME INDUSTRIAL COMMERCIAL RELAYS

Stock No.	Type	Con-tacts	Coil Input	Coil Resist.	1-9	10-49	50-99	100-499
59F405	BOT-6A	DPDT	24 VAC	17	12.19	10.97	9.14	8.53
59F406	BOT-6A	DPDT	115 VAC	445	12.19	10.97	9.14	8.53
59F409	BOT-6D	DPDT	12 VDC	70	11.73	10.55	8.79	8.21
59F410	BOT-6D	DPDT	26.5 VDC	230	11.73	10.55	8.79	8.21
59F411	BOT-6D	DPDT	110/120 VDC	5,000	11.73	10.55	8.79	8.21
11F385	BOY-6D	DPDT	87 VDC	10,000	15.90	14.31	11.92	11.13
PO SERIES—OPEN FRAME, HEAVY DUTY								
11F386	PO-6A	DPDT	24 VAC	1.5	14.17	12.75	10.62	9.91
59F450	PO-9A	3PDT	110/120 VAC	145	15.43	13.88	11.57	10.80
11F387	PO-12A	4PDT	24 VAC	8	17.53	15.77	13.14	12.27
59F454	PO-12A	4PDT	110/120 VAC	145	17.53	15.77	13.14	12.27
11F388	PO-6D	DPDT	26.5 VDC	230	13.95	12.55	10.46	9.76
59F456	PO-12D	4PDT	26.5 VDC	230	16.92	15.22	12.69	11.84

GENERAL PURPOSE RELAYS

MIDTEX INCORPORATED

MINIATURE 4PDT RELAYS UL RECOGNIZED
TYPE 156



Low cost versatile switching. For use in data processing and industrial control applications. Silver contacts are rated at 3 amps 28 VDC/ 120 VAC. 80% of Silver cad. oxide contacts are 5 amps 28 VDC/120 VAC 80% pf. 1.281″L x .859″W x 1.109″H. Weight 1.5 oz.

4PDT 3 AMP SILVER SOLDER PLUG-IN LEXAN COVER

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
33F1402	156-14B100	12 VDC	160	5.90	5.61	5.31	4.13
33F1403	156-14C100	24 VDC	650	5.90	5.61	5.31	4.13
33F1404	156-14F100	110 VDC	11000	7.20	6.84	6.48	5.04
33F1405	156-14Q100	24 VAC	155	6.55	6.22	5.90	4.59
33F1406	156-14T100	110 VAC	3900	7.10	6.75	6.39	4.97
33F1407	156-14U100	240 VAC	14900	7.10	6.75	6.39	4.97

4PDT 5 AMP SILVER CAD SOLDER PLUG-IN LEXAN COVER

33F1408	156-14B200	12 VDC	160	5.90	5.61	5.31	4.13
33F1409	156-14C200	24 VDC	650	5.90	5.61	5.31	4.13
33F1410	156-14F200	110 VDC	11000	7.20	6.84	6.48	5.04
33F1411	156-14Q200	24 VAC	155	6.55	6.22	5.90	4.59
33F1412	156-14T200	120 VAC	3900	7.10	6.75	6.39	4.97
33F1413	156-14U200	240 VAC	14900	7.10	6.75	6.39	4.97

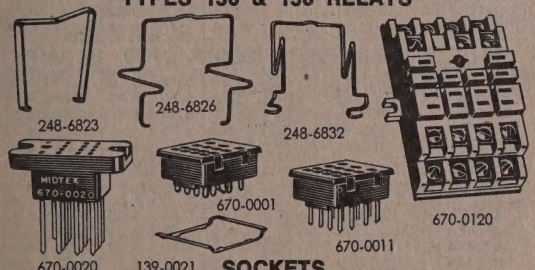
4PDT 3 AMP SILVER PC TERMINALS .112″ LONG NYLON COVER

33F1414	156-24B100	12 VDC	160	5.90	5.61	5.31	4.13
33F1415	156-24C100	24 VDC	650	5.90	5.61	5.31	4.13
33F1416	156-24F100	110 VDC	11000	7.20	6.84	6.48	5.04
33F1417	156-24Q100	24 VAC	155	6.55	6.22	5.90	4.59
33F1418	156-24T100	110 VAC	3900	7.10	6.75	6.39	4.97
33F1419	156-24U100	240 VAC	14900	7.10	6.75	6.39	4.97

4PDT 5 AMP SILVER CAD PC TERMINALS .112″ LONG NYLON COVER

33F1420	156-24B200	12 VDC	160	5.90	5.61	5.31	4.13
33F1421	156-24C200	24 VDC	650	5.90	5.61	5.31	4.13
33F1422	156-24F200	110 VDC	11000	7.20	6.84	6.48	5.04
33F1423	156-24Q200	24 VAC	155	6.55	6.22	5.90	4.59
33F1424	156-24T200	110 VAC	3900	7.10	6.75	6.39	4.97
33F1425	156-24U200	240 VAC	14900	7.10	6.75	6.39	4.97

SOCKETS AND HOLDDOWN SPRINGS FOR TYPES 156 & 158 RELAYS



SOCKETS

Stock No.	Type	Description	1-24	25-49	50-99	100-249
33F1446	670-0001	Solder Terminals	.65	.62	.59	.46
33F1447	670-0011	PC Ter. w/Gnd.	.65	.62	.59	.46
28F1720	670-0014	PC Ter. w/o Gnd.	.65	.62	.59	.46
33F1448	670-0020	Wire Wrp. & Ter. Pt.	1.70	1.62	1.53	1.19
28F1721	670-0120	Screw Terminals	7.10	6.75	6.39	4.97

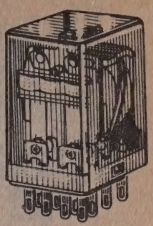
HOLDDOWN SPRING

Use for 2 pole 156 & 1 pole 158

Stock No.	Type	Description	1-24	25-49	50-99	100-249
33F1449	248-6823	Flat Wire	.12	.12	.12	.12
28F1722	248-6826	Round Wire	.14	.14	.14	.14
28F1723	248-6832	Wire Wrap	.25	.25	.25	.25
33F1489	139-0021	Socket Clip	.05	.05	.05	.04

MINIATURE 10 AMP INDUSTRIAL CONTROL RELAY UL RECOGNIZED

TYPE 158



Silver Cadmium Oxide Contacts rated at 10 amps, 28 VDC/120 VAC with a 80% pf. Maximum contact resistance of .1 ohms. Coil voltage 6 to 240 VAC 50/60 Hz and 6 to 110 VDC. Coil has nominal power rating of 1.3 VA AC and .9 Watts DC plus a maximum continuous rating of 2 VA AC and 2 Watts DC. Rated at continuous duty operation. All ratings at 25 degrees C ambient. 1.28″L x .859″W x 1.109″H. Wt. 1.5 oz.

USES SAME SOCKET AS 156 RELAY.

1PDT 10 AMP SILVER CAD PLUG-IN TERMINALS

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
33F1426	158-11B200	12 VDC	160	4.80	4.56	4.32	3.36
33F1427	158-11C200	24 VDC	650	4.80	4.56	4.32	3.36
33F1428	158-11F200	110 VDC	11000	5.70	5.42	5.13	3.99
33F1429	158-11T200	120 VAC	3900	5.05	4.80	4.55	3.54
33F1430	158-11U200	240 VAC	14900	5.70	5.42	5.13	3.99

1PDT 10 AMP SILVER CAD PC TERMINALS

33F1431	158-21B200	12 VDC	160	4.80	4.56	4.32	3.36
33F1432	158-21C200	24 VDC	650	4.80	4.56	4.32	3.36
33F1433	158-21F200	110 VDC	11000	5.70	5.42	5.13	3.99
33F1434	158-21T200	110 VAC	3900	5.05	4.80	4.55	3.54
33F1435	158-21U200	240 VAC	14900	5.70	5.42	5.13	3.99

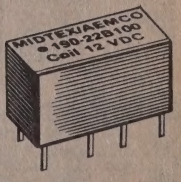
2PDT 10 AMP SILVER CAD PLUG-IN TERMINALS

33F1436	158-12B200	12 VDC	160	5.50	5.23	4.95	3.85
33F1437	158-12C200	24 VDC	650	5.50	5.23	4.95	3.85
33F1438	158-12F200	110 VDC	11000	6.30	5.99	5.67	4.41
33F1439	158-12T200	110 VAC	3900	6.15	5.84	5.54	4.31
33F1440	158-12U200	240 VAC	14900	6.70	6.37	6.03	4.69

2PDT 10 AMP SILVER CAD PC TERMINALS

33F1441	158-22B200	12 VDC	160	5.50	5.23	4.95	3.85
33F1442	158-22C200	24 VDC	650	5.50	5.23	4.95	3.85
33F1443	158-22F200	110 VDC	11000	6.30	5.99	5.67	4.41
33F1444	158-22T200	110 VAC	3900	6.15	5.84	5.54	4.31
33F1445	158-22U200	240 VAC	14900	6.70	6.37	6.03	4.69

TYPE 190



DUAL-IN-LINE POWER DPDT 2 AMPERE RELAY

- **Sealed For PCB Cleaning**
- **Gold Alloy Contacts**
- **Dip Socket Plug-in**

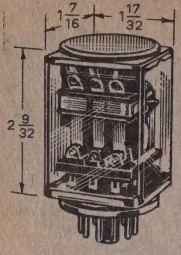
Provides full DPDT gold contact pair rated at 2 amps at 28 VDC, or 120 VAC, resistive. Gold alloy and sealed construction provides low level switching performance. Ideal for semiconductor or microprocessor systems where adequate isolation is required between the I/O circuit, can also be used for telecommunications. Operate and release times are 2-3 milli-seconds. Suited for Dip Socket plug-in, may be automatically soldered and immersion cleaned directly on a PCB, by virtue of a high density seal and inert gas treatment, which eliminates costly PCB masking and hand soldering.

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
28F1728	190-22E100	5VDC	45	4.50	4.28	4.05	3.15
28F1724	190-22A100	6VDC	60	4.50	4.28	4.05	3.15
28F1725	190-22B100	12VDC	280	4.50	4.28	4.05	3.15
28F1726	190-22C100	24VDC	1070	4.70	4.47	4.23	3.29
28F1727	190-22D100	48VDC	4000	4.90	4.66	4.41	3.43

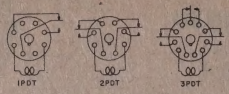
9

MIDTEX INCORPORATED

General Purpose Relays



TYPE 155 GENERAL PURPOSE RELAY UL RECOGNIZED



- 10 AMP
- OCTAL PLUG
- DUST COVER

Plug-in type using octal type plug. Lexan hi-impact cover. Rated to 10 amps ⅓ hp. 115 VAC, 6 amps ½ hp. 240 VAC. Wt. 2 oz.

TYPE 155 2PDT 10 AMP DUST COVER OCTAL PLUG

Stk. No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5320	155-92B200	12VDC	120	9.05	8.60	8.15	6.34
23F5321	155-92C200	24VDC	480	9.05	8.60	8.15	6.34
23F5322	155-92F200	110VDC	10000	9.00	8.55	8.10	6.30
23F5323	155-92Q200	24VAC	75	8.90	8.46	8.01	6.23
23F5324	155-92T200	120VAC	2250	9.20	8.74	8.28	6.44
23F5325	155-92U200	240VAC	9000	9.20	8.74	8.28	6.44

TYPE 155 3PDT 10 AMP DUST COVER OCTAL PLUG

23F5326	155-93B200	12VDC	120	11.15	10.59	10.04	7.81
23F5327	155-93C200	24VDC	480	11.15	10.59	10.04	7.81
23F5328	155-93F200	110VDC	10000	11.70	11.12	10.53	8.19
23F5329	155-93Q200	24VAC	75	11.00	10.45	9.90	7.70
23F5330	155-93T200	120VAC	2250	11.40	10.83	10.26	7.98
23F5331	155-93U200	240VAC	9000	11.40	10.83	10.26	7.98

670-0127

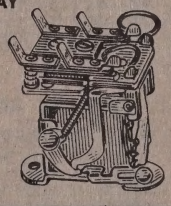
SURFACE MOUNT SCREW TERMINAL SOCKETS FOR TYPE 155 OCTAL RELAYS

670-0126

Stk. No.	Type	Description	1-24	25-49	50-99	100-249
23F5333	670-0127	8 pin for 155-92	2.80	2.66	2.52	1.96
23F5332	670-0126	11 pin for 155-93	4.25	4.04	3.83	2.98

TYPE 48 LATCHING RELAY

TWO POLE MOTOR REVERSING RELAY FOR AUTOMATIC GARAGE DOOR OPENERS 2.21″L x 1.75″W x 2.40″H



50 ms pulse will trigger latch or unlatch. UL recognized. Type 48-3 has ¼″ QC/Solder Terminals on contacts. Type 48-1 has 7¼″ leads on coil and ¼″ QC/Solder Terminals on contacts. DPDT contacts rated 15 amps. 28VDC/120VAC 80% pf. Wt. 7 oz.

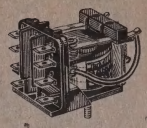
Stk. No.	Type	Volts	1-24	25-49	50-99	100-249
23F334	48-12Q100	24VAC	10.35	9.83	9.32	7.25
23F335	48-12T100	120VAC				
33F1400	48-32Q100	24VAC				
33F1401	48-32T100	120VAC				

TYPE 48 RELAY SIX-PAK

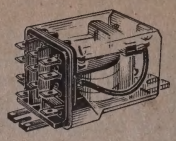
Contains six individually packaged 48-12Q100 relays.

Stk. No.	Type	One 6-Pak	Five 6-Pak's
23F5336	48-12Q1DP	62.10	58.98

TYPE 157 GENERAL PURPOSE RELAY UL RECOGNIZED



Open Style
2.090″L x 1.468″W x 1.282″H



Dust Cover With Mounting Flanges
2.900″L x 1.525″W x 1.400″H

Plug-In With Dust Cover
1.525″W x 1.400″H x 1.905″L

Industrial design power driver. Cool running coil insures over-voltage and high ambient temperature performance. Max. contact resistance .1 ohms. Coil rated 6 to 240 VAC 50/60 hz. 6 to 110 VDC, cont. duty. Contact ratings 10 or 15 amps. 28 VDC/120/240 VAC, 80% pf. Operate make time 20 MS max. Operate release time 10 MS max. Wt. open 2.3 oz. enclosed 3.0 oz.

157-1 OPEN STYLE WITH MTG. STUD, 2PDT 10 AMPS

Stk. No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5337	157-12B200	12VDC	120	5.15	4.89	4.64	3.61
23F5338	157-12C200	24VDC	470	5.15	4.89	4.64	3.61
23F5339	157-12F200	110VDC	10,000	5.90	5.61	5.31	4.13
23F5340	157-12Q200	24VAC	75	5.70	5.42	5.13	3.99
23F5341	157-12T200	120VAC	2,250	5.70	5.42	5.13	3.99
23F5342	157-12U200	240VAC	9,100	6.40	6.08	5.76	4.48

157-1 OPEN STYLE WITH MTG. STUD, 2PDT 15 AMPS

23F5343	157-12B300	12VDC	120	5.75	5.46	5.18	4.03
23F5344	157-12C300	24VDC	470	5.75	5.46	5.18	4.03
23F5345	157-12F300	110VDC	10,000	6.50	6.18	5.85	4.55
23F5346	157-12Q300	24VAC	75	6.30	5.99	5.67	4.41
23F5347	157-12T300	120VAC	2,250	6.30	5.99	5.67	4.41
23F5348	157-12U300	240VAC	9,100	7.00	6.65	6.30	4.90

157-1 OPEN STYLE WITH MTG. STUD, 3PDT 10 AMPS

23F5349	157-13B200	12VDC	120	6.05	5.75	5.45	4.24
33F1466	157-13C200	24VDC	470	6.05	5.75	5.45	4.24
23F5350	157-13F200	110VDC	10,000	6.85	6.51	6.17	4.80
33F1467	157-13Q200	24VAC	72	6.55	6.22	5.90	4.59
33F1468	157-13T200	120VAC	1,700	6.55	6.22	5.90	4.59
33F1469	157-13U200	240VAC	7,200	7.10	6.75	6.39	4.97

157-2 PLUG-IN WITH COVER, 2PDT 10 AMPS

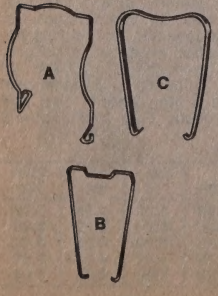
23F5351	157-22B200	12VDC	120	5.50	5.23	4.95	3.85
33F1470	157-22C200	24VDC	470	5.50	5.23	4.95	3.85
23F5352	157-22F200	110VDC	10,000	6.30	5.99	5.67	4.41
23F5353	157-22Q200	24VAC	75	6.15	5.84	5.54	4.31
33F1471	157-22T200	120VAC	2,250	6.15	5.84	5.54	4.31
23F5354	157-22U200	240VAC	9,100	6.70	6.37	6.03	4.69

157-2 PLUG-IN WITH COVER, 2PDT 15 AMPS

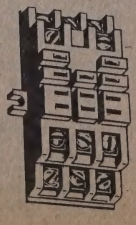
23F5355	157-22B300	12VDC	120	6.10	5.80	5.49	4.27
23F5356	157-22C300	24VDC	470	6.10	5.80	5.49	4.27
23F5357	157-22F300	110VDC	10,000	6.90	6.56	6.21	4.83
23F5358	157-22Q300	24VAC	75	6.75	6.41	6.08	4.73
23F5359	157-22T300	120VAC	2,250	6.75	6.41	6.08	4.73
23F5360	157-22U300	240VAC	9,100	7.30	6.94	6.57	5.11

157-2 PLUG-IN WITH COVER, 3PDT 10 AMPS

33F1472	157-23B200	12VDC	120	6.35	6.03	5.72	4.45
33F1473	157-23C200	24VDC	470	6.35	6.03	5.72	4.45
33F1474	157-23F200	110VDC	10,000	7.00	6.65	6.30	4.90
33F1475	157-23Q200	24VAC	72	6.85	6.51	6.17	4.80
33F1476	157-23T200	120VAC	1,700	6.85	6.51	6.17	4.80
33F1477	157-23U200	240VAC	7,200	7.55	7.17	6.80	5.29

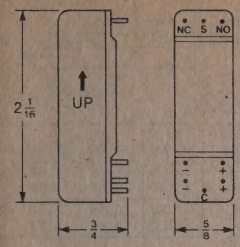


SOCKETS, HOLDOWN SPRINGS FOR 157

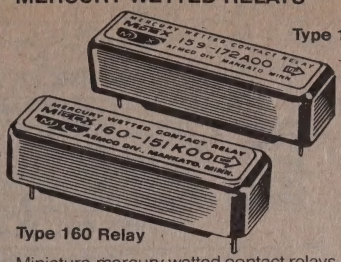


Stk. No.	Type	Fig.	Description	1-24	25-49	50-99	100-249
33F1484	670-0009	D	Solder Lug	.90	.86	.81	.63
33F1485	670-0012		3/16″ QC	.90	.86	.81	.63
33F1486	670-0013		PCB	.90	.86	.81	.63
33F1487	670-0034	E	WW & Termi-point	1.70	1.62	1.53	1.19
23F536	670-0125	F	Screw	4.60	4.37	4.14	3.22
23F5362	139-0029	A	Round Wire Rivet Mount	.28	.27	.26	.20
33F1488	139-0032	C	WW	.25	.24	.23	.18
23F5363	248-6841	B	Round Wire	.25	.24	.23	.18

9

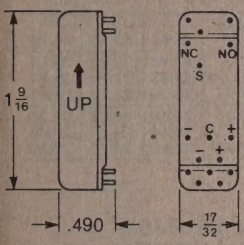


MERCURY WETTED RELAYS



Type 159 Relay

Type 160 Relay



Miniature mercury wetted contact relays feature long life, low power operation and no contact bounce. Life is rated in the billions of operations with fast operate time. Must be operated in the upright position but variations up to 30° will cause only slight changes in operation. Contact rating is 2 amps max, 500 volts max, 100 VA max for switching and 5 amps max for non-switching loads. Contact protection must be provided, circuit information provided with each unit.

TYPE 159

Stock No.	Type	Coil Ohms	Oper. VDC	1-24	25-49	50-99
33F1450	159-111R00	2430	9.7	12.00	11.40	10.80
33F1451	159-111T00	3620	12			
33F1452	159-151R00	2430	9.7			
33F1453	159-151T00	3620	12			

TYPE 160

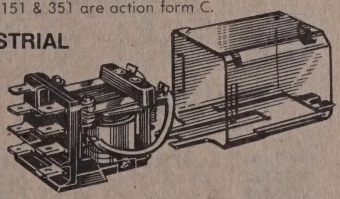
Stock No.	Type	Coil Ohms	Oper. VDC	1-24	25-49	50-99
33F1454	160-111R00*	1750	8.8	12.00	11.40	10.80
33F1455	160-111T00*	2650	11			
33F1456	160-111U00*	3900	14			
33F1457	160-151M00*	325	3.8			
33F1458	160-151R00*	1750	8.8			
33F1459	160-151T00*	2650	11			
33F1460	160-151U00*	3900	14			
33F1461	160-151W00*	9000	21			
33F1462	160-351M00†	325	3.8			
33F1463	160-351R00†	1750	8.8			
33F1464	160-351T00†	2650	11			
33F1465	160-351U00†	3900	14			

*Grid .093 †Grid .100

NOTE: 111 is action form D. 151 & 351 are action form C.

20 AMP. 2 POLE INDUSTRIAL RELAY, TYPE 187

- UL RECOGNIZED
- UP TO 1½ hp.
- DUST PROOF COVER



20 amp power relay. Available in DPDT style with UL ratings of 20 amps at 28 VDC/120 VAC and ¾ hp at 120 VAC or 1½ hp at 240 VAC. Open stud mounted or dust covered version. ¼" QC terminals available. UL recognized. Wt. 3 oz.

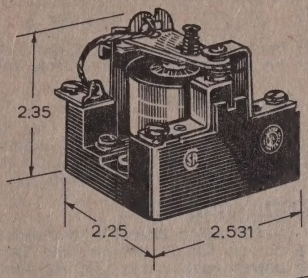
TYPE 187 OPEN STYLE WITH MTG. STUD

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5364	187-12B200	12VDC	120	7.00	6.65	6.30	4.90
23F5365	187-12C200	24VDC	470	7.00	6.65	6.30	4.90
23F5366	187-12F200	110VDC	10,000	7.70	7.32	6.93	5.39
23F5367	187-12Q200	24VAC	72	7.30	6.94	6.57	5.11
23F5368	187-12T200	120VAC	1,700	7.30	6.94	6.57	5.11
23F5369	187-12U200	240VAC	7,200	7.85	7.46	7.07	5.50

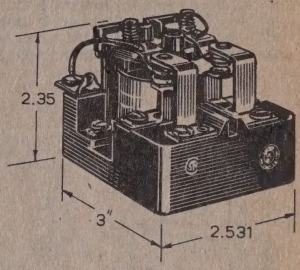
TYPE 187 WITH FLANGE MOUNT COVER

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5370	187-32B200	12VDC	120	7.20	6.84	6.48	5.04
23F5371	187-32C200	24VDC	470	7.20	6.84	6.48	5.04
23F5372	187-32F200	110VDC	10,000	7.90	7.51	7.11	5.53
23F5373	187-32Q200	24VAC	72	7.55	7.17	6.80	5.29
23F5374	187-32T200	120VAC	1,700	7.55	7.17	6.80	5.29
23F5375	187-32U200	240VAC	7,200	8.00	7.60	7.20	5.60

25 AMP. 1 AND 2 POLE POWER RELAY



TYPE 301



TYPE 302

Suited for elevator controls, motor starting and appliances. Heavy-duty fast acting. Floating movable contact carrier provides contact pressure and positive wipe for self cleaning action. Efficient magnetic circuits allows AC coils to run cooler. Reliable overvoltage and high ambient temperature performance. Listed by UL and CSA at voltages up to 300 VAC. Motor controller up to 600 VAC. Wt. 10 oz.

TYPE 301 SPDT 25 AMPS

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5376	301-11B100	12VDC	71	6.40	6.08	5.76	4.48
23F5377	301-11C100	24VDC	288	6.40	6.08	5.76	4.48
23F5378	301-11F100	110VDC	6,050	7.20	6.84	6.48	5.04
23F5379	301-11Q100	24VAC	12	6.80	6.46	6.12	4.76
23F5380	301-11T100	120VAC	290	6.80	6.46	6.12	4.76
23F5381	301-11U100	240VAC	1,200	7.10	6.75	6.39	4.97

TYPE 301 SPST-NO-DM 25 AMPS

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5382	301-14B100	12VDC	71	5.90	5.61	5.31	4.13
23F5383	301-14C100	24VDC	288	5.90	5.61	5.31	4.13
23F5384	301-14F100	110VDC	6,050	6.70	6.37	6.03	4.69
23F5385	301-14Q100	24VAC	12	6.10	5.80	5.49	4.27
23F5386	301-14T100	120VAC	290	6.10	5.80	5.49	4.27
23F5387	301-14U100	240VAC	1,200	6.30	5.99	5.67	4.41

TYPE 302 DPDT 25 AMPS

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5388	302-11B100	12VDC	71	8.90	8.46	8.01	6.23
23F5389	302-11C100	24VDC	288	8.90	8.46	8.01	6.23
23F5390	302-11F100	110VDC	6,050	9.70	9.22	8.73	6.79
23F5391	302-11Q100	24VAC	12	9.10	8.65	8.19	6.37
23F5392	302-11T100	120VAC	290	9.10	8.65	8.19	6.37
23F5393	302-11U100	240VAC	1,200	9.35	8.88	8.42	6.55

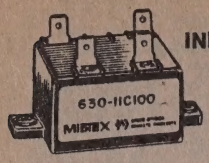
TYPE 302 SPST-NC-DB 25 AMPS

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5394	302-14B100	12VDC	71	8.90	8.46	8.01	6.23
23F5395	302-14C100	24VDC	288	8.90	8.46	8.01	6.23
23F5396	302-14F100	110VDC	6,050	9.50	9.03	8.55	6.65
23F5397	302-14Q100	24VAC	12	8.90	8.46	8.01	6.23
23F5398	302-14T100	120VAC	290	8.90	8.46	8.01	6.23
23F5399	302-14U100	240VAC	1,200	9.65	9.17	8.69	6.76

TYPE 302 SPDT-DB-DM 25 AMPS

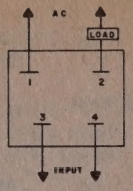
Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5400	302-15B100	12VDC	71	9.00	8.55	8.10	6.30
23F5401	302-15C100	24VDC	288	9.00	8.55	8.10	6.30
23F5402	302-15F100	110VDC	6,050	9.60	9.12	8.64	6.72
23F5403	302-15Q100	24VAC	12	9.00	8.55	8.10	6.30
23F5404	302-15T100	120VAC	290	9.00	8.55	8.10	6.30
23F5405	302-15U100	240VAC	1,200	9.80	9.31	8.82	6.86

MIDTEX INCORPORATED — General Purpose Solid State Relays



TYPE 630/640 INDUSTRIAL RELAY

- Meets U.L. & CSA Standards
- 1500VAC Dielectric



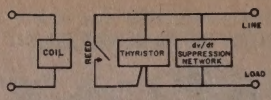
630/640 packages suited for frame or panel mounting. Compact packages are sealed against the environment, severe shock, and vibration.

TYPE 630/HYBRID

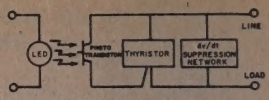
Reed relay input-Triac circuitry exhibits excess of 1500 VAC, 60 Hz dielectric breakdown isolation between input and output. Snubber network properly communicates inductive loads. Circuit turn-on: 1 mSec; turn-off, first zero amplitude current point.

TYPE 640/ZERO-CROSSING

LED input-Triac circuitry 1500VAC, 60Hz dielectric breakdown isolation between input and output. Circuit turn-on: first Zero amplitude voltage point after power input (within ±15 V). Turn-off: first zero amplitude current. Meet U.L. and CSA over-the-surface and through-the-air spacing. 640 has RC snubber.



Type 630



Type 640

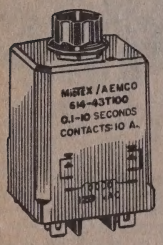
TYPE 630, 15 AMPS

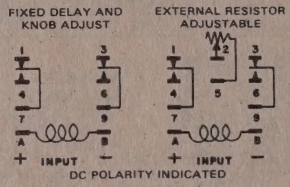
Stock No.	Type	Contact Voltage	Control In/Volt	1-24	25-49	50-99
23F5406	630-14A100	120VAC	5VDC	16.30	15.49	14.67
23F5407	630-14C100	120VAC	12VDC	16.30	15.49	14.67
23F5408	630-24A100	240VAC	5VDC	17.30	16.44	15.57
23F5409	630-24C100	240VAC	12VDC	17.30	16.44	15.57

TYPE 640, 15 AMPS

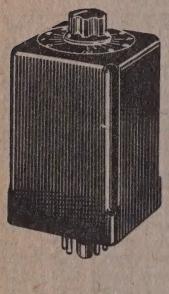
Stock No.	Type	Contact Voltage	Control In/Volt	1-24	25-49	50-99
23F5410	640-14L100	120VAC	3-30VDC	23.90	22.71	21.51
23F5411	640-14Y100	120VAC	20-90VAC	23.90	22.71	21.51
23F5412	640-14Z100	120VAC	90-280VAC	23.90	22.71	21.51
23F5413	640-24L100	240VAC	3-30VDC	25.40	24.13	22.86
23F5414	640-24Y100	240VAC	20-90VAC	25.40	24.13	22.86
23F5415	640-24Z100	240VAC	90-280VAC	25.40	24.13	22.86

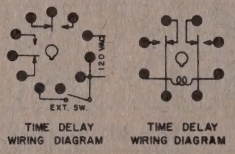
SOLID STATE TIME DELAY RELAYS





Type 613-614





Type 615

TYPE 612 DELAY ON RELEASE, EXTERNAL ADJUST 1.2-120 SEC.

Stock No.	Type	Coil Volt	1-24	25-49	50-99	100-249
23F5416	612-12C400	24VDC	25.25	23.99	22.73	17.68
23F5417	612-12Q400	24VAC	25.25	23.99	22.73	17.68
23F5418	612-12T400	120VAC	25.25	23.99	22.73	17.68

DELAY ON RELEASE, KNOB ADJUST 1.2-120 SEC.

23F5419	612-43C400	24VDC	26.75	25.41	24.08	18.73
23F5420	612-43Q400	24VAC	26.75	25.41	24.08	18.73
23F5421	612-43T400	120VAC	26.75	25.41	24.08	18.73

TYPE 613 DELAY ON OPERATE, EXTERNAL ADJUST 1-120 SEC.

Stock No.	Type	Coil Volt	1-24	25-49	50-99	100-249
23F5422	613-12C400	24VDC	19.00	18.05	17.10	13.30
23F5423	613-12Q400	24VAC	19.00	18.05	17.10	13.30
23F5424	613-12T400	120VAC	19.00	18.05	17.10	13.30

DELAY ON OPERATE, KNOB ADJUST 1-120 SEC.

23F5425	613-43C400	24VDC	21.50	20.43	19.35	15.05
23F5426	613-43Q400	24VAC	21.50	20.43	19.35	15.05
23F5427	613-43T400	120VAC	21.50	20.43	19.35	15.05

TYPE 614 DELAY ON OPERATE, EXTERNAL ADJUST .1-120 SEC

Stock No.	Type	Coil Volt	1-24	25-49	50-99	100-249
23F5428	614-12C400	24VDC	23.25	22.09	20.93	16.28
23F5429	614-12Q400	24VAC	23.50	22.33	21.15	16.45
23F5430	614-12T400	120VAC	23.50	22.33	21.15	16.45

DELAY ON OPERATE, KNOB ADJUST 1.2-120 SEC.

23F5431	614-43C400	24VDC	24.75	23.51	22.28	17.33
23F5432	614-43Q400	24VAC	24.75	23.51	22.28	17.33
23F5433	614-43T400	120VAC	24.75	23.51	22.28	17.33

TYPE 615 DELAY ON OPERATE, KNOB ADJUST 1-100 SEC.

Stock No.	Type	Coil Volt	1-24	25-49	50-99	100-249
23F5434	615-21C400	24VDC	29.00	27.55	26.10	20.30
23F5435	615-21Q400	24VAC	29.50	27.55	25.10	20.30
23F5436	615-21T400	120VAC	29.50	27.55	26.10	20.30

DELAY ON RELEASE, KNOB ADJUST 1-100 SEC.

23F5437	615-22C400	24VDC	37.50	35.62	33.75	26.25
23F5438	615-22Q400	24VAC	38.00	36.10	34.20	26.60
23F5439	615-22T400	120VAC	38.00	36.10	34.20	26.60

Time delay relays provide a wide selection of operational configurations, rapid reset times, and repeatability which is desirable when accurate recycling is required. Combined inherent reliability of electronic components for timing and high power multi-contact switching makes this family of time delay relays well suited for industrial and commercial applications. Two types of timing circuits, depending on accuracy, repeatability, and environmental requirements, are employed: economy version, Type 613 Series, utilizes R-C solid state trigger circuit to energize output relay, Type 612, 614, and 615 Series utilize R-C solid state circuit trigger to drive secondary solid state switch which energizes integral output relay. Type 612, 613, 614 use same socket as Type 157 relay. Type 615 uses same socket as Type 155 octal relay.

Delay on operate When external power is applied and on completion of timing cycle, output relay transfers and holds. On removal of power output relay de-energizes.

Delay on release External power is applied continuously when external switch is closed. The output relay transfers and holds time delay is initiated and output relay de-energized at end of timing cycle.

Timing range External resistor adjustments require approximately 20K ohms per sec. through 120 seconds. Variable delays achieved by integral potentiometer. Internally fixed Time Delay Relays available on special order. Note Type 613 will momentarily transfer on cycle interuption.

Relays and Switches

Agastat®

UL LISTED INDUSTRIAL SOLID STATE TIMING RELAYS

MODEL SCC

8 Pin Base		11 Pin Base		
Stock No.	Type	Stock No.	Type	Range
28F1933	SCCIA012ABA	28F1942	SCCIC022ABA	.5 to 15 sec.
28F1934	SCCIA012ACA	28F1943	SCCIC022ACA	1 to 30 sec.
28F1939	SCCIA012ADA	28F1936	SCCIC022ADA	2 to 60 sec.
28F1940	SCCIA012AMA	28F1937	SCCIC022AMA	.5 to 15 min.
28F1935	SCCIA012ANA	28F1944	SCCIC022ANA	1 to 30 min.
28F1941	SCCIA012AIA	28F1938	SCCIC022AIA	2 to 60 min.

Series SCC Supplied with Socket. UL Listed.

MODEL SSC

28F1946	SSC12ABA*	28F1950	SSC22ABA†	.5 to 15 sec.
28F1947	SSC12ACA*	28F1951	SSC22ACA†	1 to 30 sec.
28F1948	SSC12AGA*	28F1952	SSC22AGA†	10 to 300 sec.
28F1949	SSC12ANA*	28F1953	SSC22ANA†	1 to 30 min.

MODEL SCB

28F1954	SCBRX012ABA*	28F1958	SCBRX022ABA†	.5 to 15 sec.
28F1955	SCBRX012ACA*	28F1959	SCBRX022ACA†	1 to 30 sec.
28F1956	SCBRX012AGA*	28F1960	SCBRX022AGA†	10 to 300 sec.
28F1957	SCBRX012ANA*	28F1961	SCBRX022ANA†	1 to 30 min.

UL Recognized.

Type	Price 8-Pin	Price 11-Pin
SCC	50.00	55.00
SSC	32.00	35.00
SCB	45.00	50.00

MODEL SCA

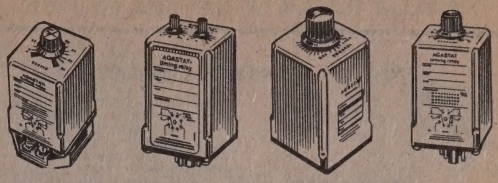
Stk. No.	Type	Range	Each
28F1945	SCA011APA#	.1 to 60 sec. or min.	25.00

UL Recognized.

SOCKETS FOR ABOVE

Stk. No.	Type	Description	Each
28F1962	BCSA08SC	8-Pin Octal	3.00
28F1963	BCSA11SC	11-Pin Socket	4.50

* Delay on Energization † Delay on deenergization # 8-Pin



SCC SCA SSC SCB

Timing relays are stocked in 2 different operating modes. Type 1: Time delay occurs after input voltage is applied, thereby delaying output current for the duration of the time delay. Type 2: Output relay is energized whenever input voltage is applied, when input is removed output will remain on for the duration of the delay. **Type SCA:** Repeat accuracy: 0.5% +4 msec. Overall accuracy: ±5%. Reset time: 0.030 second min. between de-energization and reenergization. Time adj.: Dual internal pots with external knobs for "Fine" and "Coarse" adjustment. Operating temperature range: —20°C to 50°C. Current drain: During timing 5 ma, after timing 17 ma. Output: SPDT relay, 6 A resistive at 120 VAC. Power: 120 VAC 50/60 Hz or 120 VDC, +10% to —15%. **Type SCB & SCC.:** Repeat accuracy: 0.5% +4 msec. Overall accuracy: ±2%. Reset time: 0.025 sec. minimum between deenergization and reenergization. Time adj.: Internal pot with external knob. Operating temp. range: —28.9°C to 49°C. Current drain: .015 A energized, .005 A deenergized. Output: DPDT relay, ⅓ HP, 345 VA @ 120/240 VAC, 10 A @ 28 VDC/120 VAC. Power: 120 VAC, +10% to —15%, 50/60 Hz. **Type SSC:** Repeat accuracy: ±1%. Overall accuracy ±5.25%. Time adjustment: Internal pot with external knob. Operating temp. range: —30°C to 65°C. Current drain: 25 ma. max. Output: DPDT relay. **Type SSC:** Repeat accuracy: ±1%. Overall accuracy: ±5.25%. Time adj.: Internal pot with external knob. Operating temperature range: —30°C to 65°C. Current drain: 25 ma max. Output: DPDT relay, 10 A resistive rating. Power: 120 VAC, +10% to —15% voltage variation; 50/60 Hz.

9

AGASTAT TIME DELAYS, RELAYS AND SWITCHES

Provides industrial control designers the accuracy and reliability of high grade time delays, relays, and switches at industrial price levels. Extreme reliability under severe operating conditions.

Stk. No.	Type	Fig.	Time Delay	VAC	NET
57F1550	7012AB	A	0.5 to 5 sec.	120	66.00
57F1551	7012AD	A	5.0 to 50 sec.	120	66.00
57F1552	7012AH	A	3 to 30 min.	120	76.00
57F1553	7012BB	A	0.5 to 5 sec.	240	66.00
57F1554	7012BD	A	5.0 to 50 sec.	240	66.00
57F1555	7012BH	A	3 to 30 min.	240	76.00
57F1556	7022AB	A	0.5 to 5 sec.	120	66.00
57F1557	7022AD	A	5.0 to 50 sec.	120	66.00
57F1558	7022AH	A	3 to 30 min.	120	76.00
57F1559	7022BB	A	0.5 to 5 sec.	240	66.00
57F1560	7022BD	A	5.0 to 50 sec.	240	66.00
57F1561	7022BH	A	3 to 30 min.	240	76.00
57F1581	7012AC	A	1.5 to 15 sec.	120	66.00
57F1582	7022AC	A	1.5 tp 15 sec.	120	66.00
57F1583	7012AE	A	20 to 200 sec.	120	66.00
57F1584	7022AE	A	20 to 200 sec.	120	66.00
57F1585	7012AF	A	1 to 10 min.	120	70.50
57F1586	7022AE	A	20 to 200	120	70.50
28F1929	7012AK	A	1 to 300 sec.	120	66.00
28F1930	7012BK	A	1 to 300 sec.	240	66.00
28F1931	7022AK	A	1 to 300 sec.	120	66.00
28F1932	7022BK	A	1 to 300 sec.	249	66.00
57F1566	70042	D	Relay Enclosure w/bottom knockouts . . .		10.50
57F1564	70047	E	Aux. switch kit (L) 30 sec.		8.00
57F1565	70121	E	Aux. switch kit (T) 30 sec.		9.00
57F1900	70041	C	Panel Mtg. Kit		4.25

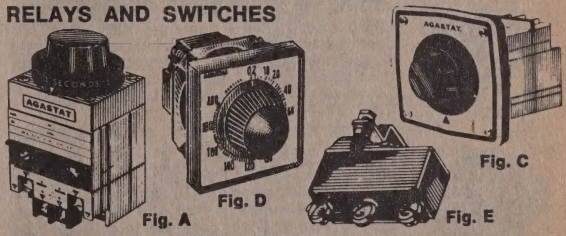


Fig. A Fig. D Fig. E Fig. C

Model 7012

Time delay on pull-in. Timing cycle begins when coil is energized. Coil kept energized throughout delay period preceding DPDT contacts transfer. Coil de-energized: contacts retransfer immediately (50 m-sec). Coil de-energized during time cycle, contacts transferred & timing mech. resets to start position for full time cycle on next energization of coil. UL listed.

Model 7022

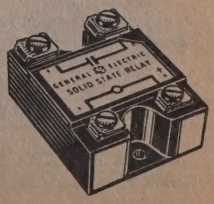
Time delay on drop-out. Coil energized: DPDT contacts transfer & stay in transfer position. Coil de-energized: Time delay begins. Timing cycle contacts stay transferred. End time delay setting: contacts transfer back to de-energized position. Coil re-energized during time cycle; contacts remain transferred, produce full time delay upon next de-energization if coil remains de-energized through time setting. UL listed.

Auxiliary Switch-Kits

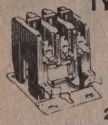
SPDT contacts rated 10A/120, 250, 480 VAC. Type "T" provides immediate transfer of contacts for 7022 and two step timing to 100 sec. for both 7012 and 7022 models. Type "L" provides immediate transfer of contacts for 7012 models.

GE SOLID STATE RELAYS

Stock No.	Type	Output	1-9	10-24	25-49	50-99
54F608	CR120SR105D	5A	22.28	20.05	18.05	16.49
54F609	CR120SR110D	10A	24.75	22.28	20.05	18.32
28F1925	CR120SR125D	25A	33.88	30.49	27.44	25.07
28F1926	CR120SR205D	5A	24.26	21.83	18.65	17.95
28F1927	CR120SR210D	10A	26.95	24.26	21.83	19.94
28F1928	CR120SR225D	25A	40.59	36.53	32.88	30.04



Form A, normally open SPST solid-state relay. Consists of a DC input, coupled by an optical isolator to a zero-volt trigger, which controls a triac. Output is rated at 140 or 240 VAC. Zero voltage switching reduces RFI. 1K input resistance, 32 VDC max., 3V max. pick-up voltage, 1V min. drop-out. Operating temp. —30°C to +85°C. 2½" x 1¾" x ⅞". Weight: 120 g.



TYPE 154 AC POWER CONTACTORS

Interchangeable mounting with low coil wattage and double-break contacts. Non-positional non-corroding structure, low temp. rise and riveted terminal assemblies. Hardware included in boxed units only.

20 AMP THREE POLE - NORMALLY OPEN

Stock No.	Type	Coil V.	Cont. Rating Inductive	Resistive	1-24	25-49	50-99
60F2650	154-901	24	Cont. 20A@ 600V,	30A			
60F2651	154-902	120	Inrush 120A@ 277V.	@ 600V AC Max	14.80	12.96	11.62

25 AMP THREE POLE - NORMALLY OPEN

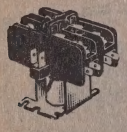
60F2653	154-904	24	Cont. 25 AMP @ 600V	35A			
60F2654	154-905	120	Inrush 150 AMP @ 277V	@ 600V AC Max	15.33	13.90	12.45

30 AMP THREE POLE - NORMALLY OPEN

60F2656	154-907	24	Cont. 30A@ 600V	40 AMP			
60F2657	154-908	120	Inrush 180A@ 277V	@ 600V AC Max	18.45	16.72	15.00
60F2658	154-909	208/240					

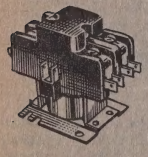
40 AMP TWO AND THREE POLE - NORMALLY OPEN
3 Pole except (*) 2 Pole

60F2659	154-910	24	Cont.		21.65	19.62	17.60
60F2660	154-913*	24	40A@ 600v		16.88	15.40	13.80
60F2661	154-911	120	Inrush	50 AMP	21.65	19.62	17.60
60F2662	154-914*	120	240A@ 277V	@ 600V	16.98	15.40	13.80
60F2663	154-912	208/240	200 AMP @ 480V	AC Max	21.65	19.62	17.60
60F2664	154-915*	208/240	160 AMP @ 600V		14.39	13.18	11.83



TYPE 143 A.C. POWER CONTACTORS

2PNO double make contacts. Rated at 277V continuous or 100 amps inrush. Straight through wiring. Screw power terminals with dual quick-connect auxiliary terminals. Female wiring terminals included. U.L. and CSA listed. Size: 3¼″x2⅜″x2½″.



Stk. No.	Type	Vac Coil	Amps	1-24	25-49	50-99	100-249
60F2979	143-901	24	20	8.45	7.66	6.86	5.78
60F2980	143-902	120	20	8.45	7.66	6.86	5.78
02F1100	143-906	24	30	11.49	10.41	9.33	8.00
02F1101	143-907	120	30	11.49	10.41	9.33	8.54
02F1102	143-914	24	25	10.74	9.73	8.72	7.80
02F1103	143-915	120	25	10.74	9.73	8.72	7.80
02F1104	143-916	208/240	25	10.74	9.73	8.72	7.80

TYPE 129 AC POWER RELAY

Totally enclosed. Screw terminals. Silver alloy contacts rated at 18 amperes continuously at 250 volts AC, resistive or inductive. Horse power rating, 1 H.P. at 125 volts, 2 H.P. at 250 volts. Single screw mounting. Electrical life, 100,000 operations at rated load. Coil: 10 volt-amperes inrush; 5 volt-amperes sealed. Size: 2 7/16x2¼x1⅞″. Approx. 7 oz.

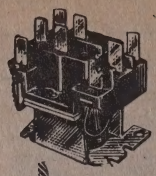
Stk. No.	Type	AC Volts	Action	1-24	25-49	50-99	100-249
60F2709	129-902	24	SPNO	6.80	6.16	5.53	5.13
60F2710	129-903	120	SPNO	7.54	6.83	6.12	5.56
60F2711	129-904	208/230	SPNO	7.97	7.22	6.47	5.75
60F2713	129-906	24	SPDT*	4.36	8.48	7.61	6.55
60F2714	129-907	120	SPDT*	9.94	9.00	8.07	6.94
60F2715	129-908	208/230	SPDT*	10.61	9.61	8.62	7.39

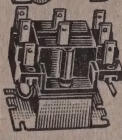
*Isolated Terminals: All contact term, wired same polarity.

TYPE 129AR AC POWER RELAY

Fits any ½″ knockout. Contacts rated at 250-VAC @ 18 amp continuous. Pre-wired. Color coded 8″ lead wires, U.L. approved. (†) single pole, normally open; (*) single pole, double throw. 2¾″x2 9/16″x3 1/16″.

Stk. No.	Mfr. Type	AC Volts	1-24	25-49	50-99	100-249
60F2683	129AR-901†	24	9.71	8.80	7.89	7.36



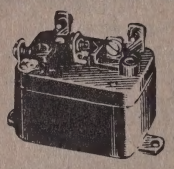


TYPE 91 A.C., D.C. GENERAL PURPOSE

Solenoid action. Quick-connect terminals. Enclosed contacts. Contacts rated at 15 amps, 277 volts AC max. resistive, 12 amps, (60 amps inrush) 125 VAC; 6 amps (35 amps inrush) 250 volts inductive. For VDC; 10 amps @ 32 VDC max. Selective mounting. Electrical life: 100K operations, at rated load. DPDT characteristics, 22 V-amp inrush; 10 V-amp sealed. Size: 2⅛″x1⅞″x2⅜″.

Stk. No.	Type	Voltage	1-24	25-49	50-99	100-249
60F2716	91-901	24 VAC	8.66	7.84	7.03	5.58
60F2717	91-902	115/120 VAC	8.90	8.06	7.23	5.73
60F2718	91-903	208/240 VAC	9.26	8.40	7.53	6.00
02F1105	91D-912	12 VDC +	8.66	7.84	7.03	5.58
02F1106	91D-913	24 VDC +	8.66	7.84	7.03	5.58
02F1107	91-180-1	*	1.58	1.43	1.29	.81

(*) Socket and terminal kit (+) 10 A @ 32 V max.



TYPE 84 SCREW TERMINALS

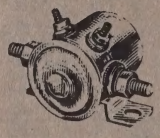
Totally enclosed. Silver alloy contacts rated at 125/250 volts AC; SPNO, 16 amps resistive (continuous); 8 amps (25 amps inrush) inductive. D.T. 18A inrush-inductive, 8A continuous-resistive. 6-32 mounting holes/2.156″ centers. Electrical life, 100,000 operations at rated load. Coil, 4 VA inrush; 3 VA sealed. Overall size, 2⅜x1 5/8x1½″. Approx. wt., 5 oz.

Stk. No.	Type	AC Volts	Action	1-24	25-49	50-99	100-249
60F2700	84-901	6	SPNO	5.42	4.92	4.41	3.49
60F2701	84-902	24	SPNO	5.42	4.92	4.41	3.49
60F2702	84-903	120	SPNO	5.89	5.34	4.78	3.80
60F2705	84-906	24	SPDT	5.89	5.34	4.78	3.88
60F2706	84-907	120	SPDT	6.34	5.74	5.15	4.10

TYPE 84 QUICK CONNECT TERMINALS

Same as above except with female quick-connect wiring terminals. (*) 3A @ 125 VAC or 1.5A @ 250 VAC. Pilot Duty.

Stk. No.	Type	AC Volts	Action	1-24	25-49	50-99	100-249
60F2985	84-912	24	SPNO	5.34	4.84	4.34	3.44
60F2986	84-913	120	SPNO	5.79	5.25	4.71	3.74
60F2988	84-916	24	SPDT	5.79	5.25	4.71	3.78
60F2989	84-917	120	SPDT	6.19	5.61	5.03	4.03
60F2847	84-922*	24	SPNO	5.17	4.68	4.20	3.36
60F2849	84-926*	24	SPDT	5.62	5.09	4.56	3.70
60F2997	84-927*	120	SPDT	6.00	5.44	4.88	3.94



TYPE 70 D.C. POWER CONTACTORS

Double break copper to copper rotating disc moveable contact. Wiring hardware included Cont. rating, 80 Amps (inrush 300 Amps at 6 and 12 volts DC). 50 Amps max. at 24 and 36 volts DC. Bracket mounting—2.109″ centers. Coil, 9 watts. Copper contacts except (*) which are silver. SPNO: 2½x3½x2½″. SPDT 3⅜x3 9/16x 2½″. Approx. wt., 1 lb.

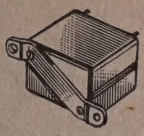
Stk. No.	Type	Volts DC	Action	Term. No.	1-24	25-49	50-99	100-249
60F2725	70-901	6	SPNO	4	6.96	6.31	5.66	4.54
60F2726	70-902	12	SPNO	4	8.26	7.48	6.71	5.25
60F2727	70-903	24	SPNO	4	9.65	8.74	7.84	5.91
60F2728	70-904	36	SPNO	4	8.64	7.83	7.02	5.56
60F2676	70-906*	12	SPNO	4	18.34	16.62	14.90	11.66
60F2677	70-907*	24	SPNO	4	19.74	17.88	16.03	12.46
60F2678	70-908*	36	SPNO	4	18.62	16.88	15.13	12.15
60F2680	70-910*	12	SPDT	6	25.20	22.84	20.84	16.63
60F2681	70-911*	24	SPDT	6	25.39	22.97	20.59	16.84
60F2682	70-912*	36	SPDT	6	22.56	20.45	18.33	15.78
60F2692	70-914	12	SPNO	3	7.82	7.09	6.36	4.89
60F2693	70-915	24	SPNO	3	9.14	8.28	7.42	5.54
60F2694	70-918	12	SPNO	3	9.07	8.22	7.37	5.43
60F2695	70-919	24	SPNO	3	9.26	8.40	7.55	5.55
02F1108	70-917	6	SPNO	3	8.02	7.26	6.51	4.81
02F1109	70-922	12	SPDT	6	20.74	18.79	16.85	13.73
02F1110	70-923	24	SPDT	6	20.74	18.79	16.85	13.73

Relays, Switches and Solenoids

ESSEX STANCOR

ESSEX RELAYS

MINIATURE D.C. SENSITIVE RELAYS



MS64
2 AMP
5 AMP
10 AMP

MS164

Molded construction with snap-on cover. Isolated gold or silver alloy contacts. Printed circuit terminals or bracket mounting (except MS164; printed circuit terminals only). Size: 1 7/32" x 3/4" x 17/32".

PRINTED CIRCUIT 3A SPDT

Stk. No.	Type	DC Volts	Ohms @ 25°C	1-24	25-49	50-99	100-249
60F2971	MS64-901	6	400	3.89	3.52	3.16	2.40
60F2972	MS64-902	12	1600	3.95	3.57	3.20	2.45
60F2973	MS64-903	24	6500	4.90	4.45	4.00	2.90

5A SPDT

02F1111	MS64-930	6	350	4.13	3.74	3.35	2.50
02F1112	MS64-931	12	1300	4.18	3.78	3.40	2.55
02F1113	MS64-932	24	5000	4.27	3.87	3.47	2.65

10A SPDT

02F1114	MS64-951	6	200	4.32	3.92	3.50	2.60
02F1115	MS64-952	12	810	4.27	3.87	3.50	2.75
02F1116	MS64-953	24	3240	4.37	3.96	3.55	2.80

3A BRACKET SOLDER TERMINALS

60F2975	MS64-911	6	400	3.95	3.57	3.20	2.45
60F2976	MS64-912	12	1600	4.03	3.65	3.30	2.50
60F2977	MS64-913	24	6500	5.00	4.55	4.05	3.00

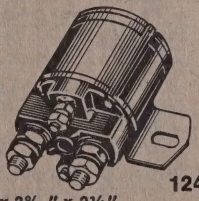
2A MS164 SERIES 2PDT

02F1117	MS164-901	6	130	6.96	6.31	5.66	4.60
02F1118	MS164-902	12	500	8.26	7.48	6.71	5.15
02F1119	MS164-903	18	1300	8.30	7.53	6.75	5.20
02F1120	MS164-904	24	2200	5.76	5.22	4.70	4.10

NOTE: ALL RELAYS NON-INDUCT./28VDC or 115 VAC

HEAVY DUTY DC POWERED CONTACTORS

Design meets U.L. 583 Industrial Truck Standard; dust and splash proof cover. Contact Rating for D.C. Inductive load: 100 Amps continuous and 400 Amps inrush. Maximum continuous coil watts: 12 @ rated voltage. Maximum pick-up: 70% rated coil voltage with design ambient from −40°C to +65°C.



124

SPNO 3 Ter./grounded coil 3⅛" x 3 9/16" x 2¼"

Stk. No.	Type	VDC Coil	1-24	25-49	50-99	100-249
02F1137	124-905	6	13.68	12.40	11.12	8.66
02F1138	124-906	12	13.68	12.40	11.12	8.74
02F1139	124-907	24	13.54	12.27	11.00	8.76
02F1140	124-908	36	13.73	12.44	11.15	8.93

SPNO 4 Ter./isolated coil 3⅛" x 3 9/16" x 2¼"

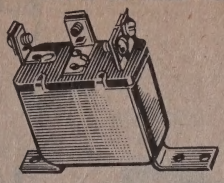
Stk. No.	Type	VDC Coil	1-24	25-49	50-99	100-249
02F1133	124-901	6	13.58	12.31	11.04	8.66
02F1134	124-902	12	13.62	12.34	11.06	8.73
02F1135	124-903	24	13.68	12.40	11.12	8.86
02F1136	124-904	36	13.70	12.41	11.13	8.94

SPNO 6 Ter./isolated coil 3⅛" x 4¾" x 2¼"

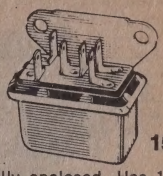
Stk. No.	Type	VDC Coil	1-24	25-49	50-99	100-249
02F1141	124-909	6	20.40	18.49	16.58	13.09
02F1142	124-910	12	20.45	18.53	16.61	13.20
02F1143	124-911	24	20.50	18.57	16.65	13.30
02F1144	124-912	36	20.40	18.49	16.58	13.33

NOTE: Approx. Size 3⅛" x 4¾" x 2¼".

TYPE 60 AND 150 DC POWER RELAYS



60



150

TYPE 150 Isolated coil in metal case totally enclosed. Has ¼" quick-connect terminals with side mounting bracket. Coil voltage same as contact voltage.

TYPE 60 Same as above except: screw terminals (w/screws) and base mounted bracket.

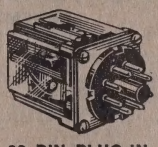
TYPE 150

Stk. No.	Type	Contacts Volts	Amps	Act.	1-24	25-49	50-99	100-249
60F2666	150-902	12	25	SPNO	4.90	4.44	3.98	3.68
02F1121	150-903	24	12	SPNO	4.90	4.44	3.98	3.68
60F2669	150-905	12	15	SPDT	6.10	5.52	4.95	4.43
02F1122	150-906	24	7.5	SPDT	6.10	5.52	4.95	4.43

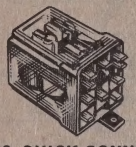
TYPE 60

Stk. No.	Type	Contacts Volts	Amps	Act.	1-24	25-49	50-99	100-249
02F1123	60-902	12	15	SPNO	7.34	6.66	5.97	5.04
02F1124	60-903	24	7.5	SPNO	7.49	6.79	6.08	5.23

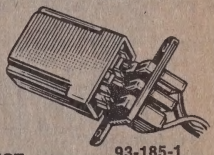
A.C., D.C. GENERAL PURPOSE RELAYS



93 PIN PLUG-IN



93 QUICK-CONNECT



93-185-1 RECEPTACLE

Coil bobbin and contact block molded plastic resistant to arc tracking. Connections for contacts and coil located front of relay. Plug-in relay has high impact case and standard pin connections. Quick-connect type designed for front mounting or polarized socket. 10 A Button Contacts.

TYPE 93 PLUG-IN 1⅜" x 1⅜" x 2⅛"

Stk. No.	Type	Coil Volt.	Contacts	1-24	25-49	50-99	100-249
02F1125	93P-908	120 VAC	2PDT	10.27	9.31	8.35	6.53
02F1126	93P-909	120 VAC	3PDT	11.76	10.66	9.56	7.51
02F1127	93P-920	24 VDC	2PDT	10.13	9.18	8.23	6.46

TYPE 93 QUICK-CONNECT 1⅜" x 1⅜" x 2"

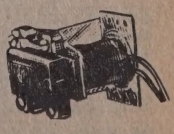
02F1128	93Q-904	24 VAC	1PDT	6.22	5.64	5.02	4.41
02F1129	93Q-905	24 VAC	2PDT	8.75	7.93	7.11	5.74
02F1130	93Q-906	24 VAC	3PDT	9.57	8.67	7.77	6.26
60F2833	93Q-908	120 VAC	2PDT	8.78	7.96	7.14	5.75
02F1131	93Q-909	120 VAC	3PDT	9.82	8.90	7.98	6.39
02F1132	93Q-920	24 VDC	2PDT	9.36	8.48	7.61	6.00

QUICK-CONNECT MOUNTING SOCKET

02F1145	93-185-1	....	....	.88	.80	.72	.62

TYPE 75 AC POWER CONTACTORS

2PNO action, silver alloy contacts rated at 25 amps, 240 volts AC (per pole resistive; 18 amps, 230 volts AC inductive.) 1 horse power per pole, 115/230 volts AC, 2 pole rating—2 horse power, 230 volts AC. Electrical life, 100,000 operations at rated load. Sealed coil. Screw power terminals. Overall dimensions, 2½x2⅛x2¼". Approx. wt. 7 oz. Coil Rating: 10 V.A.



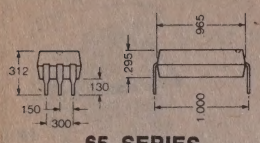
Stk. No.	Type	AC Volts	1-24	25-49	50-99	100-249
60F2722	75-901	24	7.86	7.12	6.38	5.36
60F2723	75-902	115/120	7.86	7.12	6.38	5.36
60F2724	75-903	230/240	7.86	7.12	6.38	5.36

9

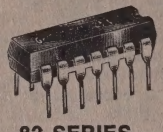
GORDOS

DIP Reed Relays and Reed Switches

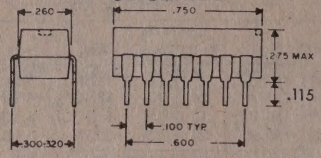
DUAL-IN-LINE PACKAGE REED RELAYS

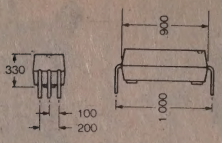


65 SERIES



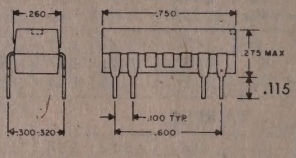
82 SERIES

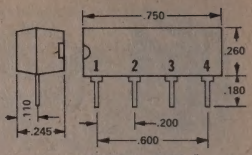




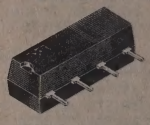
76 SERIES

83 SERIES





TYPE 741A



- **Logic compatible**
- **Molded epoxy**
- **Standard DIP package fits TO-116**
- **Mercury wetted relays**
- **Clamp diode protection**
- **Compact size**

Mercury wetted relays have advantages of low stable contact resistance along with no contact bounce and an extremely long life. In order for mercury wetted relays to operate properly they must be mounted within 30° of vertical. Pin spacing of dual-in-line design conforms to standard DIP lead spacing and fits standard 14 pin receptacles and may be inserted automatically, 8 pin version of the DIP types are designed for direct printed circuit board mounting or TO116 sockets. Internal clamp diodes are available on some models which provide protection of drivers by suppressing back EMF. All ratings listed below are typical values at 25°C. Coil resistance is given ±10% at 25°C. All relays are molded epoxy for environmental immunity.

9

CONTACT RATINGS

Type of Relay D.C. Watts Contacts Type No.	DRY REED Low Level to 3 WDC SPST 822A,832A	DRY REED Low Level to 3 WDC SPDT 651C,821C,831C	DRY REED Low Level to 10 WDC SPST 741A,821A,831A	DRY REED Low Level to 10 WDC SPST & SPDT 651A,761A	MERCURY WETTED REED RELAY Low Level to 50 WDC SPST 651A	MERCURY WETTED REED RELAY Low Level to 50 WDC SPDT 651C
Max. Switching Volt.	28 VDC	28 VDC	200 VDC	200 VDC	500 VDC	500 VDC
Max. D.C. Current Rat'g.	250 MA	250 MA	250 MA	500 MA	1.0 A	1.0 A
Breakdown Voltage.	150 VRMS	250 VRMS	250 VRMS	300 VRMS	1000 VRMS	1000 VRMS
Init. Contact Resistance.	.200 Ohms	.200 Ohms	.200 Ohms	.200 Ohms	.070 Ohms	.070 Ohms
Typ. Operate Time.	.5 ms	1.5 ms (N/C)	.5 ms	.5 ms	2.00 ms	2.00 ms
Typ. Release Time.	.05 ms	1.0 ms (N/O)	.05 ms	.05 ms	1.50 ms	1.50 ms

65 SERIES MERCURY WETTED RELAYS

Stock No.	Type	Contact Form	VDC Nom.	Coil Ohms Nom.	Diode	1-24	25-49	50-99	100-249
28F1749	651A-05-5	1A	5	70	No	6.50	6.18	5.53	4.55
2851750	651A-12-5	1A	12	320	No	6.62	6.29	5.63	4.63
28F1751	652A-05-5	2A	5	40	No	11.19	10.63	9.51	7.83
28F1752	652A-12-5	2A	12	170	No	11.31	10.74	9.61	7.92
28F1753	651C-05-5	1C	5	70	No	11.00	10.45	9.35	7.70
28F1754	651C-12-5	1C	12	320	No	11.00	10.45	9.35	7.70

76 SERIES IN .10x1.0" PCB PATTERN

28F1746	761A051-1	1A	5	150	No	2.71	2.57	2.30	1.90
28F1747	761A121-1	1A	12	575	No	2.00	1.90	1.70	1.40
28F1748	761A241-1	1A	24	2150	No	2.71	2.57	2.30	1.90

65 SERIES IN .15x1.0" PCB PATTERN

28F1740	651A-05-1	1A	5	150	No	3.33	3.16	2.83	2.33
28F1741	651A-12-1	1A	12	575	No	3.45	3.28	2.93	2.42
28F1742	652A-05-1	2A	5	80	No	5.12	4.86	4.35	3.58
28F1743	652A-12-1	2A	12	320	No	5.24	4.98	4.45	3.67
28F1744	651C-05-1	1C	5	100	No	7.02	6.67	5.97	4.91
28F1745	651C-12-1	1C	12	450	No	7.14	6.78	6.07	5.00

TYPE 741A IN 4-PIN .260" HIGH CASE

62F4005	741A-1	1A	5	380	No	3.45	3.28	2.93	2.42
62F4006	741A-2	1A	5	380	Yes	4.05	3.85	3.44	2.84
62F4040	741A-3	1A	12	500	No	3.45	3.28	2.93	2.42
62F4041	741A-4	1A	12	500	Yes	4.05	3.85	3.44	2.84
62F4042	741A-7	1A	24	2,150	No	4.17	3.96	3.54	2.92
6254043	741A-8	1A	24	2,150	Yes	4.76	4.52	4.05	3.33

821A DUAL-IN-LINE IN 14-PIN .275" HIGH CASE

62F4007	821A-1	1A	5	380	No	3.17	2.73	2.41	2.13
62F4008	821A-2	1A	5	380	Yes	3.75	3.29	2.91	2.56
62F2822	821A-3	1A	5	500	No	3.17	2.73	2.41	2.13
62F2923	821A-4	1A	5	500	Yes	3.75	3.29	2.91	2.56
62F4009	821A-5	1A	12	500	No	3.17	2.73	2.41	2.13
62F2925	821A-6	1A	12	500	Yes	3.75	3.29	2.91	2.56

TYPE 821A (Cont.)

Stock No.	Type	Contact Form	VDC Nom.	Coil Ohms Nom.	Diode	1-24	25-49	50-99	100-249
62F2826	821A-7	1A	24	1,750	No	3.35	2.88	2.55	2.25
62F2927	821A-8	1A	24	1,750	Yes	3.95	3.44	3.04	2.68

821C DUAL-IN-LINE IN 14-PIN .275" HIGH CASE

62F2935	821C-2	1C	5	150	Yes	5.13	4.41	3.90	3.44
62F2937	821C-4	1C	12	450	Yes	5.13	4.41	3.90	2.93
62F2939	821C-6	1C	24	1,750	Yes	5.75	4.90	4.40	4.02

822A DUAL-IN-LINE IN 14-PIN .275" HIGH CASE

Stock No.	Type	Contact Form	VDC Nom.	Coil Ohms Nom.	Diode	1-24	25-49	50-99	100-249
62F2929	822A-2	2A	5	150	Yes	5.25	4.52	3.93	3.50
62F2931	822A-4	2A	12	450	Yes	5.25	4.52	3.93	3.50
62F2933	822A-6	2A	24	1,750	Yes	5.65	4.86	4.28	3.76

831A DUAL-IN-LINE IN 8-PIN .275" HIGH CASE

62F4010	831A-1	1A	5	380	No	3.17	2.73	2.41	2.13
62F4011	831A-2	1A	5	380	Yes	3.75	3.29	2.91	2.56
62F2914	831A-3	1A	5	500	No	3.17	2.73	2.41	2.13
62F2915	831A-4	1A	5	500	Yes	3.75	3.29	2.91	2.56
62F4012	831A-5	1A	12	500	No	3.17	2.73	2.41	2.13
62F4013	831A-6	1A	12	500	Yes	3.75	3.29	2.91	2.56
62F2918	831A-7	1A	24	1,750	No	3.35	2.88	2.55	2.25
62F2919	831A-8	1A	24	1,750	Yes	3.95	3.44	3.04	2.68

831C DUAL-IN-LINE IN 8-PIN .275" HIGH CASE

62F4024	831C-2	1C	5	150	Yes	5.13	4.41	3.90	3.44
62F4035	831C-4	1C	12	450	Yes	5.13	4.41	3.90	3.44
62F4036	831C-6	1C	24	1,750	Yes	5.75	4.90	4.40	4.02

832A DUAL-IN-LINE IN 8-PIN .275" HIGH CASE

62F4037	832A-2	2A	5	150	Yes	5.25	4.52	3.93	3.50
62F4038	832A-4	2A	12	450	Yes	5.25	4.52	3.93	3.50
62F4039	832A-6	2A	24	1,750	Yes	5.65	4.86	4.23	3.66

REEDAC™ Solid State Relays

GORDOS ARKANSAS INC.

2000—REEDAC™

U.L. recognized, random turn-on, 5 VDC TTL compatible reed relay input with clamp diode. SPSNT N.O. output, 10 or 25 AMP, 24 to 280 VAC with internal RC network protection. 2.25" mounting center with .250" quick connects. Suitable for all types of AC loads. Size: 2.70" L. x 1.52" W. x 1.15" H. 2.25" mtg. ctr.

Stock No.	Type	Maximum Output Rating	1-24	25-49
28F1755	GB2200-1005-4-03	140 VAC/10 Amps	**11.67**	**9.72**
28F1756	GB2200-2505-4-03	140 VAC/25 Amps	**14.08**	**11.74**
62F4051	GB2400-1005-4-03	280 VAC/10 Amps	**14.46**	**12.06**
62F4052	GB2400-2505-4-03	280 VAC/25 Amps	**20.47**	**17.07**

4400—REEDAC™

U.L. recognized, random turn-on, 5 VDC TTL compatible reed relay input with clamp diode. SPST N.O. output, 1.5 AMP, 24 to 280 VAC with internal RC network protection. .040" dia. pins for PC mounting. Size: 1.54" L. x 1.015" W. x .700" H.

62F4053	4400-0105-4-PC	280 VAC/1.5 Amps	**10.76**	**8.97**

12400—SOLID STATE RELAY

U.L. recognized, zero voltage turn-on, 3 to 32 VDC TTL compatible photo-isolated input with reverse polarity protection. SPST N.O. output, 10 or 25 AMP, 24 to 280 VAC with internal RC network protection. 2.25" mounting center .250" quick connects. Size: 2.70" L. x 1.52" W. x 1.15" H.

Stock No.	Type	Maximum Output Rating	1-24	25-49
62F4029	12400-1032-4-03	280 VAC/10 Amps	**16.70**	**13.91**
62F4054	12400-2532-4-03	280 VAC/25 Amps	**22.29**	**18.58**

15400—SOLID STATE RELAY

U.L. recognized, zero voltage turn-on, 3 to 32 VDC TTL compatible photo-isolated input with reverse polarity protection. SPST N.O. output, 5, 10 or 25 AMP, 24 to 280 VAC with internal RC network protection. Molded package with screw termination. 2500 VRMS isolation. Size: 2.250" L. x 1.75" W. x .875" H. with 1.875" mtg. ctr.

62F4044	15405-1	280 VAC/ 5 Amps	**17.97**	**14.98**
62F4045	15410-1	280 VAC/10 Amps	**18.46**	**15.38**
62F4047	15425-1	280 VAC/25 Amps	**23.57**	**19.64**

14000—PCB MOUNT SOLID STATE RELAY

U.L. recognized, zero voltage turn-on, 5 VDC TTL compatible photo-isolated input with reverse polarity protection. SPST N.O. output, 3 AMP, 24 to 240 VAC with internal RC network protection. .040" diameter pins for PC mounting. Size: 1.5" L. x 1.00" W. x .625" H.

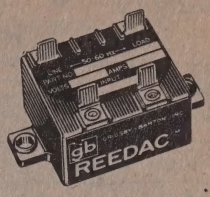
Stock No.	Type	Maximum Output Rating	Control Voltage	RC	1-24	25-49
28F1757	GB14230-05S	140 VAC/3.0 Amps	5 VDC	Yes	**9.62**	**8.02**
28F1758	GB14230-12S	140 VAC/3.0 Amps	12 VDC	Yes	**9.62**	**8.02**
28F1759	GB14430-05S	270 VAC/3.0 Amps	5 VDC	Yes	**10.41**	**8.67**
28F1760	GB14430-12S	270 VAC/3.0 Amps	12 VDC	Yes	**10.41**	**8.67**

15000—MOLDED SOLID STATE RELAY

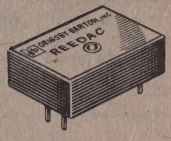
U.L. recognized, zero voltage turn-on, 3 to 32 VDC TTL compatible photo-isolated input with reverse polarity protection. SPST N.O. output, 10, 25 or 40 AMP, 24 to 280 VAC with internal RC network protection. Molded package with screw termination. 2500 VRMS isolation. Size: 2.250" L. x 1.75" W. x .875" H. with 1.875" mounting centers.

Stock No.	Type	Maximum Output Rating	1-24	25-49
28F1761	GB15210-2	140 VAC/10 Amps	**17.38**	**14.48**
28F1762	GB15225-2	140 VAC/25 Amps	**22.49**	**18.74**
28F1763	GB15240-2	140 VAC/40 Amps	**29.37**	**24.47**
28F1764	GB15410-2	280 VAC/10 Amps	**17.68**	**14.73**
28F1765	GB15425-2	280 VAC/25 Amps	**22.79**	**18.99**
28F1766	GB15440-2	280 VAC/40 Amps	**29.66**	**24.71**

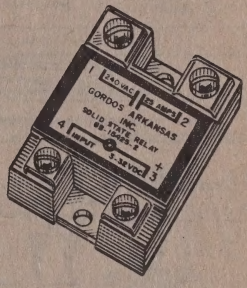
2200/2400/ 12400 Series



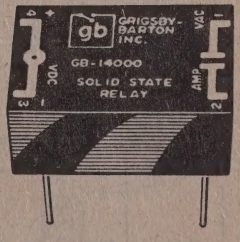
4400 Series



15000/ 15400 Series



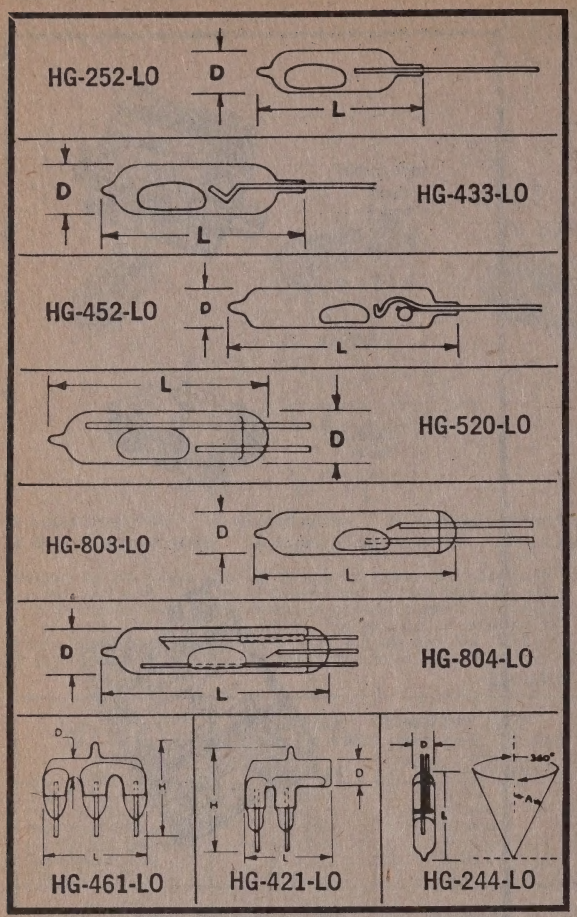
14000 Series



TECHNICAL DATA

Control Circuit (Input)	GB2200 GB2400 5VDC	GB14230 GB14430 5VDC	GB14230 GB14430 12VDC	GB12400 3-32VDC	GB15200 GB15400 3-32VDC
Nom. Volt. Rating	5.0VDC	5.0VDC	12.0VDC	3-32VDC	3-32VDC
Must Operate Volt.	4.0VDC	4.0VDC	9.0VDC	3.0VDC	3.0VDC
Must Release Volt.	0.5VDC	0.5VDC	1.0VDC	1.0VDC	1.0VDC
Max. Volt. Rating	7.5VDC	7.5VDC	18.0VDC	32VDC	32VDC
Nom. Current Rating	12.5MA	5.0MADC	12.0MADC	12.0MADC	1.0MA/Volt

Operating Rating	GB2200 GB2400	GB14230 GB14430 GB15200 GB15400	GB12400
Isolation to Ground	1500VAC	2500VAC	1500VAC
Isol. Input to Output	1500VAC	2500VAC	1500VAC
Sine Wave Freq. Range	47 to 63Hz	47 to 63HZ	47 to 63Hz
Max. Turn-On-Time	1.5MS	½AC Cycle	½AC Cycle
Max. Turn-Off-Time	½AC Cycle	½AC Cycle	½AC Cycle
Oper. Temp. Range	−25 to +80°C	−25 to +80°C	−25 to +80°C
Storage Temp. Range	−40 to +100°C	−40 to +100°C	−25 to +80°C



MERCURY SWITCHES

Mercury switches eliminate contact bounce, switch heavy currents, and offer low contact resistance. Differential angle is measured from Norm. Closed position and is tilt angle required to move mercury pool from just-break to just-make in SPST switches. In SPDT switches, it is angle between two operating positions. Max. current ratings are for resistive loads only. MM—Two mercury pools make and break contact. MWM—Pool makes contact with mercury-wetted metal electrode. MDM—Pool makes contact with dry electrode. Oper. temp.: −35°C to +800°C. Use with mounting clips.

Stock No.	Type HG-	Contact Arrg.	Max. Amps 30V	Max. Amps 115V	Max. Amps 220V	Contact Type	Max. Diff. Angle	Mtg. Clip	Each
62F4055	252-LO	SPST	4	2	1	MWM	14°	M-514	1.00
62F4056	433-LO	SPST	8	5	2	MDM	5°	M-511	3.00
62F4057	520-LO	SPST	.25	.1	.05	MDM	10°	M-539	2.00
62F4058	452-LO	SPST	20	10	5	MDM	3°	M-512	3.75
62F4059	244-LO	SPST	2	1	.5	MDM	*	M-511	7.75
62F4060	803-LO	SPST	1	.2	.1	MWM	1.4°	M-514	1.40
62F4061	804-LO	SPDT	1	.2	.1	MWM	2°	M-514	2.50
62F4062	421-LO	SPST	30	20	10	MM	10°	M-56**	7.00
62F4063	461-LO	SPDT	30	20	10	MM	14°†	M-56	10.40

(*)Angle measured from vertical; 30° ± 5°.
(†)Min. angle 9°.
(**)Two mounting clips required.

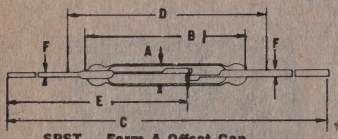
MOUNTING CLIPS

Stock No.	Type	Description	Each
62F4064	M-56	H: .609″ x W: .625″ x L: .312″	.35
62F4065	M-511	H: .681″ x W: .470″ x L: 1.286″	.35
62F4066	M-512	H: .875″ x W: .656″ x L: .938″	.20
62F4067	M-514	H: .562″ x W: .385″ x L: .410″	.15
62F4068	M-539	H: .275″ x W: .218″ x L: .250″	.25

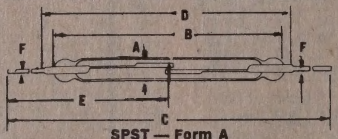
SIZE CHART

Type	D	L	H
HG 433LO	.495	1.750	....
HG 452LO	.600	2.625	....
HG 803LO	.325	1.375	....
HG 421LO	.450	1.375	1.500
HG 252LO	.325	1.00	....
HG 520LO	.155	.500	....
HG 244LO	.495	1.250	....
HG 804LO	.350	1.562	....
HG 461LO	.450	1.375	1.500

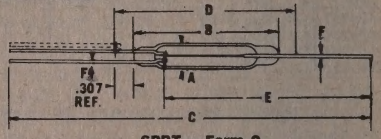
SUB-MINIATURE THRU LARGE REED SWITCHES



SPST — Form A Offset Gap
SPST — Form A Mercury Wetted



SPST — Form A
Center Gap



SPDT — Form C

SUB-MINIATURE AND MINIATURE REED SWITCHES

Stock No.	Type	Form	Description	Maximum Dim. Dia. A	Maximum Dim. Lgth. B	Nom. Lgth. C	Maximum Amps	Maximum VDC	Initial Contact Res. Ohms	Min. Br. Volt. Volts-RMS	Typical Oper. Time M Sec.	Amp. Turns	1-24	25-49	50-99
62F4014	MR-456	A	Offset gap	.090″	.560″	1.90″	.250	100	.150	250	0.6	10/50	.93	.70	.65
62F4015	MR-458	A	Offset gap	.090″	.560″	1.90″	.250	100	.150	250	0.6	10/50	1.10	.83	.77
62F4016	MR-108	A	Center gap	.105″	.785″	2.10″	.500	200	.100	250	0.75	20/35	.93	.70	.65
62F4017	MR-138	A	Center gap	.105″	.815″	2.10″	.500	1000	.100	1200	0.50	20/35	3.50	2.63	2.45
62F4018	MR-5830	A	Center Gap	.105″	.845″	2.10″	.500	200	.090	250	0.75	28/42	1.40	1.05	1.05
62F4019	WR-127-1	A	Mercury Wetted	.125″	.690″	1.62″	1.0	1000	.050	1500	1.75	40/55	3.50	2.63	2.45
62F4020	MR-5204	C	SPDT	.125″	.600″	2.125″	.300	28	.150	200	0.5	20/35	3.75	2.82	2.63
28F1767	MR-0780	A	Center Gap	.074″	.470″	1.98″	.250	100	.200	200	.25	15/45	1.40	1.05	.98
28F1768	MR-1031	A	Center Gap	.105″	.785″	2.10″	1.0	200	.500	250	1.0	40/70	1.20	.90	.84
28F1769	MR-7604	C	SPDT	.125″	.585″	2.07″	.300	100	.200	250	1.0	15/45	3.75	2.82	2.63
28F1770	WR-125-1	A	Mercury Wetted	.100″	.500″	2.07″	1.0	500	.050	1500	1.8	40/80	4.00	3.00	2.80
28F1771	WR-1201-1	C	Mercury Wetted	.125″	.630″	1.57″	1.0	500	.050	1500	2.0	40/80	8.75	6.56	5.12

COMPACT STANDARD & LARGE REED SWITCHES

62F4021	MR-608	A	Offset gap	.190″	1.45″	3.20″	1.0	250	.050	300	2.0	40/55	1.20	.90	.84
62F4022	MR-8901	A	Offset gap	.190″	1.70″	3.20″	3.0	250	.500	400	2.5	50/65	2.70	2.03	1.89
62F4023	MR-708	A	Center gap	.190″	1.65″	3.40″	1.0	250	.050	300	2.0	40/55	1.20	.90	.84
62F4024	MR-201	C	SPDT	.190″	1.20″	3.15″	.250	100	.200	250	3.5	40/55	3.00	2.25	2.10
62F4069	MR-200-2	C	SPDT	.190″	1.20″	3.15″	.250	100	.200	250	3.5	25/40	3.75	2.81	2.63
62F4070	MR-988	A	Center gap	.195″	2.07″	3.20″	1.0	1200	.050	1400	2.5	50/65	3.75	2.81	2.63
28F1772	WR-1300-1	A	Mercury Wetted	.190″	1.050″	3.20″	3.0	500	.060	1000	2.0	40/140	4.25	3.19	2.98

Solid State Time Delay Relays

MACROMATIC

Type SS78 ON DELAY

ON Delay type DPDT 10 Amp resistive. 0.5% repeatable accuracy. Transient protected MOV (10,000 V—20 Microseconds) Ambient Temp. —40°F to 175°F. 60ms typical recycle time. Reverse polarity protected. IC accuracy and reliability. **Features:** Gold flashed contacts, pilot light, 8 pin plug-in, steel case, internal steel frame. UL Recognized.

Stk. No.	Type	Input	Timing (Seconds)	EACH 1-9	10-49	50-99
28F962	SS 78222-02	120VAC	.05-1	37.50	33.75	31.88
28F963	SS 78222-04	120VAC	.05-5	37.50	33.75	31.88
28F964	SS 78222-06	120VAC	0.15-15	37.50	33.75	31.88
28F965	SS 78222-08	120VAC	0.6-60	39.95	35.96	33.96
28F966	SS 78222-12	120VAC	3-300	49.95	44.96	42.46
28F967	SS 78228-02	24VAC	.05-1	37.50	33.75	31.88
28F968	SS 78228-04	24VAC	.05-5	37.50	33.75	31.88
28F969	SS 78228-06	24VAC	0.15-15	37.50	33.75	31.88
28F970	SS 78228-08	24VAC	0.6-60	39.95	35.96	33.96
28F971	SS 78228-12	24VAC	3-300	49.95	44.96	42.46

Type SS80 MOMENTARY INTERVAL

Same as SS 78 except Single Shot momentary interval type. 11 pin plug-in. UL Recognized.

Stk. No.	Type	Input	Timing (Seconds)	EACH 1-9	10-49	50-99
28F972	SS 80522-02	120VAC	.05-1	43.00	38.70	36.55
28F973	SS 80522-04	120VAC	.05-5	43.00	38.70	36.55
28F974	SS 80522-06	120VAC	0.15-15	43.00	38.70	36.55
28F975	SS 80522-08	120VAC	0.6-60	45.00	40.50	38.25
28F976	SS 80522-12	120VAC	3-300	55.00	49.50	46.75
28F985	SS 80528-02	24VAC	.05-1	43.00	38.70	36.55
28F986	SS 80528-04	24VAC	.05-5	43.00	38.70	36.55
28F987	SS 80528-06	24VAC	0.15-15	43.00	38.70	36.55
28F988	SS 80528-08	24VAC	0.6-60	45.00	40.50	38.25
28F989	SS 80528-12	24VAC	3-300	55.00	49.50	46.75

Type SS81 OFF DELAY

Same as SS78 except Off Delay type. 11 pin plug-in. UL Recognized.

Stk. No.	Type	Input	Timing (Seconds)	EACH 1-9	10-49	50-99
29F300	SS 81622-02	120VAC	.05-1	42.50	38.25	36.13
29F301	SS 81622-04	120VAC	.05-5	42.50	38.25	36.13
29F302	SS 81622-06	120VAC	0.15-15	42.50	38.25	36.13
29F303	SS 81622-08	120VAC	0.6-60	44.50	40.05	37.83
29F304	SS 81622-12	120VAC	3-300	54.50	49.05	46.33
29F305	SS 81628-02	24VAC	.05-1	42.50	38.25	36.13
29F306	SS 81628-04	24VAC	.05-5	42.50	38.25	36.13
29F307	SS 81628-06	24VAC	0.15-15	42.50	38.25	36.13
29F308	SS 81628-08	24VAC	0.6-60	44.50	40.05	37.83
29F309	SS 81628-12	24VAC	3-300	54.50	49.05	46.33

Type SS6 & SS8

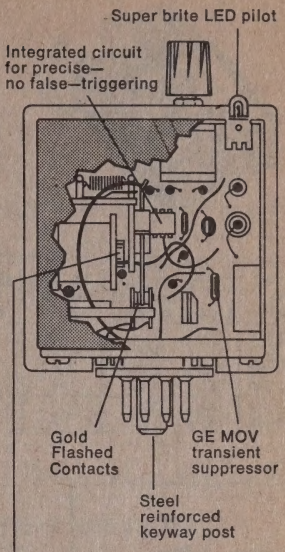
Type SS6 is ON DELAY. **Type SS8** is OFF DELAY. Both units feature: SPDT 3 amp output, 8 pin plug-in, Repeatable Accuracy ±5%, Ambient temp. range 0° to +130°F, Power consumption 2 Watts max, Recycle Time 100 ms, Timing adj. with screwdriver slot on top. Ideal for Burglar Alarms, Battery Charging controls, Photocopiers, Electric door controls. Size — Top: 1.35″x1.35″, Bottom: 1.4″x 1.4″, Side: 2.1″L.

Stk. No.	Type	Input	Timing (Seconds)	EACH 1-9	10-49	50-99
28F945	SS 6262 II	120VAC	1-15	14.95	13.45	12.71
28F946	SS 6262 Y	120VAC	1-30	14.95	13.45	12.71
28F947	SS 6262 JJ	120VAC	1-60	16.50	14.85	14.03
28F948	SS 6262 KK	120VAC	1-180	19.95	17.95	16.96
28F950	SS 6268 II	24VAC	1-15	14.95	13.45	12.71
28F951	SS 6268 Y	24VAC	1-30	14.95	13.45	12.71
28F952	SS 6268 JJ	24VAC	1-60	16.50	14.85	14.03
28F953	SS 6268 KK	24VAC	1-180	19.95	17.95	16.96
28F954	SS 8562 II	120VAC	1-15	18.50	16.65	15.73
28F955	SS 8562 Y	120VAC	1-30	18.50	16.65	15.73
28F956	SS 8562 JJ	120VAC	1-60	19.95	17.95	16.96
28F957	SS 8562 KK	120VAC	1-180	23.50	22.33	19.98
28F958	SS 8568 II	24VAC	1-15	18.50	16.65	15.73
28F959	SS 8568 Y	24VAC	1-30	18.50	16.65	15.73
28F960	SS 8568 JJ	24VAC	1-60	19.95	17.95	16.96
28F961	SS 8568 KK	24VAC	1-180	23.50	22.33	19.98

Type SS23 REPEAT CYCLE Timers

Off and On times independently adjustable, 0.5% Repeatable accuracy, Transient protected MOV (10,000V—20 Microseconds). Ambient Temp. range —40° to 175°F, DPDT 10 amp resistive output. Times up to 24 hours, IC Accuracy, OFF delay followed by ON delay. Octal 8 pin plug-in. Steel case. Int. Steel frame. UL Recognition or (*) UL Recognition pending.

Stk. No.	Type	Input	Timing	EACH 1-9	10-49	50-99
28F932	SS 23122-02	120VAC	.05-1 Sec	49.95	44.96	42.46
28F933	SS 23122-04	120VAC	.05-5 Sec	49.95	44.96	42.46
28F934	SS 23122-06	120VAC	0.15-15 Sec	49.95	44.96	42.46
28F935	SS 23122-08	120VAC	0.7-60 Sec	52.50	47.25	44.63
28F936	SS 23122-12	120VAC	3-300 Sec.	57.50	51.75	48.88
28F937	SS 23122-16*	120VAC	5 min-1 hr.	110.00	99.00	93.50
28F938	SS 23122-20*	120VAC	1 hr.-8 hr.	132.50	119.25	112.63
28F939	SS 23122-21*	120VAC	1.5 hr.-12 hr.	132.50	119.25	112.63
28F940	SS 23122-23*	120VAC	3 hr.-24 hr.	132.50	119.25	112.63
28F941	SS 23126-02	24VAC	.05-1 Sec	49.95	44.96	42.46
28F942	SS 23126-04	24VAC	.05-5 Sec	49.95	44.96	42.46
28F943	SS 23126-06	24VAC	0.15-15 Sec	49.95	44.96	42.46
28F944	SS 23126-08	24VAC	0.6-60 Sec	52.50	47.25	44.63

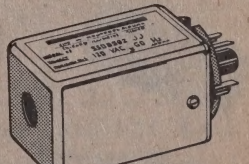

Super brite LED pilot
Integrated circuit for precise— no false—triggering
Gold Flashed Contacts
GE MOV transient suppressor
Steel reinforced keyway post
Controlled drop out long life relay

FEATURES:

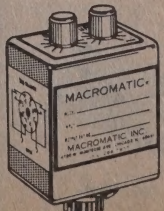
7000 & 8000 Series

- **Indep. supported Fiberglass boards**
- **Cermet potentiometers**
- **MOV transient protection**
- **Steel case**
- **Tantalum capacitors**

SS78
SS80
SS81



SS6
SS8

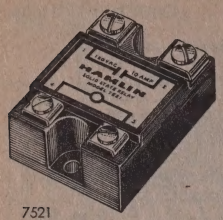


SS23

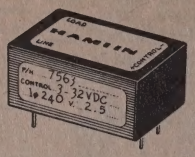
9

Solid State and Reed Relays

OPTO-ISOLATED SOLID-STATE RELAYS



7521



7562

Solid State Relays ready for your circuit design. PCB and surface mounted units designed to switch inductive, capacitive or resistive loads up to 40 amps.
Outstanding features include:

- **Opto-coupled**
- **Zero Voltage Synchronous Switching**
- **1500 VAC isolation**
- **2½-40 Amp Rating**
- **PCB Mount or Lug Terminals**
- **Epoxy Encapsulated for Ruggedness**
- **120 or 240 VAC Switching Capability**

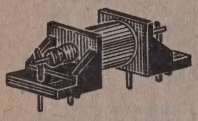
Input-All Models: Input Voltage: 3-32 VDC
Input Current: 3 MA Max @ 3V—37 MA Max @32V

Stk. No.	Type	Load Current Max. RMS @25°C	AC Line Volt 47-63 Hz	Blocking Volt. Max.	Max. Surge Current	1-9	10-24
31F1377	7511	5.0A	120	200	80A	17.35	15.75
31F1378	7512	5.0A	240	400	80A	18.50	16.75
31F1379	7561	2.5A	120	200	80A	16.60	14.90
31F1380	7562	2.5A	240	400	80A	17.70	15.95
31F1381	7564	3.0A	120	200	80A	16.60	14.90
31F1382	7565	3.0A	240	400	80A	17.70	15.95

Stk. No.	Type	AC Line Volt 47-63 Hz	Blocking Volt. Max.	Max. Surge Current	1-9	10-24	25-49
31F1383	7521	120 VAC	200 Volts	10A RMS	18.65	16.90	16.45
31F1384	7522	240 VAC	400 Volts	10A RMS	20.30	18.40	17.90
31F1385	7531	120 VAC	200 Volts	25A RMS	24.00	21.75	21.15
31F1386	7532	240 VAC	400 Volts	25A RMS	26.00	23.60	22.95
31F1387	7551	120 VAC	200 Volts	40A RMS	37.75	34.20	33.30
31F1388	7552	240 VAC	400 Volts	40A RMS	46.40	42.10	40.95

9

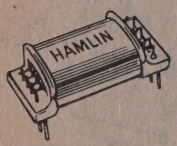
REED RELAYS



300 SERIES

HE300 SERIES—SIP (SINGLE-IN LINE PACKAGE)

Stock Number	Type	Coil Voltage (V)	Coil Resistance (Ω) ±10%	Contact Form	Switch Voltage Max. (V)	Switch Current Max. (A)	1-24	25-49	50-99	100-249
28F2010	HE321A0500	5	125	1A	200	.5	2.03	1.93	1.82	1.50
28F2011	HE321A1200	12	500	1A	200	.5	2.03	1.93	1.82	1.50
28F2012	HE321A2400	24	2000	1A	200	.5	2.22	2.11	1.99	1.62

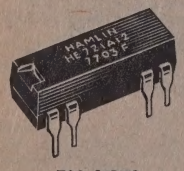


400 SERIES

HE400 SERIES—MINIATURE OPEN FRAME 1" x .1" GRID

Industrial standard open frame package. Contacts run-in 1 million times before testing. Size: 1.20"L x .375"W x .350"H.

Stock Number	Type	Coil Voltage (V)	Coil Resistance (Ω) ±10%	Contact Form	Switch Voltage Max. (V)	Switch Current Max. (A)	1-24	25-49	50-99	100-249
28F2013	HE421A0500	5	240	1A	200	.5	2.33	2.22	2.10	1.75
28F2014	HE421A1200	12	960	1A	200	.5	2.33	2.22	2.10	1.75
28F2015	HE421A2400	24	3840	1A	200	.5	2.33	2.22	2.10	1.75
28F2016	HE421C0500	5	240	1C	200	.250	6.58	6.26	5.93	4.71
28F2017	HE421C1200	12	960	1C	200	.250	6.58	6.26	5.93	4.71
28F2018	HE421C2400	24	3840	1C	200	.250	6.58	6.26	5.93	4.71
100 WATT POWERHOUSE										
28F2019	HE461A0500	5	75	1A	200	1.0	2.95	2.88	2.73	2.26
28F2020	HE461A1200	12	300	1A	200	1.0	2.95	2.88	2.73	2.26
28F2021	HE461A2400	24	1200	1A	200	1.0	2.95	2.88	2.73	2.26



700 SERIES

HE700 SERIES DIP

High speed with low power requirements. Ideal logic compatibility. Size: .750"L x .240"W x .275"H.

Stock Number	Type	Coil Voltage (V)	Coil Resistance (Ω) ±10%	Contact Form	Switch Voltage Max. (V)	Switch Current Max. (A)	1-24	25-49	50-99	100-249
28F2022	HE721A0500	5	500	1A	200	.5	3.20	3.12	2.81	2.19
28F2023	HE721A1200	12	1600	1A	200	.5	3.20	3.12	2.81	2.19
28F2024	HE721A2400	24	2150	1A	200	.5	3.35	3.27	2.95	2.29
28F2025	HE721C0500	5	200	1C	200	.250	5.95	5.70	5.41	4.24
28F2026	HE721C1200	12	500	1C	200	.250	5.95	5.70	5.41	4.24
28F2027	HE721C2400	24	2000	1C	200	.250	6.65	6.48	5.95	4.61

800 SERIES

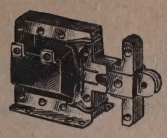
HE800 SERIES DIL (ALTERNATE TO DIP)

Alternate design to DIP. Mercury wet in all positions. High voltage hold-off 600 VDC across contacts. Size: 1.00"L x .430"W x .350"H.

Stock Number	Type	Coil Voltage (V)	Coil Resistance (Ω) ±10%	Contact Form	Switch Voltage Max. (V)	Switch Current Max. (A)	1-24	25-49	50-99	100-249
28F2028	HE821A0500	5	190	1A	200	.5	2.35	2.29	2.10	1.62
28F2029	HE821A1200	12	1150	1A	200	.5	2.35	2.29	2.10	1.62
28F2030	HE821A2400	24	4200	1A	200	.5	2.50	2.44	2.26	1.91
28F2031	HE821C0500	5	300	1C	200	.250	6.15	5.95	5.65	4.95
28F2032	HE821C1200	12	1150	1C	200	.250	6.15	5.95	5.65	4.95
28F2033	HE821C2400	24	3000	1C	200	.250	6.80	6.20	5.95	5.20
MERCURY WETTED CONTACTS TO OPERATE WITHIN 30% OF VERTICAL										
28F2034	HE831A0500	5	50	1A	100	2.0	8.50	7.10	7.65	6.40
28F2035	HE831A1200	12	220	1A	100	2.0	8.50	7.10	7.65	6.40
28F2036	HE831A2400	26	1000	1A	100	2.0	8.50	7.10	7.65	6.40

Relays and Coaxial Switches

SINGER CONTROLS DIVISION AC SOLENOIDS



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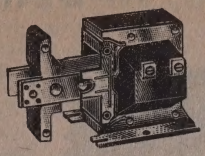

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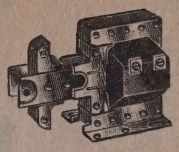

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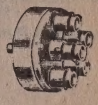
AC solenoids are available in both intermittent and continuous duty types. Coil windings are imbedded in a heavy stock-resistent layer of epoxy. Zinc dichromate finish. Made by the world's largest manufacturer of solenoids.

Stk. No.	Part Number	Volts	Duty	Ohms	Amps	Adj. Stroke (in.)	Max-Lift Minimum Stroke	Shpg. Wt. Oz.	1-24	25-49	50-99	100-249
24F1600	801-101-2	115	Continuous	71	.30	1/8-5/8	53	8	5.52	5.03	4.63	4.26
24F1601	801-102-2	115	Intermittent	48.8	.50	1/8-5/8	75	8				
24F1602	801-103-2	230	Continuous	284	.15	1/8-5/8	53	8				
24F1603	812-101-2	115	Continuous	17.7	.58	1/8-1 1/16	154	18	7.47	6.80	6.26	5.77
24F1604	812-102-2	115	Intermittent	12.35	.97	1/8-1 1/16	192	18				
24F1605	812-103-2	230	Continuous	70.8	.29	1/8-1 1/16	154	18				
24F1606	813-101-2	115	Continuous	12.6	.60	1/8-1 1/16	196	22	8.11	7.41	6.71	6.21
24F1607	813-102-2	115	Intermittent	8.04	1.41	1/8-1 1/16	292	22				
24F1608	813-103-2	230	Continuous	50.4	.30	1/8-1 1/16	196	22				
24F1609	821-101-2	115	Continuous	4.68	.97	1/8-1 3/8	300	40	10.02	9.16	8.30	7.67
24F1610	821-102-2	115	Intermittent	3.17	1.77	1/8-1 3/8	460	40				
24F1611	821-103-2	230	Continuous	18.7	.485	1/8-1 3/8	300	40				

AMPHENOL COAXIAL SWITCHES—MANUAL AND SOLENOID OPERATED

Popular selection of coaxial switches for a wide variety of commercial and industrial applications. Requires only 20 millisecond max. operate and release time. Mechanical life exceeds 1 million cycles. Silver plated for comp. shielding. Gold over silver plated contacts: 100 watt RF power rating. Vacuum impregnated coils withstand adverse environmental conditions including high humidity. Rating: −65°C to +85°C. Terminations are all shorting except those indicated (*). In Volts col. (**) denotes that the switches are either rotary manual (57F1108) or lever manual (57F1104 and 57F1106). Available in a wide range of function designs. All types have BNC plug.

315



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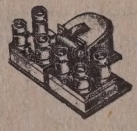

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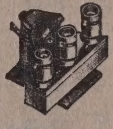

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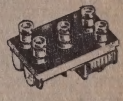


323

Stock No.	Type No.	Freq. MC	Volts	Funct.	1-4	5-9	10-24	25-49
57F1100	315-10002-3*	1000	26DC	SPDT	42.60	34.75	29.93	26.46
57F1104	318-10381-0*	2750	**	SPDT	48.60	39.65	34.15	30.18
57F1106	321-11062-0*	1000	**	DPDT	94.81	77.35	66.62	58.88
57F1107	321-11064-3*	1000	26DC	DPDT	87.93	71.73	61.78	54.61
57F1108	322-11431-0*	2750	**	SP4T	105.70	86.23	74.27	65.64
57F1109	323-11506-3	900	26DC	SP4T	95.06	77.55	66.79	59.04
57F1142	323-11651-3	1250	26DC	SP4T	95.06	77.55	66.79	59.04
57F1143	325-11641-3	500	26DC	SP6T	118.83	96.94	83.49	73.80

AMPERITE THERMOSTATIC DELAY RELAYS

OCTAL BASE TUBE SHELL

Delay Seconds	Stock No.	6.3 NO	Stock No.	26V NO	Stock No.	115V NO	Stock No.	115V NC	NET
2	24F2300	6 NO2	24F2314	26 NO2	24F2328	115 NO2	24F2342	115 C2	2.90
3	24F2301	6 NO3	.....	.....	24F2329	115 NO3	24F2343	115 C3	
5	24F2302	6 NO5	24F2316	26 NO5	24F2330	115 NO5	24F2344	115 C5	
8	.....	.....	.....	.....	.....	.....	.....	.....	
10	24F2303	6 NO10	24F2317	26 NO10	24F2331	115 NO10	24F2345	115 C10	
15	24F2304	6 NO15	24F2318	26 NO15	.....	.....	24F2346	115 C15	
20	24F2305	6 NO20	.....	.....	24F2333	115 NO20	24F2347	115 C20	
30	24F2306	6 NO30	.....	.....	24F2334	115 NO30	24F2348	115 C30	
45	.....	.....	24F2321	26 NO45	24F2335	115 NO45	24F2349	115 C45	
60	24F2308	6 NO60	24F2322	26 NO60	24F2236	115 NO60	24F2350	115 C60	
90	.....	.....	24F2324	26 NO90	24F2338	115 NO90	.....	.....	
120	24F2311	6 NO120	.....	.....	24F2339	115 NO120	24F2353	115 C120	
150	.....	.....	.....	.....	24F2340	115 NO150	.....	.....	
180	.....	.....	24F2327	26 NO180	.....	.....	24F2355	115 C180	

MINIATURE 9 PIN TUBE SHELL

2	.....	.....	24F2381	26 NO2T	24F2392	115 NO2T	24F2403	115 C2T	2.80
3	.....	.....	24F2382	26 NO3T	24F2393	115 NO3T	24F2404	115 C3T	
5	24F2372	6 NO5T	24F2383	26 NO5T	24F2394	115 NO5T	24F2405	115 C5T	
10	24F2373	6 NO10T	24F2384	26 NO10T	24F2395	115 NO10T	.....	.....	
15	.....	.....	24F2385	26 NO15T	24F2396	115 NO15T	24F2407	115 C15T	
20	24F2375	6 NO20T	.....	.....	24F2397	115 NO20T	24F2408	115 C20T	
30	24F2376	6 NO30T	24F2387	26 NO30T	24F2398	115 NO30T	24F2409	115 C30T	
45	24F2377	6 NO45T	24F2388	26 NO45T	24F2399	115 NO45T	24F2410	115 C45T	
60	.....	.....	24F2389	26 NO60T	24F2400	115 NO60T	24F2411	117 C60T	
90	.....	.....	.....	.....	.....	.....	24F2412	115 C90T	
120	24F2380	6 NO120T	24F2391	26 NO120T	24F2402	115 NO120T	.....	.....	
30	24F2361	6 F30	Flasher	.....	.....	.....	.....	.....	2.90

24F2414. Type 26C5T. Normally closed. Delay 5 sec. 26 V. **NET**.....2.80

OCTAL BASE TUBE SHELL

Delay Seconds	Stock No.	6.3 V	Stock No.	26.0 V	NET
2	.....	.....	24F2362	26C2	2.90
20	24F2357	6C20	.....	.....	
30	.....	.....	24F2358	26C30	

Hermetically-sealed, heater-actuated relays for AC or DC operation. SPST—Normally open (NO); Normally closed (C). Draw 2 W. Contact rating—115v at 3A AC and 220v at 1A AC. Breakdown voltage: delays 2-5 sec. between contacts 250 V; heater to contacts 500 V. Compensated for 55°C to 70°C ambient. Diameter, 1 1/4". Height, less prongs, 2 3/4". Min. 9 pin. 3/4x2 1/2". U.L. approved through 115V. Shpg. wt. 4 oz.

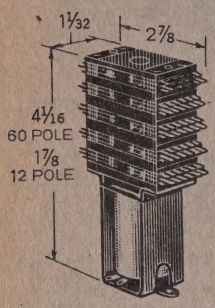
AMPERITE BALLAST TUBES

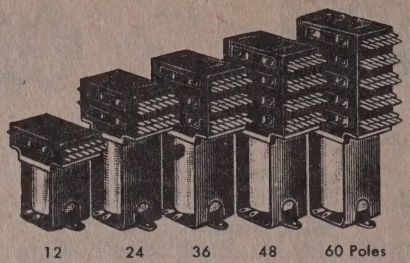
Rugged units provide low-cost automatic voltage and current regulation. As supply voltage increases, ballast tube resistance increases. Regulating action is based on high temperature coefficient of resistance element and heat dissipation qualities of gas-filled tube. Shpg. wt. 8 oz.

Stk. No.	Type	Stk. No.	Type	NET
24F744	1HM4	24F738	3TF4	2.60
24F735	1HT4	24F726	3TFV4	2.60
24F716	3-14	24F723	10-4C	2.60
24F739	3-16	24F743	3A10	2.60
24F725	3TF4A	.....	.....	2.60

T-bar INCORPORATED
SWITCHING COMPONENTS DIV.

Multipole, Hi-Density Switching Relays





- **Easily Mounted Only 2 Screws**
- **Mount In Any Position**

GENERAL PURPOSE LO-LEVEL LATCHING RELAYS

- **Stack-up Contact Wafers Switch From 12 to 60 Circuits**
- **Easily-Wired Snap-on Crimp Terminals Fit Into 6-pole Connectors**

Solenoid actuated relays with unique design employing stacked-up enclosed contact wafers for up to 60-pole switching. Ideal for aircraft, telemetry, communications, computers. Latching series has ability to maintain circuit stability. Ideal where power drain strains circuit power or generates undesirable heat. Terminals mate with T-Bar Connectors. Contact assemblies in dust-tight plastic enclosures 1 1/32" wide by 2 3/8" long; height is 1 3/32" per 12 pole wafer.

Type	Application	No. of Poles	Contact Forms	Latching/Non-Latching	Coil Voltage
801	Gen. Purpose	4 to 48	"A" or "C"	Non-Latching	12, 24, 28 48, 110 VDC 115 VAC
901	Low-Level	60 pole unit "A" form only			
907	Low-Level	36 to 48	"C"	Latching	24, 28 VDC

Contact Resistance: 20 milliohms typical

Ambient Temperatures: —55° to plus 85°C

Terminals: Mate with T-Bar Connectors

Dielectric Strength: 1000 VRMS @ 60 cycles/sec.

Insulation Resistance: 5000 megohms min.

Series 800—30,000,000 mechanical (latching limited to 1,000,000) 20,000,000 @ 100 mw 100,000 @ 5 amps 28 VDC.

Series 900—30,000,000 mechanical 20,000,000 @ 100 mw 100,000 @ 1 amp at 28 VDC.

Contacts: Series 800—general purpose gold plated. Series 900—low-level bifurcated gold plated.

Contact Rating: Series 800—5 amps max. resistive to 150 watts. Series 900—1 amp max. resistive to 50 watts.

9

TYPE 801 DC RELAYS

Stk. No.	Type	Action	Coil VDC	1-24	25-49	50-74	75-99
59F700	801-4C24	4PDT	24	13.90	13.20	12.55	11.90
59F701	801-8C24	8PDT	24	19.20	18.25	17.35	16.45
59F764	801-12A12	12PST	12	22.45	21.35	20.25	18.25
59F765	801-12A24	12PST	24	20.65	19.60	18.65	17.70
59F766	801-12A28	12PST	28	20.65	19.60	18.65	17.70
59F767	801-12A48	12PST	48	22.45	21.35	20.25	18.25
59F702	801-12C12	12PDT	12	24.00	22.80	21.65	20.55
59F703	801-12C24	12PDT	24	21.95	20.85	19.80	18.80
59F750	801-12C28	12PDT	28	21.95	20.85	19.80	18.80
59F705	801-12C110	12PDT	110	21.95	20.85	19.80	18.80
59F769	801-24A12	24PST	12	38.30	36.40	34.60	32.80
59F770	801-24A24	24PST	24	35.15	33.40	31.75	30.10
59F772	801-24A48	24PST	48	38.30	36.40	34.60	32.80
59F751	801-24C12	24PDT	12	43.45	41.30	39.25	37.25
59F712	801-24C24	24PDT	24	39.85	37.85	36.85	34.15
59F752	801-24C28	24PDT	28	39.85	37.85	36.85	34.15
59F713	801-24C48	24PDT	48	43.45	41.30	39.25	37.25
59F714	801-24C110	24PDT	110	39.85	37.85	36.85	34.15
59F775	801-36A24	36PST	24	47.15	44.80	42.60	40.40
59F776	801-36A28	36PST	28	47.15	44.80	42.60	40.40
59F777	801-36A48	36PST	48	51.35	48.80	46.35	44.00
59F778	801-36A110	36PST	110	47.15	44.80	42.60	40.40
59F753	801-36C12	36PDT	12	59.05	56.10	53.30	50.60
59F721	801-36C24	36PDT	24	54.10	51.40	48.85	46.35
59F754	801-36C28	36PDT	28	54.10	51.40	48.85	46.35
59F723	801-36C110	36PDT	110	54.10	51.40	48.85	46.35
59F780	801-48A24	48PST	24	59.15	56.20	53.40	50.70
59F775	801-48C12	48PDT	12	68.40	65.00	61.75	58.60
59F756	801-48C24	48PDT	24	68.40	65.00	61.75	58.60
59F759	801-48C110	48PDT	110	68.40	65.00	61.75	58.60

TYPE 901 DC RELAYS

Stk. No.	Type	Action	Coil VDC	1-24	25-49	50-74	75-99
59F1665	901-12C12	12PDT	12	24.00	22.80	21.65	20.55
59F1666	901-12C24	12PDT	24	21.95	20.85	19.80	18.80
59F1668	901-24C12	24PDT	12	43.45	41.30	39.25	37.25
59F1669	901-24C24	24PDT	24	39.85	37.85	36.85	34.15
59F1670	901-24C110	24PDT	110	39.85	37.85	36.85	34.15
59F1671	901-36C24	36PDT	24	54.10	51.40	48.85	46.35
59F1672	901-36C110	36PDT	110	54.10	51.40	48.85	46.35

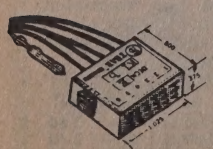
TYPE 907 DC RELAYS

Stk. No.	Type	Action	Coil VDC	1-24	25-49	50-74	75-99
59F1678	907-36C24	36PDT	24	77.15	73.30	69.65	66.10
59F1679	907-36C28	36PDT	28	77.15	73.30	69.65	66.10
59F1680	907-48C28	48PDT	28	84.35	80.15	76.15	72.30
59F1681	907-48C24	48PDT	24	84.35	80.15	76.15	72.30

TYPE 801 & 901 115 VAC RELAYS

Stk. No.	Type	Action	1-24	25-49	50-74	75-99
59F790	801-8C115	8PDT	24.60	23.35	22.20	21.10
59F791	801-12A115	12PST(NO)	25.80	24.50	23.30	22.10
59F792	801-12C115	12PDT	27.10	25.75	24.45	23.20
59F793	801-24A115	24PST(NO)	40.80	38.75	36.85	34.95
59F794	801-24C115	24PDT	45.50	43.25	41.10	39.00
59F795	801-36A115	36PST(NO)	57.00	54.15	51.45	48.85
59F796	801-36C115	36PDT	59.75	56.75	53.95	51.20
59F798	801-48C115	48PDT	73.70	70.00	66.55	63.15
59F799	801-60A115	60PST(NO)	80.10	76.10	72.35	68.65

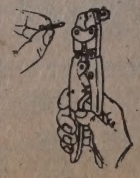
T-BAR CONNECTOR



Model 88601. T-Bar Connector. For connecting wires to T-Bar switches or terminals. Nylon terminal block pushes onto wafer terminals. Wires are first crimped to snap-in terminal using the crimping tool below. Accommodates #18 to 26 stranded wire with max. insulation diameter of .074". Each connector handles 6 poles, single or double throw (18 terminals) consists of 1 connector-block, 20 crimp contacts, 2 labels and 1 retaining clip. (see index).

59F741. 1-99. NET..... 1.70

CRIMPING TOOLS



Model 8601-51 Crimping Tool. For use with T-Bar connector. Crimps wire and insulation to snap-in terminals.

59F742. NET..... 98.00

Model 8601-61. Extraction Tool. Removes snap-in terminal from connector block.

59F743. NET..... 12.00

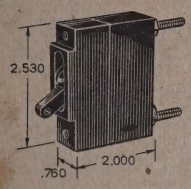
Model 8601-71. Connector Tong. For pushing on or withdrawing connectors from wafer terminals.

59 F 739. NET..... 1.70

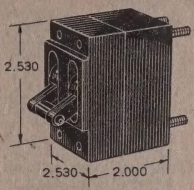
MAGNETIC HYDRAULIC CIRCUIT BREAKERS

Magnetic Hydraulic Standard and Mini-Mag models are U/L recognized. All types contain a trip-free mechanism which allows the contacts to open on overload even if the handle is held in the reset (ON) position. Must trip value is 101%-125% of rating @ 25°C. Models are temperature stable from −49°C to +85°C; Mini-Mag types, from −40°C to 85°C. All models mount with 6-32 screws. Standard models terminate to 10-32 studs; Mini-mag models, to .032 x .250 quick-connect terminals. UL File 39205, CSA File 30671, *AC Models not UL-CSA.

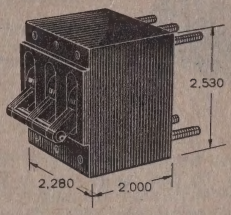
INTERRUPTION CAPACITIES		
Frequency	Max. Volts	Capacity in Amps
DC	32	3000
DC	65	2000
60 Hz	125	2000
60 Hz	250	1000



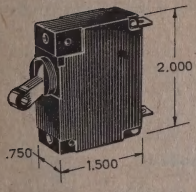
1-POLE MODELS W-91



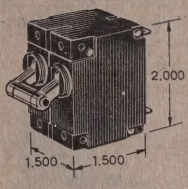
2-POLE MODELS W-92



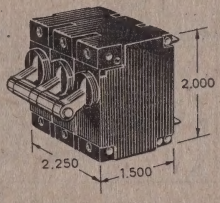
3-POLE MODELS W-93



MINI-MAG 1-POLE MODELS W67



MINI-MAG 2-POLE MODEL W68



MINI-MAG 3-POLE MODEL W69

10

STANDARD TYPES

Stock No.	Type	Amps	Trip Time @ 200% of Load
56F762	W91X11-2-1	1	.25-0.8 sec. 60 Hz
56F763	W91X11-2-2	2	
56F766	W91X11-2-5	5	
56F767	W91X11-2-7	7	2.2-20 sec 60 Hz
56F768	W91X11-2-10	10	
56F769	W91X11-2-15	15	
56F770	W91X11-2-20	20	
56F771	W91X11-2-25	25	
56F772	W91X11-2-30	30	
56F774	W91X11-2-40	40†	
56F775	W91X11-2-50	50†	
57F220	W91X11-3-5	5	.15-1.5 sec. 60 Hz
57F221	W91X11-3-10	10	
57F222	W91X11-3-15	15	
13F3616	W91X15-0-5	.5	30 Ms Max.
13F3617	W91X15-0-10	10	
13F3618	W91X15-0-20	20	
13F3619	W91X15-2-5	5	.60-8.0 sec.
57F236	W91X15-2-10	10	
13F3621	W91X15-2-15	15	
13F3622	W91X15-2-20	20	
13F3623	W91X15-2-25	25	
13F3624	W91X15-2-30	30	
13F3625	W91X15-2-40	40*	
13F3626	W91X15-2-50	50*	
13F3627	W91X15-3-15	15	.16-1.5 sec.
13F3628	W91X15-3-20	20	
13F3629	W91X15-3-30	30	
13F3630	W91X15-3-40	40*	
13F3631	W91X15-3-50	50*	
56F790	W92X11-2-1	1	2.2-20 sec. 60 Hz
56F791	W92X11-2-2	2	
56F792	W92X11-2-3	3	
56F794	W92X11-2-5	5	
56F795	W92X11-2-7	7	
56F796	W92X11-2-10	10	
56F797	W92X11-2-15	15	
56F798	W92X11-2-20	20	
56F799	W92X11-2-25	25	
56F810	W92X11-2-30	30	
56F812	W92X11-2-40*	40†	
56F813	W92X11-2-50*	50†	
57F237	W92X11-3-15	15	.15-1.5 sec. 60 Hz
57F238	W92X11-3-20	20	
57F239	W92X11-3-30	30	
57F240	W92X11-3-50	50†	
56F828	W93X11-2-1	1	2.2-20 sec. 60 Hz
56F829	W93X11-2-2	2	
56F830	W93X11-2-3	3	
56F832	W93X11-2-5	5	
56F833	W93X11-2-7	7	
56F834	W93X11-2-10	10	
56F835	W93X11-2-15	15	
56F836	W93X11-2-20	20	
56F837	W93X11-2-25	25	
56F838	W93X11-2-30	30	
56F840	W93X11-2-40	40	
56F841	W93X11-2-50	50	

Make Newark your one-stop source for industrial electronic components. Lowest O.E.M. prices, complete stocks, same-day shipment.

MINI-MAG TYPES

Stock No.	Type	Amps	Trip Time @ 200% of Load
57F245	W67A2Q1-2-5	5	30ms MAX 60 Hz
57F246	W67X2Q1-2-.5*	0.5	2.2-20 sec. 60 Hz
56F805	W67X2Q1-2-1	1	
56F806	W67X2Q1-2-2	2	
56F807	W67X2Q1-2-3	3	
56F809	W67X2Q1-2-5	5	
56F879	W67X2Q1-2-7	7	
56F880	W67X2Q1-2-10	10	
56F881	W67X2Q1-2-15	15	
56F882	W67X2Q1-2-20	20	
56F883	W67X2Q1-2-25	25	
56F884	W67X2Q1-2-30	30	
57F247	W67X2Q1-3-.5*	0.5	.15-1.5 sec. 60 Hz
57F248	W67X2Q1-3-1	1	
57F249	W67X2Q1-3-2	2	
57F252	W67X2Q1-3-5	5	
57F253	W67X2Q1-3-7	7	
57F254	W67X2Q1-3-10	10	
57F255	W67X2Q1-3-15	15	
57F256	W67X2Q1-3-20	20	
57F257	W67X2Q1-3-25	25	
57F258	W67X2Q1-3-30	30	
56F885	W68X2Q1-2-.5*	0.5	2.2-20 sec. 60 Hz
56F886	W68X2Q1-2-1	1	
56F887	W68X2Q1-2-2	2	
56F888	W68X2Q1-2-3	3	
56F890	W68X2Q1-2-5	5	
56F891	W68X2Q1-2-7	7	
56F892	W68X2Q1-2-10	10	
56F893	W68X2Q1-2-15	15	
56F894	W68X2Q1-2-20	20	
56F895	W68X2Q1-2-25	25	
56F896	W68X2Q1-2-30	30	
56F989	W69X2Q1-2-1	1	2.2-20 sec. 60 Hz
56F990	W69X2Q1-2-2	2	
56F991	W69X2Q1-2-3	3	
56F993	W69X2Q1-2-5	5	
56F994	W69X2Q1-2-7	7	
56F995	W69X2Q1-2-10	10	
56F997	W69X2Q1-2-20	20	
56F998	W69X2Q1-2-25	25	
56F999	W69X2Q1-2-30	30	

PRICE CHART

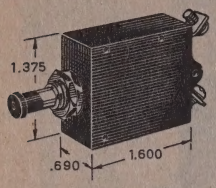
Type	1-9	10-24	25-99	Type	1-9	10-49	50-99
W91X11-2	12.45	8.09	7.35	W67A2Q1-2*	14.40	9.36	8.50
W91X11-3	12.45	8.09	7.35	W67X2Q1-2*	11.65	7.57	6.87
W91X15-2	12.45	8.09	7.35	W67X2Q1-2	9.70	6.31	5.72
W92X11-2	31.35	20.38	18.50	W67X2Q1-3*	11.65	7.57	6.87
W92X11-3	31.35	20.38	18.50	W67X2Q1-3	9.70	6.31	5.72
.....	.....	.....	.....	W68X2Q1-2*	28.05	18.23	16.55
.....	.....	.....	.....	W68X2Q1-2	24.25	15.76	14.31
.....	.....	.....	.....	W69X2Q1-2*	43.85	28.50	25.87
.....	.....	.....	.....	W69X2Q1-2	38.15	24.80	22.51

Potter & Brumfield

Circuit Breakers

Thermal Circuit Breakers contain a trip-free mechanism which allows the contacts to open on overload even if the breaker is manually held in the reset (ON) position. Pushbutton reset models have a white band around the button which becomes visible on trip. Trip times shown for each model are 200% of rating. •Denotes UL/CSA. *Not UL/CSA in ratings of 30A and above @ 125 V AC. All DC units UL/CSA except for 60A models.

BIMETALLIC & FAST TRIP—MODELS 109, 842



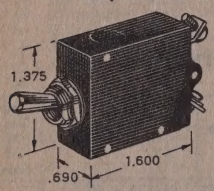
- **Pushbutton Reset**
- **Trip-free Mechanism**
- **Fast Reaction**
- **Easily Mounted**

Model 109. Must trip between 101-135% of rating @ 25°C; will interrupt 2000 A @ 250 VAC (to 400 Hz), or 5000 A @ 32 VDC. **Model 842** has heater wire for fast trip; must trip between 101-135% of rating @ 25°C; will interrupt over 1000% of current rating. **Models 109** and **842** terminals are 90° to each other as shown. Mounting is ⅜-24 bushing nut.

Stock No.	Type	Amps	Trip Time Sec.	Stock No.	Type	Amps	Trip Time Sec.
56F716	109-205-101	5 •		**57F259**	109-240-101	40*	
56F717	109-507-101	7.5•		**56F724**	109-250-101	50*	8-20
56F718	109-210-101	10 •		**57F260**	109-260-101	60*	
56F719	109-215-101	15 •	8-20	**56F734**	842-201-101	1	
56F720	109-220-101	20 •		**56F735**	842-202-101	2	
56F721	109-225-101	25 •		**56F736**	842-203-101	3	11-42
56F722	109-230-101	30 *		**56F737**	842-204 101	4	
56F723	109-235-101	35 *					

•Denotes UL/CSA

SWITCH/CIRCUIT BREAKER—MODELS 112, 548



- **Toggle switch action**
- **Flatted Bushing Mounting**
- **8-32 Screw Termination**
- **8-20 Sec. Trip Time**

Models 112 and **548** offer the combination of toggle switch/circuit breaker in a single package. Trips between 101-135% of rating @ 25°C; Model 112 will interrupt 1000 A @ 125 VAC, 2000 A @ 50V DC. 548 will interrupt 3000 A @ 250 VAC (to 400 Hz) or 5000 A @ 32 VDC. Mounting: 15/32-32 screw terminals. **Model 112** has steel toggle with rate marking on end. **Model 548** has silver toggle with no marking. *Not UL/CSA in ratings of 30 amps and above @ 125 VAC.

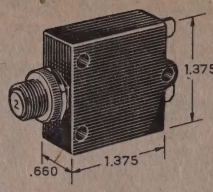
Stock No.	Type	Amps	Trip Time Sec.	Stock No.	Type	Amps	Trip Time Sec.
56F725	112-205-101	5 •		**56F731**	112-230-101	30	
56F726	112-507-101	7.5 •		**56F732**	112-235-101	35*	
56F727	112-210-101	10 •		**56F742**	112-240-101	40*	
56F728	112-215-101	15 •	8-20	**56F733**	112-250-101	50*	8-20
56F729	112-220-101	20 •		**57F262**	548-205-106	5	
56F730	112-225-101	25 •		**57F263**	548-210-106	10	

•Denotes UL/CSA

PRICE CHART

Type	1-9	10-24	25-99
109	**7.05**	**6.63**	**5.78**
112	**7.85**	**7.38**	**6.44**
436	**17.50**	**16.45**	**14.35**
492	**12.90**	**12.13**	**10.58**
507	**11.90**	**11.19**	**9.76**
548	**10.80**	**10.15**	**8.86**
842	**12.65**	**11.89**	**10.37**
W58XB1A4A-1-4	**3.40**	**3.20**	**2.79**
W58XB1A4A-5-35	**2.20**	**2.07**	**1.80**
W58XC4C12A-1-4	**4.90**	**4.61**	**4.02**
W58XC4C12A-5-35	**3.70**	**3.48**	**3.03**

RECESSED BUTTON—MODEL W58

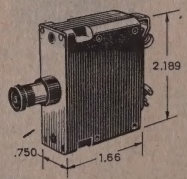


Series W58 breakers are UL recognized as circuit protectors, File E39205, and CSA certified as appliance component protectors, File 30671. Red band on reset button becomes visible on trip. Must trip between 101% and 145% of rating @ 25°C. Models: 1 to 4 amp interrups, 200 A @ 250 VAC or 50 VDC: 5 to 35 amp models, 1000 amps @ 250 VAC or 50 VDC. Termination: .250 x .032 Q.C.

Stock No.	Type	Amps	Trip Time Sec.	Stock No.	Type	Amps	Trip Time Sec.
56F870	W58XB1A4A-1	1•		**57F281**	W58XC4C12A-1	1•	
56F871	W58XB1A4A-2	2•	9-40	**57F282**	W58XC4C12A-2	2•	9-40
56F872	W58XB1A4A-3	3•		**57F283**	W58XC4C12A-3	3•	
56F873	W58XB1A4A-4	4•		**57F284**	W58XC4C12A-4	4•	
56F874	W58XB1A4A-5	5•		**57F285**	W58XC4C12A-5	5•	
57F275	W58XB1A4A-6	6•		**57F286**	W58XC4C12A-6	6•	
56F875	W58XB1A4A-7	7•		**57F288**	W58XC4C12A-7	7•	
57F276	W58XB1A4A-8	8•		**57F288**	W58XC4C12A-8	8•	
56F876	W58XB1A4A-10	10•	5.8-30	**57F289**	W58XC4C12A-10	10•	
57F277	W58XB1A4A-12	12•		**57F291**	W58XC4C12A-12	12•	5.8-30
56F877	W58XB1A4A-15	15•		**57F292**	W58XC4C12A-15	15•	
56F878	W58XB1A4A-20	20•		**57F294**	W58XC4C12A-30	30*	
57F278	W58XB1A4A-25	25*		**57F295**	W58XC4C12A-35	35*	
57F279	W58XB1A4A-30	30*					
57F280	W58XB1A4A-35	35*					

•Denotes UL/CSA *Not UL/CSA

MODEL 436

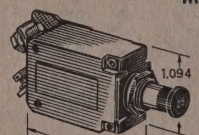


- **Screw-Mounted**
- **Interrupts To 400 Hz.**
- **8-32 Screw Termination**

Model 436. Must trip between 116% and 138% of ratings @ 25°C. Will interrupt 6000 A @ 32 VDC or will interrupt over 3500 A @ 120 VAC (to 400 Hz). Mounting: screw mounted, 6-32. Termination: 8-32 screw terminals.

Stock No.	Type	Amps	Trip Time Sec.	Stock No.	Type	Amps	Trip Time Sec.
57F296	436-205-101	5		**57F300**	436-220-101	20	
57F297	436-507-101	7.5	15-55	**57F301**	436-225-101	25	15-55
57F298	436-210-101	10		**57F302**	436-230-101	30*	
57F299	436-215-101	15		**57F305**	436-250-101	50	

MODELS 492, 507



- **Glass Melamine Barrier on Housing**
- **Interrupts to 400 Hz.**
- **Bushing Mounted**

Model 492 has glass melamine barrier on one side of housing. Model 507 has no barrier. Both models must trip between 116% and 138% of rating @ 25°C., and will interrupt 6000 A @ 32 VDC or will interrupt over 3500 A @ 120 VAC (to 400 Hz). Bushing mounted, 15-32 bushing. Termination: 8-32 screw terminals.

Stock No.	Type	Amps	Trip Time Sec.	Stock No.	Type	Amps	Trip Time Sec.
57F310	492-205-102	5		**56F712**	507-220-101	20	
57F311	492-507-102	7.5		**56F713**	507-225-101	25	
57F313	492-215-102	15		**57F317**	507-230-101	30	
56F708	507-205-101	5	15-55	**56F714**	507-235-101	35	15-55
56F709	507-507-101	7.5		**57F318**	507-240-101	40	
56F710	507-210-101	10		**56F715**	507-250-101	50	
56F711	507-215-101	15					

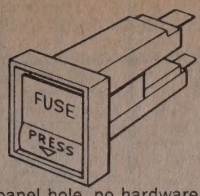
10

Fuses and Fuse Holders

LITTELFUSE

3AG LOW PROFILE FUSEHOLDERS

- Phenolic Resin Body
- UL Recognized



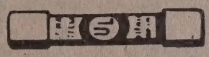
Snap in to .625" sq. chassis or panel hole, no hardware required. Quick connect and solder type terminal.

Color	Stk. No.	Type	Terminal	Stk. No.	Type	Terminal	Each
Red	28F161	348610	3/16"	28F164	348810	1/4"	.65
White	28F162	348650	3/16"	28F165	348850	1/4"	
Black	28F163	348670	3/16"	28F166	348870	1/4"	

CAPS

Color	Stk. No.	Type	Each
Red	28F167	348001	.23
White	28F168	348005	
Black	28F169	348007	

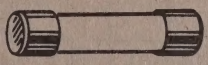
3AB CERAMIC BODY



250 volts or less. Blow time 110% 4 hour min; 135% 1 hour max. 200% 15 sec. max. Length 1¼", dia ¼", UL listed thru 15 amps, Certified by C.S.A. thru 5 amps.

Stock No.	Type	Amps	1-95	100-495	500-995
20F617	314001	1	.30	.25	.20
20F618	314002	2	.30	.25	.20
20F619	314003	3	.30	.25	.20
20F620	314004	4	.30	.25	.20
28F170	314005	5	.27	.22	.18
20F621	314007	7	.27	.22	.18
27F670	314008	8			
27F671	314010	10			
27F672	314012	12			
27F673	314015	15			
27F674	314020	20	.27	.22	.18
20F622	314025	25	.40	.33	.27
20F623	314030	30	.40	.33	.27

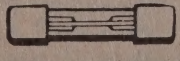
RECTIFIER FUSES



Protects silicon controlled rectifiers and like solid state devices. Blow time: 100% 4-hr. minimum all fuses; 250%—.2 sec max (pre-arcing) for 1-10 amp fuses—1 sec max. (pre-arcing) for 12-30 amp fuses. Length 1¼", Dia. ¼". 250 volts 10 amps or less, 65 volts 12 thru 30 amps.

Stk. No.	Type	Amps	5-95	100-495	500-995
28F171	322001	1	1.13	.94	.76
28F172	3221.25	1¼			
28F173	322002	2			
28F174	322003	3			
28F175	322004	4			
28F176	322005	5			
28F177	322006	6			
28F178	322007	7			
28F179	322008	8			
28F180	322009	9			
28F181	322010	10			
28F182	322012	12			
28F183	322015	15			
28F184	322020	20			
28F185	322025	25			
28F186	322030	30			

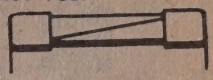
SFE AUTO FUSES—32 VOLTS OR LESS



Blow time: 110%, 4 hour min.; 135%, 0-1 hour; 150%, 20 amps or less 0-15 sec., 30 amps 0-30 seconds. Diameter, ¼".

Stk. No.	Type	A	Lgt. Inch	1-95	100-495	500-995
27F710	307004	4	5/8	.10	.08	.07
27F711	307006	6	3/4			
27F716	30707.5	7½	7/8			
27F712	307009	9	7/8			
27F713	307014	14	1 1/16			
27F714	307020	20	1¼			
27F715	307030	30	1 7/16	.13	.11	.09

3AG PIGTAIL FUSES—250 VOLT

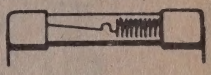


Blow time: 110%, 4-hour min.; 135% 1 hour max.; 200%, 5-sec. max. Length 1¼", Dia. ¼", 1½" pigtails. UL listed. Certified by C.S.A.

Stk. No.	Type	Amps	1-95	100-495	500-995
27F739	318.125	.125	.53	.44	.36
27F740	318.250	.25	.36	.30	.24
27F741	318.375	.375			
27F742	318.500	.500			
27F743	318.750	.750			
27F943	318001	1.0	.29	.24	.19
28P187	31801.5	1½			
27F945	318002	2.0			
20F624	31802.5	2½			
27F946	318003	3			
20F625	318004	4	.30	.25	.20
27F948	318005	5			
20F626	318006	6			
20F627	318007	7			

*NOTE: 7 amp fuse rated at 125 V.

3AG SLO BLO PIGTAIL FUSES—250 VOLT



Blow time: 110%, 4 hr. min.; 135%, 1 hr. max; 200%, 5-sec. min. Lg. 1¼" d a, ¼", 1½" pigtails. UL listed. Certified by C.S.A.

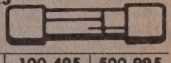
Stk. No.	Type	Amps	1-95	100-495	500-995
27F928	315.100	1/10	.57	.47	.38
27F734	315.250	¼			
27F735	315.300	.3			
20F628	315.375	3/8			
27F737	315.500	.5			
27F930	315.600	.6			
27F932	315001	1.0			
27F934	31501.5	1.5	.55	.46	.37
27F935	31501.6	1.6			
27F936	315002	2.0			
27F188	31502.5	2½	.45	.38	.30
27F937	315003	3.0			
27F940	315004	4.0			
27F941	315005	5.0			
20F629	315007	7			

8AG FUSES

Blow time; 110%, 4-hour min; 135%, 1 hr. max; 200%, 10-sec. max. L. 1", dia. ¼". UL listed thru 5 amps.

Stk. No.	Type	Amps	1-95	100-495	500-995
20F630	362.125	1/8	.38	.32	.25
28F189	362.250	¼	.21	.17	.14
28F191	362.500	½	.21	.17	.14
27F1080	362001	1	.15	.12	.10
28F192	36201.5	1.5	.15	.12	.10
27F1081	362002	2	.15	.12	.10
20F631	36202.5	2½	.15	.12	.10
27F1082	362003	3	.15	.12	.10
27F1083	362005	5	.11	.09	.07
20F632	362006	6	.11	.09	.07
28F394	362008	8	.11	.09	.07
28F395	362010	10	.11	.09	.07
20F633	362015	15	.11	.09	.07
20F634	362020	20	.11	.09	.07

8AG INSTRUMENT FUSES

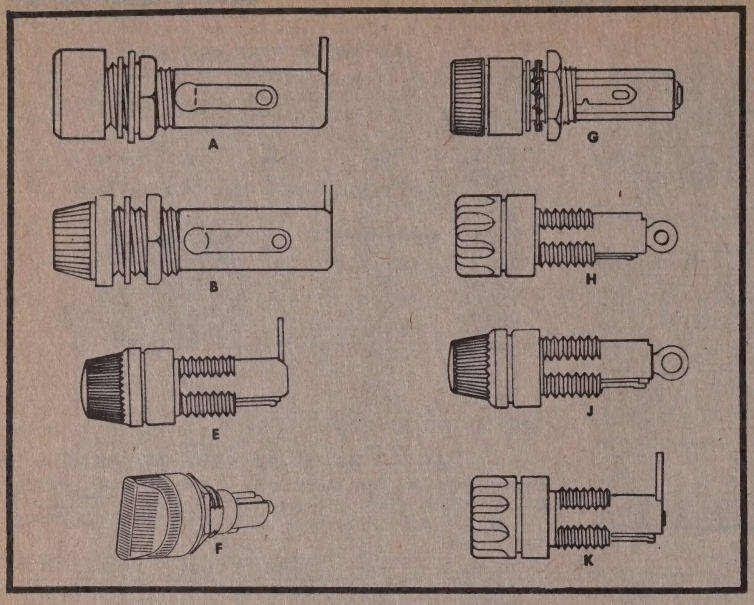


Blow time; 100%, 4-hour min.; 200%, 5-sec. max. Length 1", dia. ¼".

Stk. No.	Type	Amps	1-95	100-495	500-995
27F614	361.002	1/500	2.22	1.85	1.48
27F600	361.005	1/200	.98	.82	.66
27F601	361.010	1/100	.83	.69	.56
27F602	361.031	1/32	.72	.60	.48
27F603	361.062	1/16	.45	.38	.30
27F604	361.125	1/8	.38	.32	.26
27F605	361.250	¼	.21	.17	.14
27F606	361.375	3/8			
27F607	361.500	½			
27F608	361.750	¾			
27F609	361001	1	.15	.12	.10
27F610	36101.5	1½			
27F611	361002	2			
27F612	361003	3			
27F615	361004	4			
27F613	361005	5			

Fuses Are Sold In Multiples of 5 Only

Fuses and Fuse Holders



PANEL FUSEHOLDER FOR 3 AG AND 8 AG

Stk. No.	Type	Fig.	Description	For	Each 1-99	100-499	500-999
27F750	341001	A	Panel Mtg. Screw Slot.	3 AG	1.01	.84	.67
27F752	342001	B	Panel Mtg. Finger Grip.	3 AG	1.01	.84	.67
27F779	342004	K	Miniature, Rt. Angle Terms.	3 AG	.72	.60	.48
27F780	342004P	K	Drip Proof, Rt. Angle Terms.	3 AG	.84	.70	.56
27F720	342012	J	Miniature, Straight Terminal	3 AG	.72	.60	.48
27F668	342014	H	Miniature, Straight Terminal	3 AG	.72	.60	.48
27F669	342022	E	Miniature, Rt. Angle Terms.	3 AG	.69	.57	.46
28F150	342028	K	3/16" Quick-Connect. Rt. Angle	3 AG			
28F151	342038	H	3/16" Quick-Connect. Straight Term.	3 AG			
28F152	342048	E	3/16" Quick-Connect. Rt. Angle Term.	3 AG			
28F153	342058	J	3/16" Quick-Connect. Straight Term.	3 AG	.85	.71	.57
27F794	342828A	K	1/4" Quick-Connect. Rt. Angle Term.	3 AG			
27F795	342838A	H	1/4" Quick-Connect. Straight Term.	3 AG			
27F796	342848A	E	1/4" Quick-Connect. Rt. Angle Term.	3 AG			
27F797	342858A	J	1/4" Quick-Connect. Straight Term.	3 AG			
27F751	371001A	A	Screw, Panel Mtg.	8 AG	1.35	1.13	.90
27F781	372001A	B	Finger Knob	8 AG	1.35	1.13	.90

INDICATING FUSEHOLDER FOR 3 AG

Lgt., 2 3/8" front of panel: 13/16" Mtg. hole .57" Rated at 20A, 250V max.

Stk. No.	Type	Fig.	Voltage Range	Knob Color	Design Lamp Current	1-99 Each	100-499 Each	500-999 Each
27F790	344006A	F	2.5-7V	Amber	.20 Amp	5.10	4.25	3.40
27F791	344012A	F	7-16V	Amber	.08 Amp	5.10	4.25	3.40
27F783	344024A	F	16-32V	Amber	.04 Amp.	5.10	4.25	3.40
27F784	344125A	F	100-125V	Clear	.002 Amp	3.15	2.63	2.10
27F785	344250A	F	200-250V	Clear	.002 Amp	3.15	2.63	2.10

SHOCK-SAFE 3 AG FUSEHOLDER

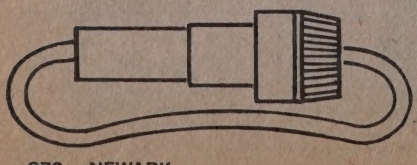
Designed to meet IEC Standards. Electrical insulating shield prevents electrical shock. Rated at 20 amps to 300 volts. UL recognized, 345001 only. Both are certified by CSA.

Stk. No.	Type	Fig.	Description	1-99	100-499	500-999
27F854	345001	G	Right Angle Terminal	1.22	1.02	.82
27F855	345002	G	Straight Terminal			

UNIVERSAL IN-LINE FUSEHOLDER

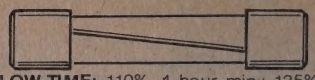
Type 150145. Comes with three different length springs for fuse sizes SFE 7½ through 3 AG.
27F1071 NET ..... **.75**

BAKELITE® IN-LINE FUSE HOLDERS ASSEMBLED WITH 19" LEAD AND FUSE AS LISTED



Stk. No.	Type	With Fuses	Each 1-99
27F792	155009A	SFE 9	.75
27F793	155014A	SFE 14	
27F766	155020A	SFE 20	

3 AG 32 VOLT OR LESS



BLOW-TIME: 110%, 4-hour min.: 135%, 1 hr. max. Len. 1¼" dia. ¼" Sold in multiples of 5 only.

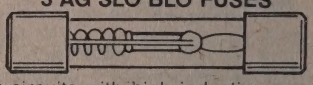
Stk. No.	Type	Amps.	Each 5-95	100-495	500-995
20F635	311004	4	.15	.12	.10
27F724	311005	5			
27F725	311007.5	7½			
27F726	311010	10	.11	.09	.07
27F728	311015	15			
27F730	311025	25			
27F731	311030	30			

3 AG - 250 VOLT OR LESS

For low time lag usage. 1¼" x ¼" Max. 250V. except (*) denotes 125 Volt. Sold in multiples of 5 only. UL Listed thru 8 amps.

Stk. No.	Type	Amps.	Each 5-95	100-495	500-995
27F650	312.062	1/16			
27F651	312.125	1/8			
27F663	312.175	.175	.38	.32	.26
27F664	312.187	3/16			
26F652	312.250	¼			
27F667	312.300	.3			
27F653	312.375	3/8	.21	.17	.14
27F654	312.500	½			
27F655	312.750	¾			
27F656	312001	1			
27F657	31201.5	1½			
27F658	312002	2	.15	.12	.10
27F659	312003	3			
27F660	312004	4			
27F661	312005	5	.18	.15	.12
27F662	312006	6			
27F665	312008	8*	.27	.22	.18
27F856	3121.25	1.25	.15	.12	.10
27F857	31202.5	2.5	.15	.12	.10
27F858	312007	7*	.18	.15	.12
27F859	312010	10*	.27	.22	.18

3 AG SLO BLO FUSES



For circuits with high inductive surge. Length:1¼" Diam: ¼" Max. 250 V except (†) denotes 32 volt. Sold in multiples of 5 only. UL Listed thru 7 amps.

Stk. No.	Type	Amps.	Each 5-95	100-495	500-995
27F680	313.010	1/100	.60	.50	.40
27F681	313.031	1/32			
27F682	313.062	1/16			
27F683	313.100	1/10			
27F915	313.125	1/8			
27F684	313.150	.150			
27F666	313.175	.175			
27F916	313.187	3/16			
27F685	313.200	2/10			
27F686	313.250	¼	.45	.38	.30
27F687	313.300	3/10			
27F917	313.375	3/8			
27F688	313.400	4/10			
27F689	313.500	½			
27F690	313.600	6/10			
27F699	313.700	7/10			
27F918	313.750	¾			
27F691	313.800	8/10			
27F692	313001	1			
27F693	3131.25	1¼	.44	.36	.29
27F705	31301.5	1½	.44	.36	.29
27F919	31301.6	1.6	.44	.36	.29
27F694	313002	2	.44	.36	.29
27F695	31302.5	2½	.38	.32	.26
27F920	313003	3	.38	.32	.26
27F706	31303.2	3 2/10	.38	.32	.26
27F696	313004	4	.38	.32	.26
27F697	313005	5	.38	.32	.26
27F700	3136.25	6¼			
20F636	313007	7			
27F701	313008	8†	.38	.32	.26
27F702	313010	10†			
27F703	313015	15†			
27F704	313020	20†			

Miniature Fuses and Accessories

LITTELFUSE

SUB-MINIATURE PICOFUSES

● **Incredlibly Small—Less than ¼" Long**

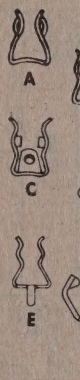
275, 276. For circuits of 125 volts or less where short-circuit currents as high as 300 amperes occur. A unique concept in fusing for computers, microelectronic and aero-space circuitry. High accuracy in blowing time at 300% or higher is ideal for sequential switching, or in circuits requiring redundancy. Blow time 4 hours min. at 100% at rating; 5 sec. max. at 200%. Ceramic body 3/32" x 9/32" dia.; solder-coated copper leads .025 dia. Picofuses can be encapsulated. 275 series has axial leads 1 1/16" long for diode clip or in-circuit mounting. 276 series has radial leads.

Stk. No.	Type	Stk. No.	Type	Amps.	EACH 1-99	100-499	500-999
28F128	275.125	27F1072	276.125	1/8	.72	.60	.48
28F129	275.250	27F1073	276.250	¼	.72	.60	.48
28F130	275.375	28F141	276.375	3/8	.72	.60	.48
28F131	275.500	27F1074	276.500	½	.72	.60	.48
28F132	275.750	20F600	276.750	¾	.63	.53	.42
28F133	275001	27F1075	276001	1	.63	.53	.42
28F134	27501.5	20F601	27601.5	1-½	.63	.53	.42
28F135	275002	27F1076	276002	2	.63	.53	.42
28F136	275003	20F602	276003	3	.63	.53	.42
28F137	275004	20F603	276004	4	.63	.53	.42
28F138	275005	27F1077	276005	5	.63	.53	.42
20F604	275010	20F605	276.010	10	.63	.53	.42

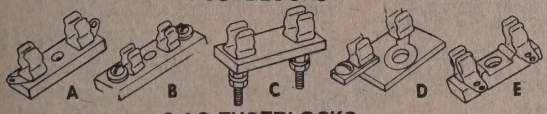
LITTELFUSE CLIPS

Fits SFE, 3AG, 8AG, and 3AB fuses. Spring brass except (*) Beryllium copper. Shpg. Wt., per 100, 5 lbs.

Stk. No.	Type	Fig.	For	1-99 Ea.	100-499 Ea.	500-999 Ea.
27F772	101001	A	3AG	.06	.05	.04
27F773	101002	B	3AG	.06	.05	.04
27F1084	101003	C	3AG	.08	.06	.05
27F1085	102068	D	3AG	.08	.06	.05
27F1086	102069	E	3AG	.08	.06	.05
20F606	102078	F	3AG	.08	.06	.05
27F774	105002	B	5AG	.11	.09	.08
27F1087	121001*	A	3AG	.11	.09	.07
27F1088	121002*	B	3AG	.11	.09	.07
20F607	121004*	C	3AG	.31	.26	.21
20F608	122083*	D	3AG	.13	.11	.09
20F609	122087*	E	3AG	.13	.11	.09
20F610	122090	F	3AG	.11	.09	.07
27F775	123002*	B	4AG	.17	.14	.12
27F776	127002*	B	9/16"	.66	.55	.44



FUSEBLOCKS



3 AG FUSEBLOCKS WITH SCREW TERMINALS—TYPE T

Stock No.	Type	Fig.	Description	EACH 1-99	100-499	500-999
27F756	356001	B	1 pole	.64	.53	.43
27F769	356002	B	2 pole	1.32	1.10	.88

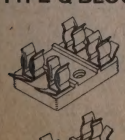
WITH SOLDER TERMINALS—TYPE S

27F754	357001	A	1 pole	.38	.32	.26
27F758	357002	A	2 pole	.60	.50	.40
27F1070	350218	E	Singe Pole	.40	.33	.27

8AG FUSE MOUNTINGS

Stock No.	Type	Fig.	Description	EACH 1-99	100-499	500-999
27F759	383002	D	Meter-back mtg.	.68	.57	.46
27F761	383001	C	Panel mtg.	1.01	.84	.68
27F755	387001	A	Single Fuse (Lug)	.38	.32	.26

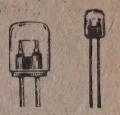
TYPE Q BLOCKS WITH QUICK CONNECT TERMINALS



Nickel plated spring brass clips, tin plated brass terminals. Molded black phenolic base. Rated for currents up to 15 amps.

Stk. No.	Type	No. of Poles	Term. Size	EACH 1-99	100-499	500-999
20F611	350327	1	3/16"	.40	.33	.27
20F612	350328	2	3/16"	.66	.55	.44
20F613	350329	1	¼"	.49	.41	.33
20F614	350330	2	¼"	.72	.60	.48

SUBMINIATURE MICROFUSES



Only .250" dia. x .348" long exclusive of leads. Ideal for printed circuits. Features low resistance and high reliability in ultrafast blowing characteristics. Series 279000 has 1 inch leads for wiring into circuit. Short circuit interrupting capacity 125 volts 10,000 amps DC.

Series 273000 has .170 inch leads for plugging into subminiature fuse holder. Blowing specifications: 100% - 4 hrs. min. — 200% 5 sec. max. Transparent glass cap. 125 V. rating. Sold in multiples of 5.

273000 Plug-in-Type Stk. No.	Type	279000 Pigtail Type Stk. No.	Type	Amps.	1-99 Ea.	100-499 Ea.	500-999 Ea.
28F060	273.002	28F083	279.002	1/500			
28F061	273.005	28F084	279.005	1/200			
28F062	273.010	28F085	279.010	1/100	1.76	1.47	1.18
28F063	273.015	28F086	279.015	1/64			
28F064	273.031	28F087	279.031	1/32			
28F065	273.050	28F088	279.050	1/20			
28F066	273.062	28F089	279.062	1/16			
28F067	273.100	28F090	279.100	1/10			
28F068	273.125	28F091	279.125	⅛			
28F069	273.200	28F092	279.200	2/10			
28F070	273.250	28F093	279.250	¼			
28F071	273.300	28F094	279.300	3/10			
28F072	273.400	28F095	279.400	4/10			
28F073	273.500	28F096	279.500	½	1.47	1.23	.98
28F074	273.600	28F097	279.600	6/10			
28F075	273.700	28F098	279.700	7/10			
28F125	273.750	28F126	279.750	¾			
28F076	273.800	28F099	279.800	8/10			
28F077	273.001	28F100	279001	1			
28F078	27301.5	28F101	27901.5	1½			
28F079	273002	28F102	279002	2			
28F080	273003	28F103	279003	3			
28F081	273004	28F104	279004	4			
28F082	273005	28F105	279005	5			

SUBMINIATURE MICROFUSE HOLDER

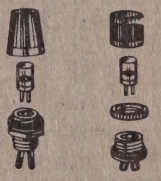
Type 281001. Subminiature holder ideal for chassis mounting. Rated at 5 amps, 125 volts max. With Spring nut. Avg. Shpg. wt., 3 oz.

28F106. NET EA. 1-99 **.52** — 100-499 **.43** — 500-999 **.35**

MICROFUSE HOLDER

Type 281006. Front panel mount microfuse holder. Body and cap are molded of black phenolic. Heavy duty terminals are electrotin plated brass. Rated at 5 amperes, 125 volts max.

Type 282002. Rear panel mount RF shielded microfuse holder. Housing and knob are aluminum. Body is molded of black phenolic. Rated at 5 amperes, 125 volts max.

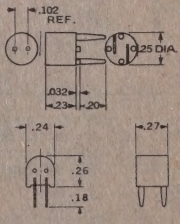


281006 282002

Stk. No.	Type	EACH 1-99	100-499	500-999
27F1078	281006	1.38	1.15	.92
27F1079	282002	2.22	1.85	1.48

P. C. MOUNTED MICROFUSE/PICOFUSE HOLDERS

Fuseholder body molded in white acetal resin, terminals are silver plated brass. Rated at 5 amps, 125 volts max.

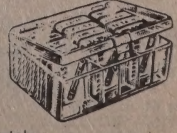


Stk. No.	Type	Mtg.	EACH 1-99	100-499	500-999
20F615	281005	Vertical	.47	.39	.32
20F616	281007	Horizontal	.47	.39	.32

INDUSTRIAL FUSE CADDY

Type 094037. Specifically designed and stocked for almost universal use. Has any number of industrial or laboratory applications. Contains 3AG, Reg., Slo Blow Fuses. Has 15 boxes of fuses, 5 fuses per box. Case is clear plastic for quick and accurate fuse selection. Has three spare compartments. Size: 1⅞" x 3 x 4¼". Shipping weight 2 lbs.

27F677. NET **16.97**



Type 896-75. Plastic Fuse caddy case separately.

27F809 NET **2.00**

UNIVERSAL FUSE RETAINER

Type 150145. Comes with three different length springs for fuse sizes 7½ SFE through 3AG.

27F1071 NET . . . . . **.68**

10

FNM SLOW-BLOWING FUSES

Dual elements, fibre tube, slow blowing fuses avoid needless blows from starting currents or surges. Fuse link operates only on dangerous overloads, or short circuits. 13/32"x1½". Ship. wt. 1.5 lbs. per 100. **Sold in mult. of 5 only.** UL listed.

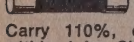
Stk. No.	Amp.	Volts	5-95	100-495	500-995
27F863	½	250	.80	.72	.60
27F864	1	250			
27F865	1-6/10	250			
27F866	2	250			
27F872	2½	250			
27F867	3-2/10	250	.79	.71	.59
27F868	4	250			
27F869	5	250			
27F873	6¼	250			
27F874	8	250			
27F870	10	250			
27F875	12	125			
27F876	15	125			

FNA SIGNAL FUSES DUAL-ELEMENT SLOW BLOWING

Has silver indicating pin which extends from fuse when fuse opens. Carry 110%, open at 135% in 1 hr. Can be used in Buss HPC-C indicating fuse-holder or pin can be used to actuate a signal. **Sold in mult. of 5 only.** UL listed. Size: 13/32" x 1½".

Stk. No.	Amp.	Volts	5-95	100-495	500-995
28F329	1/10	250			
28F330	2/10	250			
28F331	4/10	250			
28F332	½	250			
28F333	6/10	250			
28F334	8/10	250			
28F335	1	125			
28F336	1⅛	125			
28F338	1-4/10	125			
28F339	1-6/10	125	1.48	1.34	1.11
28F340	1-8/10	125			
28F341	2	125			
28F344	2-8/10	125			
28F345	3	125			
28F346	3-2/10	125			
28F349	4½	125			
28F350	5	125			
28F356	10	125			

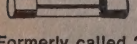
TYPE ABC CERAMIC BODY FUSES



Can take 10,000 amps. @ 125 v. without exploding. Carry 110%, open at 135% of rating within 1 hr. Size: ¼x1¼" **Sold in mult. of 5 only.**

Stk. No.	Amp.	Volts	Each 5-95	Each 100-495	Each 500-995
27F952	2	250	.35	.31	.26
27F953	3	250			
27F954	5	250			
27F955	6	250			
27F956	8	250	.30	.27	.22
27F957	10	250			
27F958	12	250			
27F959	15	250			
27F960	20	250			
27F961	25	125	.43	.39	.33
27F962	30	125			

TYPE MTH FUSES

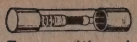


- **UL listed**

Formerly called 3AG. Test Specifications: carry 110%, open at 135% within 1 hour. Listed as approved by Underwriters' Laboratories. Size: 1¼x¼". Shpg. wt., .91 lbs. per 100. **Sold in mult. of 5 only.**

Stk. No.	Amp.	Volts	5-95	100-495	500-995
27F877	4	250	.20	.18	.15
27F878	5	250			
27F879	6	250			

MDL FUSETRON FUSES



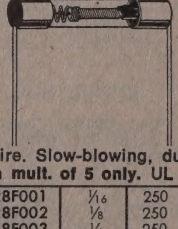
Fuses with a long time lag. Avoid needless blows from starting currents or surges. At 200% load the minimum blowing time is 12 seconds. Size: ¼x1¼. Wt., 1 lb. per 100. **Sold in mult. of 5 only.**

Stk. No.	Amp.	Volts	5-95	100-495	500-995
27F822	1/100	250	.66	.60	.50
27F823	1/32	250	.66	.60	.50
27F824	1/16	250			
27F825	1/10	250			
28F045	⅛	250			
27F826	15/100	250			
27F569	3/16	250			
27F827	2/10	250			
28F046	¼	250			
27F828	3/10	250	.50	.45	.38
27F570	⅜	250			
27F829	4/10	250			
27F830	½	250			
27F831	6/10	250			
27F571	¾	250			
27F832	8/10	250			
27F833	1	250			
27F572	1-2/10	125			
27F834	1¼	125			
27F573	1½	125			
27F835	1-6/10	125	.48	.43	.36
27F574	1-8/10	125			
27F836	2	125			
27F575	2¼	125			
27F837	2½	125			
27F838	2-8/10	125			
27F576	3	32			
27F839	3-2/10	32			
27F577	3½	32			
27F840	4	32			
27F841	5	32			
27F842	6¼	32	.41	.37	.31
27F578	7	32			
27F843	8	32			
27F844	10	32			
27F579	12	32			
28F407	15	32			
27F845	20	32			
27F846	25	32			
27F847	30	32			

TYPE MDX FUSES

These fuses have the same specifications as Type MDL. The main difference being that the voltage rating of the MDX is higher. .93 lbs/100. Size: ¼x1¼. **Sold in mult. of 5 only.** UL listed.

Stk. No.	Amp.	Volts	5-95	100-495	500-995
27F890	1¼	250			
27F891	1½	250			
27F892	1-6/10	250	.53	.48	.40
27F893	2	250			
27F894	3	125			
27F895	3-2/10	125			
27F896	4	125	.41	.37	.31
27F897	5	125			
27F898	6¼	125	.46	.41	.34
27F899	7	125			

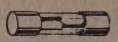


TYPE MDV DUAL ELEMENT PIG-TAIL FUSES

¼ x 1¼ inch glass tube with 1¼ inch (minimum) leads of No. 2 tinned wire. Slow-blowing, dual element. **Sold in mult. of 5 only.** UL listed.

Stk. No.	Amp.	Volts	5-95	100-495	500-995
28F001	1/16	250			
28F002	⅛	250			
28F003	¼	250			
28F004	⅜	250	.62	.56	.46
28F005	½	250			
28F006	¾	250			
28F007	1	250			
28F008	1½	125	.60	.54	.45
28F009	2	125			
28F010	2½	125			
28F011	3	125	.50	.45	.38
28F012	5	125			

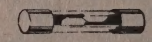
TYPE AGX FAST-ACTING FUSES



Provides high speed action necessary to protect sensitive instruments or delicate apparatus. 1/16 to 5 ampere sizes have straight through element. U.L. approved. Size: ¼x1". Shpg. wt. .76 lbs. per 100. **Sold in mult. of 5 only.**

Stk. No.	Amp.	Volts	5-95	100-495	500-995
27F973	1/500	250	2.44	2.21	1.84
27F974	1/200	250	1.07	.97	.81
27F975	1/100	250	.92	.83	.69
27F976	1/32	250	.80	.72	.60
27F977	1/16	250	.50	.45	.38
27F978	1/10	250	.41	.37	.31
27F979	⅛	250	.41	.37	.31
27F980	3/16	250	.41	.37	.31
27F981	2/10	250	.22	.20	.17
27F982	¼	250	.41	.37	.31
27F983	⅜	250			
27F984	4/10	250			
27F985	½	250	.22	.20	.17
27F986	¾	250			
27F987	1	250			
27F988	1½	250	.17	.15	.13
27F989	2	250			
28F049	5	125	.13	.11	.09

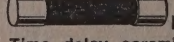
TYPE AGC FUSES



Formerly called 3AG. Test specifications — carry 110%, open at 135% within 1 hour. Approved by Underwriters' Laboratories. Size ¼x1¼". Shpg. wt., .91 lbs. per 100. **Sold in mult. of 5 only.**

Stk. No.	Amp.	Volts	5-95	100-495	500-995
28F050	1/32	250	.80	.72	.60
28F051	1/16	250			
28F052	⅛	250			
27F580	3/16	250	.41	.37	.31
27F581	2/10	250			
28F053	¼	250			
27F582	3/10	250			
28F054	⅜	250			
28F055	½	250	.22	.20	.17
27F583	6/10	250			
28F506	¾	250			
28F057	1	250			
27F584	1¼	250			
28F058	1½	250			
27F585	1¾	250			
28F059	2	250	.17	.15	.13
27F586	2¼	250			
27F587	2½	250			
27F880	3	250			
27F881	4	32			
27F882	5	32			
27F883	6	32			
27F884	7½	32			
27F885	10	32			
27F886	15	32	.13	.15	.09
28F048	20	32			
27F887	25	32			
27F888	30	32			
27F588	35	32	.17	.15	.13

TYPE MDA DUAL-ELEMENT FUSE



Time delay ceramic fuse. Carry 110%, open at 135% in 1 hour. UL recognized. Current ratings below are @ 250V, except 25 & 30 amps, which are @ 125. **Sold in mult. of 5 only.** Size: ¼"x1¼".

Stk. No.	Amps.	5-95	100-495	500-995
27F589	1	.70	.63	.52
27F590	2	.70	.63	.52
28F013	2½			
28F015	3			
28F017	4			
28F018	5			
28F019	6¼	.50	.45	.37
28F020	7			
28F021	10			
27F591	12			
28F022	15			
28F023	20			
28F024	25			

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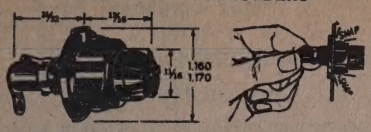
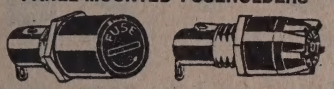
SNAP-LOCK FUSEHOLDERS



Rear-mounted in panels. .025-.085" thick. Rated 15A @ 250V. HTA-00 extends 1" behind panel. HLD-00 visual indicating type. Except (*) 5A @ 125V.

Stk. No.	Type	Fuse	1-99	100-499	500-999
27F850	HTA-00	¼" x 1¼"	1.07	.97	.81
27F851	HLD-00	¼" x 1¼"	1.25	1.13	.95
27F852	HKP-00	¼" x 1¼"	1.07	.97	.81
27F853	HJM-00*	¼" x 1"	1.07	.97	.81

PANEL-MOUNTED FUSEHOLDERS

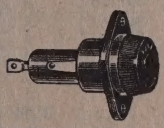


HMM HTA

Holders $1\frac{25}{32}$ lg, extend 1" behind panel face. Mounts in ½" hole. HTA: bayonet knob. HMM: screw cap. DD, for 3/16", HH for ¼": quick-connect terminals.

Stk. No.	Type	Fuse	1-99	100-499	500-999
28F454	HTA	¼" x 1¼"	.80	.72	.60
28F026	HTA-DD	¼" x 1¼"	.94	.85	.70
28F027	HTA-HH	¼" x 1¼"	.94	.85	.70
28F811	HMM	¼" x 1¼"	1.01	.91	.76

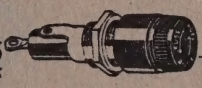
HOLDERS FOR 13/32" x 1½" FUSES



Screw-on cap; mounts w/flange on face of panel. HPC-C with ¼" q.c. terminals. HPC-D waterproof.

Stk. No.	Type	UL Listed for	1-99	100-499	500-999
27F818	HPC	30A @ 600V	1.35	1.22	1.01
28F028	HPC-C	15A @ 250V	1.67	1.51	1.26
28F029	HPC-D	30A @ 600V	2.71	2.46	2.05

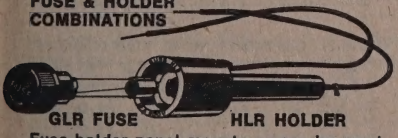
HOLDERS FOR ¼" x 1¼" (3AG) FUSES



Mounts in ½" d-hole. Rated 15A @ 250V. DD is 3/16", HH is ¼": quick connect terminal.

Stk. No.	Type	Fuse	1-9	100-499	500-999
27F819	HJM	¼"x1"	.80	.72	.60
27F820	HKP	¼"x1¼"	.80	.72	.60
28F031	HKP-HH	¼"x1¼"	.94	.85	.70
27F821	HCM	9/32"x1¼"	1.23	1.11	.93
27F815	HKP-H	¼"x1¼"	1.28	.77	.64

FUSE & HOLDER COMBINATIONS



GLR FUSE HLR HOLDER

Fuse holder panel mounts or can be used in line. UL rated 15 amps @ 300V. Safeguard against use of wrong type fuse.(*) Current ratings for fuses are @ 300 volts.

Stk. No.	Type	Rated (amps*)	1-99	100-499	500-999
28F032	HLR	.....	.55	.50	.41
28F302	GLR	1½			
28F304	GLR	2			
28F306	GLR	3	.28	.25	.21
28F307	GLR	4			
28F308	GLR	5			
28F033	GLR	7			
28F034	GLR	10			

LAMP INDICATING FUSEHOLDER

Coilspring provides constant pressure. Accommodates ¼" x 1¼" fuse. (†)-Neon, (*)-Incand. UL recognized for 15 amps @ 250 volts.

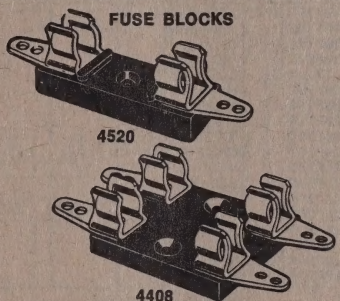
Stk. No.	Type	Lamp Volt.	Lens	1-99	100-499	500-999
27F813	HKL†	90-250	Clr.	3.48	3.16	2.63
27F814	HKL-X†	90-250	Clr.	3.48	3.16	2.63
27F812	HKR*	22-33	Amber	5.61	5.10	4.25
28F451	HKT*	13-22	Amber	5.61	5.10	4.25
28F452	HKU*	4-6	Red	5.61	5.10	4.25
28F453	HKX*	22-33	Amber	5.61	5.10	4.25

VISUAL INDICATING FUSEHOLDER

Transparent bayonet knob to accept GBA type indicating fuse. UL recognized for 15 amps at 250 volts. Mounts in ½" "D" hole.

Stk. No.	Type	1-99	100-499	500-999
28F293	HLD	.94	.85	.70

FUSE BLOCKS



4520

4408

Bakelite base; mounting holes countersunk for #6 flat head screws. Rtd. 30A @ 250V. 4520, 4405 counterbored for #6 roundhead screw.

Stk. No.	Type	No. Poles	Fuse Size (inches)	1-99	100-499	500-999
28F040	4520	1	¼x1	.43	.39	.33
28F041	4405	1	¼x1¼	.43	.39	.33
28F042	4421	1	13/32x1½	.92	.83	.69
28F038	4408	2	¼x1¼	.75	.68	.57
28F039	4411	3	¼x1¼	1.14	1.03	.86

SPACE-SAVING FUSE HOLDERS

● Rated 15A @ 250V

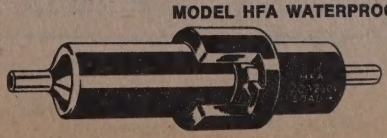
Mounts in ½" d-hole. Rated 30A @ 250V. HKP-CC has shorter distance behind panel.

Stk. No.	Type	Fuse	1-99	100-499	500-999
27F592	HKP-CC	¼"x1¼"	.80	.72	.60

Designed for Bussmann 70 Series alarm activating fuses (on this page). Rated 15 amps @ 300 volts. Terminals may be soldered or wire wrapped.

Stk. No.	Type	1-99	100-499	500-999
28F380	HWA	1.10	.92	.83

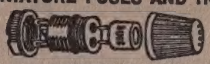
MODEL HFA WATERPROOF IN-LINE FUSEHOLDER



For ¼" x 1¼" fuses. Rated 20 A @ 250V. Perfect for any exposed location. Protects fuse in corrosive conditions. Crimp type terminals to take #16 to #12 AWG copper wire.

Stk. No.	Type	1-99	100-499	500-999
28F043	HFA	2.57	2.33	1.94

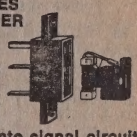
SUBMINIATURE FUSES AND HOLDER



Fuse size .270x.250 inches. Carry 100%, open at 200% within 10 sec. or less. Interrupting rating—35 amps at 125 volts. AF knob for holder makes holder waterproof. UL listed.

Stk. No.	GMW-Amp.	1-99 Each	100-499 Each	500-999 Each
28F362	1/100			
28F363	1/64	1.54	1.40	1.17
28F364	1/32			
28F366	1/10			
28F368	1/4			
28F371	1/2			
28F373	3/4	1.18	1.07	.89
28F374	1			
28F375	1-1/2			
28F376	2			
28F377	3			
28F379	5			
28F381	HWA-AF	1.50	1.36	1.13
28F380	HWA	1.35	1.22	1.01

GMT FUSES HLT HOLDER



Permits multiple mounting of fuses in limited space. Colored indicator spring when released makes contact with alarm terminal which can activate signal circuit. Size: ¼x1 15/32".

Stk. No.	Amps	Color	1-99	100-499	500-999
28F315	18/100	Yellow			
28F316	¼	Violet			
28F317	½	Red			
28F318	65/100	Black			
28F319	¾	Brown			
28F320	1	Gray	.93	.84	.70
28F321	1⅓	White			
28F322	2	Orange			
28F323	3	Blue			
28F324	5	Green			
28F325	7½	Blk-White			
28F326	10	Red-White			
28F360	HLT holder Fits all GMT		.97	.88	.74

TRON FUSE CLIPS

Rivet mounted. 1A1119-05, 1A1119-10 have end stops and tab clips for P. C. mount. 5960-09, 5960-63 have end stop. 5592-33 no end stop. Contain spring bronze or beryllium copper to retain spring tension. 1A1119-05, 5960-09 silver plated.

Stk. No.	Type	Fuse	1-99	100-499	500-999
27F594	1A1119-05	½"	.16	.14	.12
27F595	1A1119-10	¼"	.10	.09	.07
27F596	5960-09	13/32"	.31	.28	.23
27F597	5960-63	13/32"	.13	.11	.09
27F598	5591-52	9/16"	.16	.14	.12
27F599	5592-33	9/16"	.17	.15	.13

Fuses and Fuseholders

FUSETRON DUAL-ELEMENT FUSES

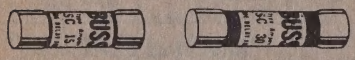
Type FRN. Long time lag prevents opening on starting currents or other harmless overloads. U/L listed for motor protection up to 250 volts.

Stk. No.	Amps.	Sizes	1-99	100-499	500-999
28F250	1	9/16x2"			
28F251	1¼	9/16x2"			
28F252	1-6/10	9/16x2"			
28F253	2	9/16x2"			
28F254	2½	9/16x2"			
28F255	3-2/10	9/16x2"	1.05	.95	.79
28F256	4	9/16x2"			
28F257	5	9/16x2"			
28F258	6¼	9/16x2"			
28F259	8	9/16x2"			
28F260	10	9/16x2"			
28F262	15	9/16x2"			
28F263	17½	9/16x2"			
28F264	20	9/16x2"	.95	.86	.72
28F265	25	9/16x2"			
28F266	30	9/16x2"			
28F267	35	13/16x3"			
28F268	40	13/16x3"			
28F270	50	13/16x3"	1.79	1.62	1.34
28F271	60	13/16x3"			
28F275	100	1x5⅞"	4.00	3.63	3.01

TYPE FRS—UL LISTED FOR 600 V

Stk. No.	Amps.	Size(in.)	1-99	100-499	500-999
27F2400	½	13/16x5			
27F2401	1¼	13/16x5			
27F2402	1-6/10	13/16x5			
27F2403	2	13/16x5			
27F2404	2½	13/16x5			
27F2405	3-2/10	13/16x5	2.46	2.23	1.85
27F2406	4	13/16x5			
27F2407	5	13/16x5			
27F2408	6¼	13/16x5			
27F2409	8	13/16x5			
27F2410	9	13/16x5			
27F2411	10	13/16x5			
27F2412	15	13/16x5			
27F2413	20	13/16x5	2.16	1.96	1.63
27F2414	25	13/16x5			
27F2415	30	13/16x5			
27F2416	35	1 1/16x5½			
27F2417	40	1 1/16x5½	3.71	3.37	2.80
27F2418	50	1 1/16x5½			
27F2419	60	1 1/16x5½			
27F2420	100	1¼ x7⅞	7.69	6.99	5.80

TYPE SC FUSES



SC fuses have time delay feature. Ratings below are @ 300 volts AC.

Stk. No.	Amps.	Size(in.)	1-99	100-499	500-999
27F2421	1	13/32x1 5/16			
27F2422	3	13/32x1 5/16	.90	.81	.67
27F2423	6	13/32x1 5/16			
27F2424	10	13/32x1 5/16			
27F2425	15	13/32x1 5/16			
27F2426	20	13/32x1 13/32	.74	.67	.55
27F2427	25	13/32x1 5/8	1.20	1.09	.90
27F2428	30	13/32x1 5/8			
27F2429	40	13/32x2¼			
27F2430	50	13/32x2¼	1.32	1.20	1.00
27F2431	60	13/32x2¼			

TYPE GLD INDICATING FUSES

Silver plated indicating pin extends when fuse is blown, or can activate signal light by using an HKA fuseholder. Carry 110% of rated current, open at 135% in 1 hr. Size ¼" x 1¼". Shipping weight 86 lbs. per 100. **Sold in mult. of 5 only.**

Stk. No.	Amps.	Volts	5-15 Ea.	20-95 Ea.	100-195 Ea.
27F964	¾	125	.98	.89	.74
27F965	1	125			
27F966	2	125	.77	.70	.58
27F967	3	125			
27F968	5	125			

TYPE NON ONE-TIME FUSES

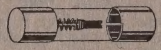
UL and CSA listed. Ratings below are at 250 volts.

Stk. No.	Amps.	Size(in.)	1-99	100-499	500-999
27F2438	1	9/16x2			
27F2439	3	9/16x2			
27F2440	6	9/16x2	.29	.26	.21
27F2441	10	9/16x2			
27F2442	15	9/16x2			
27F2443	20	9/16x2			
27F2444	25	9/16x2	.30	.27	.22
27F2445	30	9/16x2			
27F2446	35	13/16x3			
27F2447	40	13/16x3			
27F2448	45	13/16x3	.51	.46	.38
27F2449	50	13/16x3			
27F2450	60	13/16x3			
27F2451	100	1x5⅞	2.18	1.98	1.64

TYPE KTK—HIGH INTERRUPTING CAPACITY FUSES 13/32"x1½"

Use in circuits w/ up to 100,000 A.

Stk. No.	Amps.	Voltage	1-99	100-499	500-999
28F190	1/10	600 or less			
28F193	¼	600 or less			
28F194	3/10	600 or less			
28F195	½	600 or less			
28F196	¾	500 or less			
28F197	1	600 or less			
28F198	1½	600 or less			
28F199	2	600 or less			
28F200	3	600 or less			
28F201	4	600 or less	2.03	1.84	1.53
28F202	5	600 or less			
28F203	6	600 or less			
28F204	8	600 or less			
28F205	10	600 or less			
28F206	15	600 or less			
28F207	20	600 or less			
28F208	25	600 or less			
28F209	30	600 or less			



TRON FNQ TIME DELAY FUSE—13/32"x1½"

Protects motor-control transformers@ 440-480V. UL listed for 500 volts AC.

Stk. No.	Amps.	1-99	100-499	500-999
27F2452	⅛			
27F2453	3/16			
27F2454	¼			
27F2455	½			
27F2456	1			
27F2457	1-6/10			
27F2458	2			
27F2459	2½	2.28	2.07	1.72
27F2460	3-2/10			
27F2461	4			
27F2462	5			
27F2463	6¼			
27F2464	8			
27F2465	10			
27F2466	12			
27F2467	15			

TRON® CLIP-CLAMPS

Stk. No.	Type	Fuse Size (amps.)	Volts	1-99	100-499
27F2468	1	0-30	250 or 600	2.03	1.84
27F2469	2	35-60	250	2.62	2.38
27F2470	4	35-60	600	3.19	2.90
27F2471	5	70-100	250 or 600	3.04	2.76
27F2472	6	110-200	250 or 600	4.43	4.02

KAZ ACTUATOR DEVICE

Visually indicates opening of 50A or larger fuse. In special micro-switch fuse block (BUSS No. 2837, 2838) provides signal activating scheme announcing trouble at a distant station. 200,000A interrupting rating, 600V or less. Opens at 10A.

Stk. No.	Type	Size	1-99	100-499	500-999
30F160	KAZ	13/32"x2"	3.79	3.44	2.86

BUSS Plug Fuses

FUSTAT Type S Fuses

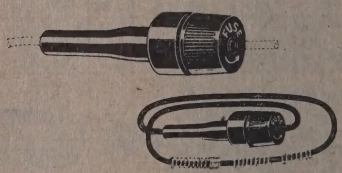
FUSETRON dual-element Plug Fuses

FUSTAT PLUG FUSES

Types T and S time-delaying, prevents blowing due to current surges or motor starting. Type S sized according to amperage, prevents over-protection.

Stk. No.	Type	Amps.	1-99	100-499	500-999
30F161	W	15			
30F162	W	20			
30F163	W	25	.22	.20	.16
30F164	W	30			
30F165	T	15			
30F166	T	20			
30F167	T	25	.46	.41	.34
30F168	T	30			
30F169	S	15			
30F170	S	20			
30F171	S	25	.47	.42	.35
30F172	S	30			

BUSS IN-THE-LINE FUSEHOLDERS



HMI and HMJ have 8" of #14 wire. HDJ has no wire. HDJ-A has contacts for #18-#22 wire. HDJ-B has contacts for #14-#16 wire.

Stk. No.	Type	Size	1-99	100-499	500-999
30F173	HDJ-A	¼"x1¼"	.35	.31	.26
30F174	HDJ-B	¼"x1¼"	.35	.31	.26
30F175	HMJ	¼"x1¼"	.64	.58	.48
30F176	HMI	¼"x1"	.64	.58	.48

FUSE BLOCKS FOR RECTIFIER FUSES 0-30 AMPS

Stk. No.	Type	Fuse	Type	No. of Poles Ea.	1-99	100-499
27F2497	4515	KAA,	KAW	1	1.18	1.07
27F2498	4525	KAA,	KAW	2	2.29	2.08
27F2499	4535	KAA,	KAW	3	3.36	3.05
27F2500	4386	KAB		1	1.75	1.59
27F2501	4287	KAB		2	3.36	3.05
27F2502	3959	KAB		3	5.27	4.79
27F2503	3595	KAC		1	2.82	2.56
27F2504	3528	KAC		2	5.56	5.05
27F2505	2795	KAC		3	8.35	7.59

FUSE PULLERS

FP-1

A must for every electrician or maintenance man.

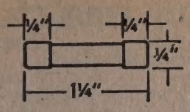
Stk. No.	Type	Fuse Size (dia. in.)	Each
27F2473	FP-1	¼	1.08
27F2474	FP-2	13/32 to 13/16	1.89
27F2475	FP-3	1 to 1¾	2.17
27F2476	FP-4	1¾ to 2½	7.37

10

TRON Rectifier Fuses

Bussmann

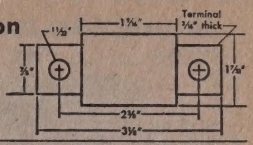
For Protection of Semi-Conductor and Like Application



TYPE GBB

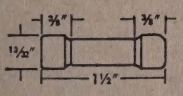
- U.L. Listed
- Fast acting
- Restricts let-thru current

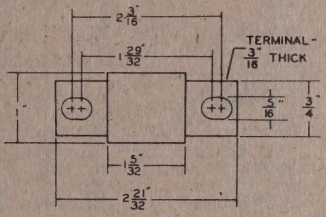
TYPE KAB 70-200 A



Stk. No.	Amps.	Volts	Ea. 5-95	Ea. 100-495	Ea. 500-995
27F2477	1	60			
27F2478	2	60			
27F2479	3	60			
27F2480	4	60			
27F2481	5	60			
27F2482	6	60			
27F2483	7	60			
27F2484	8	60	**1.39**	**1.26**	**1.05**
27F2485	9	60			
27F2486	10	60			
30F177	12	60			
30F178	15	60			
30F179	20	60			
30F180	25	60			
30F181	30	60			

TYPE KAA

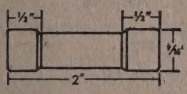


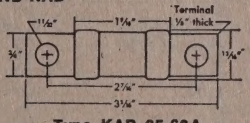


TYPE KAA 0-30A **TYPE KAA 70-400A**

Stk. No.	Amps.	Volts	Ea. 5-95	Ea. 100-495	Ea. 500-995
30F182	½	130			
28F210	1	130			
28F211	2	130			
30F183	3	130			
28F213	4	130			
28F214	5	130	**1.84**	**1.67**	**1.39**
28F217	8	130			
28F219	10	130			
28F221	15	130			
28F222	20	130			
28F223	25	130			
28F224	30	130			
30F184	70	130			
30F185	80	130			
30F186	100	130			
30F187	125	130			
30F188	150	130			
30F189	200	130	**7.48**	**6.80**	**5.64**
30F190	250	130			
30F191	300	130			
30F192	350	130			
30F193	400	130			

TYPE KAX AND KAB





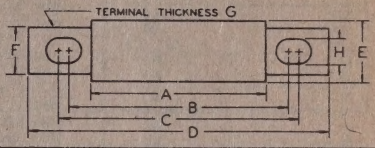
Type KAX or KAB 0-30A **Type KAB 35-60A**

TYPE KAX is a faster blow fuse. Ratings are at 250V.

Type KAX Stk. No.	Type KAB Stk. No.	Amps.	Ea. 5-95	Ea. 100-495	Ea. 500-995
30F194	28F225	1			
30F195	28F227	3			
30F196	28F229	5			
30F197	28F230	6			
30F198	28F232	8			
30F199	28F234	10	**2.09**	**1.90**	**1.58**
30F200	28F235	12			
30F201	28F236	15			
30F202	28F238	20			
30F203	28F239	25			
30F204	28F240	30			
	30F205	35			
	30F206	40			
	30F207	45	**7.30**	**6.63**	**5.49**
	30F208	50			
	30F209	60			

Stk. No.	Amps.	Volts	Ea. 5-95	Ea. 100-495	Ea. 500-995
30F210	70	250			
30F211	80	250			
30F212	90	250			
30F213	100	250	**9.39**	**8.53**	**7.07**
30F214	125	250			
30F215	150	250			
30F216	200	250			

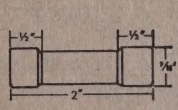
TYPE KAC

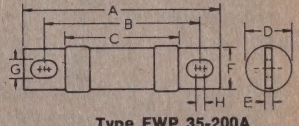


Amps.	Dimensions are in inches A	B	C	D	E	F	G
0-30	1⅞	.....	2½	2⅞	9/16	13/32	1/16
35-60	2¾	.....	3⅝	4⅜	13/16	⅜	3/32
65-100	2 29/32	3 1/32	4 1/16	5	1	¾	⅛

Stk. No.	Amps.	Volts	Ea. 5-95	Ea. 100-495	Ea. 500-995
28F424	1	600			
28F425	2	600			
28F426	3	600			
28F428	5	600	**3.08**	**2.80**	**2.33**
28F429	6	600			
28F430	7	601			
28F432	9	600			
28F433	10	600			
28F434	12	600			
28F435	15	600	**3.08**	**2.80**	**2.33**
28F437	20	600			
28F438	25	600			
28F439	30	600			
30F217	35	600			
30F218	40	600			
30F219	50	600	**6.97**	**6.33**	**5.25**
30F220	60	600			
30F221	70	600			
30F222	80	600			
30F223	90	600	**9.13**	**8.30**	**6.89**
30F224	100	600			

TYPE FWP





Type FWP 0-30A **Type FWP 35-200A**

Amps.	Dimensions are in inches A	B	C	D	E	F	G	H
35-70	4⅜	3⅝	2 3/32	1 13/16	⅛	¾	5/16	5/32
70-100	4⅝	3⅝	2⅛	1 1/16	3/16	1	5/16	5/32
125-200	4 1/32	4 1/32	2⅛	1 1/32	¼	1	1 1/32	5/32

Stk. No.	Amps.	Volts	Ea. 5-95	Ea. 100-495	Ea. 500-995
30F225	15	700			
30F226	20	700	**3.65**	**3.31**	**2.75**
30F227	30	700			
30F228	35	700			
30F229	40	700			
30F230	50	700	**8.69**	**7.90**	**6.56**
30F231	60	700			
30F232	70	700			
30F233	80	700			
30F234	90	700	**11.15**	**10.13**	**8.40**
30F235	100	700			
30F236	125	700			
30F237	150	700			
30F238	175	700	**14.90**	**13.54**	**11.23**
30F239	200	700			

10

Quick Index to Connectors

CONNECTORS, PLUGS, JACKS, SOCKETS, TERMINAL BLOCKS, TOOLS, RELATED PRODUCTS

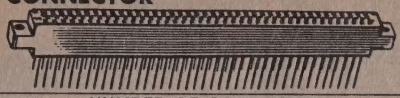
Mfr's Type	Page
ADC	
PF	467
PJ	466, 467
PM, RF, RM	467
AMPHENOL	
BNC	403
CP	399
C, HN	405
MB, MHV	406
MIP	400
MS	386-390
N	404
S	400
SMA	406
RF	405
RSS	400
TNC	403
UHF	404, 405
17	396
26	394
27	405
31	403, 405, 406
44	393
57	395
59	400
66	409
67	391
78	399, 400
80	402
81	405
82	404, 405, 406
83	404, 405
86, 91	399
91Q	402
97	384, 385
118	392
126	394
133, 134	397
146, 147	400
157	395
160	399
165	391
225	398
261	397
283, 284, 285	408
410	409
621, 631, 821, 831	398
905	407
910	406
CAMBION	
200, 400, 415	502
435, 446	501
450, 460, 461	502
702, 703, 706, 718	501
714, 715	502
1000, 1200, 1400, 1500, 1700, 1900, 2000, 2700, 3600	503
3700, 3800	503, 501
4000, 4100, 4200	503
ELCO	
02	379
05	383
5009	378
6007, 6022, 6024, 6064, 6307, 6337	377
7008, 7015, 7020, 7024, 7038	378
7021, 7022, 7023	379
8016, 8026	380
8017, 8223	381
8129	383
9016	382
ELECTROVERT	
04-030, 04-070, 21-311, 21-321, 21-340, 25-104, 25-135, 29-401	411
JOHNSON, E. F.	
105	464, 465
108, 111	464
115, 0202, 0752	465
KULKA	
J, ST, Y	435
410, 599, 600	432
602, 603, 670	433
671, 672, 699	434
POMONA ELECTRONICS	
MDP	454
TVS, XS	453
1269, 1270, 1296, 1297	454
1432, 1452	454
1508, 1701, 1705	456
POMONA (Cont.)	
1809	454
2103, 2104, 2105	455
2142	454
2224	455
2244, 2247, 2269	454
2390, 2391, 2392, 2397	455
2400, 2417, 2428	455
2451	454
2660	455
2708	456
2811	453
2901, 2902, 2907	455
2957, 2945, 2970	454
3157, 3163, 3200	453
3230, 3231, 3234, 3239	455
3269, 3296, 3276	454
3277, 3279	454
3283, 3284, 3285	455
3286, 3287, 3288	454
3301, 3302, 3311	455
3312, 3316, 3326	455
3430, 3533, 3534	454
3551, 3553	455
3601, 3602, 3603, 3606, 3751	455
3752, 3753, 3754	455
3780	452
3846	454
3850	455
3861	456
3916, 3925, 4011	453
4119	455
4124, 4140	453
4160	454
4163	456
4225, 4233, 4236, 4242	453
4253, 4260, 4288, 4289	455
4311, 4312, 4324, 4340	453
4408	456
4550	453
RDI	
KB, RB, SM, TB, TK	439
3PCV, 4PCV, 6PCR, 6PCV	438
8, ZZ	439
8PCR, 8PCV	438
22, 44, 204, 206, 208, 211	439
214, 218, 311, 312, 314, 318	439
SMITH, H. H.	
100, 101, 102, 105, 128	457
185, 186, 187, 200, 202, 205	457
210	458
214	460
216	457
220, 224, 230	458
241	457
257, 269	458
285, 287	457
300, 301, 302, 304, 305	460
310, 371, 319	460
321, 325	458
326, 331, 333, 336, 337, 338	460
347, 350, 389, 397	460
433, 455, 492	457
459	458
600-603, 610, 611, 626, 630, 672, 686, 690-692, 699	460
720	460
799, 899, 1275, 1463	458
1464	457
1477, 1480	458
1501, 1502, 1506, 1509	457
1510	460
1513	457
1517, 1600, 1675, 1749	458
1595, 1596	460
1866	460
2000	459
3000	461
3015	458
5031	460
8000	459
9400, 9700	461
SPC TECHNOLOGY	
"A" Mode	431, 508
BNC	410, 451, 509
CBS	470
CCP, CCS	471
CFS	472, 473
CGS	470
CH	410, 509
SPC (Cont.)	
CH239	410
CIS	470, 471
CMS	429, 472
CP	410, 509
CP88	410
CPF	410, 509
CPF81-AB, CPF249	410
CPFG1-A-S	410, 509
CPFI	410
CRS	468, 469
CSL	473
CSS	469
CTR	410
IT	500
LP	426
LTS	430
MC	500
MRS, ORS	429
PL259	410
RS	469
SP, STS	428
UG88	410
UHF	451
UT, W170	500
Adapters, Alligator Clips	447
Banana Jacks	448, 449
Banana Plugs	448, 447, 451
Binding Posts	449
Meter Plugs	448
Patch Cords	451
Phone Jacks, Phone Plugs	450
Spade Lugs	449
Terminal Strips	430
Tip Jacks	449
Tip Plugs	448
SUPERIOR ELECTRIC	
DF, PP, PS, RP, RS	465
SWITCHCRAFT	
A, B, C, D, G, J, K, P, R, T	442
B-1700	446
EAC	440
MT	444
P	442
P-2392, S3FM, SL	440
T-1801	446
TR-2A	443
TT, WTT	446
01, 02	440
05	440, 441
09	440
10	441, 443
11	443
12	440, 443
13	441, 443
14	443
15	440, 441
17Q, 18Q, 19Q	446
25, 26, 30	441
39	445
40	444, 441
41-43	443
57	440
60	444, 440
61	440
70	444
80, 88	443
82, 85	441
90	444
91	441
111-114, 120, 121, 125	443
126, 128, 131, 142, 150-152	443
133, 160, 170	444
172, 173	445
190, 220, 227, 228, 230, 238	
240, 245, 250, 255, 260, 267	
270, 280, 290, 297, 298	444
330, 332, 336, 340	445
345, 349	445
350	444
360-365, 370, 374-380	445
383, 386, 387, 389-391	445
412, 413, 430, 440	444
480, 482, 483	444
515	443
712, 722	441
740, 745, 750, 755	444
760, 765	441
780	444
830	443
850, 855, 880	444
SWITCHCRAFT (Cont.)	
1230	443
1332, 1600, 1700, 2532, 2732	446
3500	440, 445
3501	445
3505, 3507	440
3512, 3558	445
4070, 6090	444
TEXAS INSTRUMENTS	
C81, C82	495
C84, C85	496
C91, C92	495
C93, C95	496
H41-H43	494
THOMAS & BETTS	
A, B, C	474, 475, 476
AA, BB, CC	476
ABMK	475
ANC	477
BV, CV	475
FTA	476
MTB	475
N187, N250, N375	475
PT	476
RA	474, 475, 476
RAA	476
RAV	475
RB	474, 475, 476
RBB	476
RC	474, 475, 476
RCC	476
RCV, RV, RVB	475
RZ	474
TC, TY	477
WT	475, 476, 477
220, 2200	475
TRW / CINCH	
D-SUB	420, 421
ICS, LPS	426
MSS	426
Fanning Strips	
160-162	414
Marker Strips	
140-142, 150, 540	414
Terminal Blocks, Sockets	
CSA1, CSC3, CSD3	419
DCDA, DCDM	419
FC	418
QC	415
7C5, 7E, 7JM, 7PC, 7X	426
8A, 8E, 8PB, 9A, 9E	426
9X, 11PB, 11RB, 13A	426
14	427
14-DIP, 16-DIP	426
22	419
24-DIP	426
81A, 81B	427
97	423
140, 141	412
142, 150, 164, 170	413
171, 172, 176, 540-542	463
800, 2400, 8000	418
Terminal Strip, Terminals	
17, 2000	415
Connectors	
2C5	427
2H3, 2R2, 2TS, 2W1	426
8RS	427
8SM, 8VT	426
9JM, 9PC	427
14RS, 16RS, 20RS	427
26	422
28RS	427
50	415, 423-425
57, 77	422
90	425
202	427
300	416, 417
400	417
119437	426
WALDOM/MOLEX	
HD-4209, K120, K130, K140, K170, K180, K220, K210	512
M93, M118, R62, R93	463
WM-50, WM-72	512
02	463
03	462
05	463

11

PC Card Edge Connectors

GW Elco Corporation
a Gulf + Western manufacturing company

SERIES 6337 CARD-EDGE CONNECTOR



- **For 1/16" Printed Circuit Cards**
- **Bifurcated Bellow Contacts**
- **Contacts Accept 3 Levels Wrapping Wire**

Discrete connectors have bifurcated bellow contacts with .025" square wire wrapping terminals. Contacts on .156" x .200" centers; each contact accepts up to 3 levels of wrapping wire. For 1/16" P.C. cards. Current rating 3 amps max. Contact material: phospher bronze per QQ-W-321d. 10 microinches, minimum, gold plate over 30-100 microinches of nickel. Insulating material thermoplastic polyester. Maximum voltage potential between contacts 1500 VAC. Insulation resistance: 5000 megohms min. at 500 VDC.

NUMBER OF CONTACTS
20, 30, 44, 50, 56, 72, 86.

Code	Type
671	Terminal length: .585"

VARIATION CODE

Code	Insulator Type
001	With mounting holes

POLARIZATION
Order polarizing key/insert separately by part number: 60 6007-4828

SERIES 6307 (.100") AND 6064 (.125")

Discrete connectors have bifurcated bellow contacts with .025" sq. wire wrapping posts. Series 6307 has contacts on .100x.200" centers; each contact accepts up to three levels of wrapped wire. Series 6064 has contacts on .125x.250" centers. Current rating: 3 amps max. Contact material: phosphor bronze per QQ-W-321D; 10 microinches minimum gold plate over 30-150 microinches nickel. Insulator: diallyl phthalate.

SERIES 6307 ORDERING CODES—NUMBER OF CONTACTS
Double row: 50 **(050)**, 60 **(060)**, 72 **(072)**, 86 **(086)**, 100 **(100)**.

CONTACT CODE
309—Tail length .645" **472**—Tail length .550"

VARIATION CODE

Code	Mounting	Contacts in
001	.128" dia. hole	Odd and even row

POLARIZING KEY: 60-6307-3117

SERIES 6064 ORDERING CODES—NUMBER OF CONTACTS
Double row: **056, 072, 080, 086, 100.**

CONTACT CODE
060—Tail length .655" **061**—Tail length .560"

VARIATION CODE

Code	Mounting	Contacts in
001	.128" dia. hole	Odd and even rows

POLARIZING KEY: 60-6064-3317

SERIES 6007 (.156") CONNECTORS

MIL-C-21097 (QPL) approved. Ribbon-type contacts with bifurcated nose. For .062" PC card. Rated 5 amps. Contact material: Phosphor bronze per QQ-B-750, Composition A. Insulator: diallyl phthalate, glass-filled. Withdrawal force: 2-16 ounces per contact pair. Insulation resistance: 25,000 Megohms, minimum. Breakdown voltage: 2000 Volts RMS at sea level. 10 micro inches gold over 30-100 nickel plating.

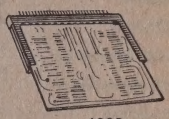
NUMBER OF CONTACTS
Single-readout: 006, 010, 012, 015, 018, 022, 028, 036 or 043
Dual-readout: 012, 020, 024, 030, 036, 044, 056, 072 or 086

CONTACT CODE

Single-Readout Contacts		Dual-Readout Contacts	
Code	Terminals	Code	Terminal
457	Wire Hole, 2 Term.	450	Wire hole
936	Wire wrap	451	PC tab
		452	Wire
938	PC tab	453	PC tab
940	Wire Hole, 1 Term.	454	Wire
551	Wire Hole	941	Switching Wire hole
552	PC Tab	498	Switching, P.C. tab

VARIATION CODE
012—.128" dia. mounting holes **018**—#4-40 insert
013—.116" I.D. floating eyelets
Polarization: Order polarizing key 60 6007 4828 separately.

SERIES 6022 AND 6024 (.156") CONNECTORS



6022

Extended card guides facilitate PC card insertion, minimize effects of vibration. For 1/16" PC card. #4-40 threaded insert. Current rating: 5 amps max. Contact material: phosphor bronze per QQ-B-750, Composition A (contact number 989 is beryllium copper). Contat plating: 10-20 microinches gold plate over 30-150 microinches nickel plate. Insulator: glass-filled thermoplastic polyester.

SERIES 6022 ORDERING CODES—NUMBER OF CONTACTS
22 single-readout **(022)**; or 44 dual-readout **(044)**.

CONTACT CODE

Single-Readout Contacts		Dual-Readout Contacts	
Code	Terminals	Code	Terminals
457	Wire Hole, 2 Term.	450	Wire Hole
936	Wire Wrap	451	P.C. Tab
938	P.C. Tab	452	Wire
940	Wire Hole, 1 Term.	453	P.C. Tab
551	Wire Hole	454	Wire
552	P.C. Tab	498	Switching PC Tabs
		941	Switching Wire hole

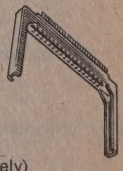
VARIATION CODE

Insulator Mat'l Polyester	Contact Type and Position
001	44 dual-readout contacts in all positions
002	22 single-readout; on numbered side only
003	22 single-readout; on lettered side only
004	22 single-readout; staggered (1-B-3-D etc.)
005	22 single-readout; staggered (A-2-C-4 etc.)

Polarization: must be specified separately.

SERIES 6024 ORDERING CODES—NUMBER OF CONTACTS
18 single-readout **(018)** or 36 dual-readout **(036)**.

CONTACT CODE—Same as Series 6022 above.



VARIATION CODE
001—Dual-readout contacts
002—Single-readout; tails in positions "1" to "18"
003—Single-readout; tails in positions "A" to "V"
004—Single-readout; tails in positions 1-B-3 etc.
005—Single-readout; tails in positions A-2-C etc.

POLARIZATION (order inserts separately)
A-Type: 60 6007 48 28. Polarizing insert between contacts.
B-Type: 60 6002 31 24. Polarizing insert between contacts.
C-Type: 60 6007 33 14. Polarizing insert on contacts.

HOW TO ORDER

6XXX — XXX — XXX — XXX

Series | **No. of Contacts** | **Contact Code** | **Variation Code**

For Example: 6307-100-309-001 is a Series 6307 connector with 100 contacts in double row, odd and even; tail length .645"; for mounting in .128" hole.
Polarization must be specified separately.

11

PC Varicon™ Connectors

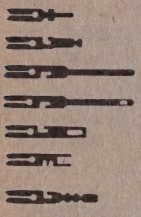
SERIES 5009 .200″ CONNECTORS

Available in assorted contact terminations, for 1/16″ PC card. Current rating: 10 amps. Contact material and plating: phosphor bronze per QQ-B-750. Comp. A; 10 microinches gold plate over 30-100 microinches nickel plate. Insulator: diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, Type SDGF. Insulation resistance: 25,000 meg. min. Mil. spec.: MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 (BuWeps) par. 3.5.5.

NUMBER OF CONTACTS

12 and 16 (codes **012** and **016**)

CONTACT CODE



141—PC termination for 1/8″ card
146—.078″ base taper tab
156—Wire wrapping (.026x.062x.600″)
158—Wire wrapping with wire hole (.026x.062x.600″)
163—.098″ base taper tab; wire hole
165—Forked tail solder term. for bus line conntction (.056x.125″ slot)
189—Solder termination for 3 wires

5009 VARIATION CODE

Series	Code number for 1/16″ card
5009	001

POLARIZATION: Must be ordered separately.

SERIES 7008/7020 .100″ CONNECTORS

7008

7020

Series 7008 is available with card guides, for 1/16″ card. Series 7020 available only with 51 contacts and card guides, for 1/16″ cards (Variation 001). Current rating: 10 amps. Contact and insulator material: same as Series 5009 above. Mil. spec.: MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 (BuWeps) par. 3.5.5.

NUMBER OF CONTACTS

017, 023, 029, 035, 041 or 047 (Series 7020, **051** only).

CONTACT CODE

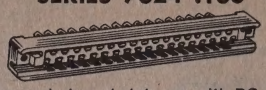
Same as Series 5009 above.

VARIATION CODE

Code	Card Slot	Card Guides
001	1/16″	Yes

POLARIZATION: Must be ordered separately. Part number—60-5006-3414.

SERIES 7024 .100″ CONNECTORS



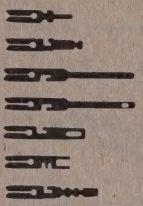
Guide Sockets Facilitate Mating, Ensure Correct Alignment

Open-ended card slot; use with PC card of any width. Wide range of contact terminations. MIL-C-21097 Qualified Products List (QPL)-approved. Current rating: 10 amps. Contact material and plating: phosphor bronze per QQ-B-750, Composition A; 10 microinches gold plate over 30-100 microinches nickel plate. Insulator material: diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, Type SDGF. Military specifications: MIL-C-21097, MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 (Para. 3.5.5), MIL-STD-454.

NUMBER OF CONTACTS

17 (**017**), 23 (**023**), 29 (**029**), 35 (**035**) or 41 (**041**).

CONTACT CODE

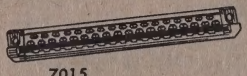


141—PC termination for 1/8″ card
146—.078″ base taper tab
156—Wire wrapping (.026x.062x.600″)
158—Wire wrapping with wire hole (.026x.062x.600″)
163—.098″ base taper tab; wire hole
165—Forked tail solder term. for bus line connection (.056x.125″ slot)
189—Solder termination for 3 wires

VARIATION CODE

001—For 1/16″ thick PC card
110—For 1/16″ card (for conformance to MIL-C-21097B)
Polarization: Must be specified separately.

SERIES 7015 AND 7038 .100″ CONNECTORS



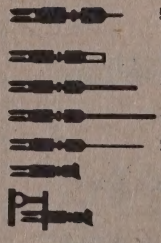
7015

7038

Varilok™ contacts are insertable and removable. Series 7015 has contacts that lock in position by spring lances. Series 7038 has guide sockets for easy mating and correct alignment (optional on 7015). Open-ended card slot; no notching needed. Current rating: 8.5 amps. Contact and insulator material, and Military specifications: same as Series 7024 above.

Series	NUMBER OF CONTACTS
7015 7038	035 or 041 017, 029, 035, 041 or 047

CONTACT CODE



504—60 8017 06 63. Solderless wrap tail, .024x.026x.170″.
217—60 8017 05 13. Wire hole
218—60 8017 06 13. Solderless wrap tail, .024x.050x.567″
750—60 8017 06 23. Solderless, .024x.050x.760″
296—60 8017 06 33. Solderless, .024x.026x.580″
***000**—60 8017 03 13. Wire crimp (contacts loose)
***000**—60 8017 03 23.Wire crimp (contacts on reel)
*Order separately by part number

VARIATION CODE

Series 7015		Series 7038	
001	1/16″ card with guides	001	1/16″ card

Polarization: Must be specified separately.

HOW TO ORDER

XXXX — XXX — XXX — XXX
series · No. of Contacts · Contact Code · Variation Code

The complete 13-digit Elco number consists of the Series number, followed by codes for number and type of contacts, and variation (see below).

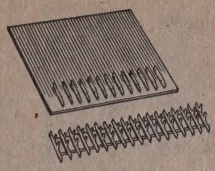
For Example: 00-5009-016-163 is a Series 5009 connector with 16 contacts, .098″ base taper tab. Wire hole for 1/16″ card.

11

PC Varicon™ Connectors

GW Elco Corporation
a Gulf + Western manufacturing company
2250 PARK PLACE, EL SEGUNDO, CA. 90245

02 SERIES CONTACT STRIPS ON .200" CENTERS MATES WITH 5000 SERIES RECEPTACLES



Contacts can be staked (and soldered, if desired) directly to PC card. Requires no insulator. Contacts are supplied on disposable plastic strips. Staking and strip removing equipment is available. For 1/16" PC card. MIL-C-21097 Qualified Products List (QPL)-approved. Current rating: 10 amps. Contact material and plating: phosphor bronze per QQ-B-750, Composition A; 10 microinches gold plate, over 30-150 microinches nickel plate. Military spec.: MIL-C-21097, MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-STD-454, MIL-E-19600 (BuWeps) par. 3.5.5.

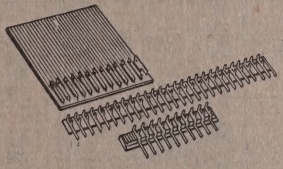
NUMBER OF CONTACTS

1 to 60 (code **001** thru **060**).

CONTACT CODE

013—For 1/16" thick card. Type 60 5001 19 13 contacts spaced .200", with wire hole (maximum of 60 contacts per strip)

02 SERIES CONTACT STRIPS ON .100" CENTERS MATES WITH 7000 SERIES RECEPTACLES



Consists of contacts which can be staked and soldered to PC card; no other insulator needed. Contacts are supplied imbedded in vinyl strips, correctly spaced and ready for insertion and staking into PC card. Complete set of plug contacts supplied on two disposable plastic strips, one for upper-tier contacts and the other for lower-tier contacts. For 1/16" PC card. Current rating: 10 amps. Contact material and plating: phosphor bronze per QQ-B-750, Composition A; 10 microinches gold plate over 30-150 microinches nickel plate. Military specifications: MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 (BuWeps), par. 3.5.5. **Upper-tier and lower-tier contacts on separate strips.**

NUMBER OF CONTACTS

1 to 60 (codes **001** thru **060**).

CONTACT CODE

147—For 1/16" thick card. Lower tier contacts, type 60 7001 15 13

135—For 1/16" thick card. Lower tier contacts with wire hole, type 60 7001 04 13

137—For 1/16" thick card. Upper tier contacts with wire hole, type 60 7001 05 13

HOW TO ORDER

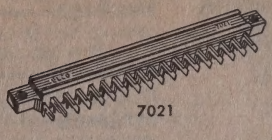
02 — XXX — XXX — 5 — 200

No. of Contacts — Contact Code

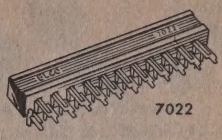
The complete 12-digit number includes codes for no. of contacts and contact type (see listings above).

For Example: 02-010-147-5-200 is a Series 7000 contact strip with ten type 60 7001 15 13 contacts on lower tier at .200 centers spacing.

SERIES 7021 AND 7022 .100" CONNECTORS



7021



7022

Type 7021 mates with series 7000 receptacles without card guides; 7022 mates with series 7000 receptacles with guides. Insulator maintains exact spacing between contacts; rigidity reduces PC card wrap. Reduces cost of card punching operation (fewer holes are needed), and contact staking operation (one operation instead of two). Reduces assembly time (no plastic strip to remove). Current rating: 10 amps. Contact material and plating: phosphor bronze per QQ-B-750, Composition A; 10-20 microinches gold plate over 30-150 microinches nickel plate. Insulator: diallyl phthalate, glass-filled, flame resistant per MIL-M-14F, type SDGF. Mil spec.: MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 (BuWeps) par. 3.5.5.

NUMBER OF CONTACTS

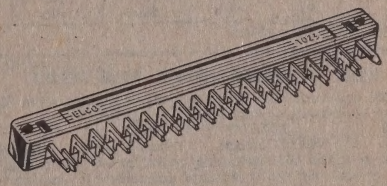
7021 Series: 35 (035)

7022 Series: 17 **(017)** 23 **(023)**, 29 **(029)**, 35 **(035)**, 41 **(041)**, 47 **(047)**, 51 **(051)**.

VARIATION CODE

001—For 1/16" module card thickness

SERIES 7023 .100" CONNECTORS



Mates with 7024 and 7038 series. MIL-C-21097 Qualified Products List (QPL)-approved. Guide pins facilitate mating, ensure correct alignment. Insulator maintains exact spacing between contacts; insulator rigidity reduces PC card warp. Reduces cost of card punching operation (fewer holes are needed) and of contact staking operation (one operation instead of two). Reduces assembly time (no plastic strip to remove). For 1/16" PC card, as indicated. Current rating: 10 amps. Contact material and plating: phosphor bronze per QQ-B-750, Composition A; 10 microinches gold plate over 30-150 microinches nickel plate. Insulator material: diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, type SDGF. Military specifications: MIL-C-21097, MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 (Par. 3.5.5.), MIL-STD-454.

NUMBER OF CONTACTS

17 **(017)**, 23 **(023)**, 29 **(029)**, 35 **(035)**, 41 **(041)** or 47 **(047)**.

VARIATION CODE

001—For 1/16" PC card

110—For 1/16" PC card; conforms to MIL-C-21097C

HOW TO ORDER

70XX-XXX-000-XXX

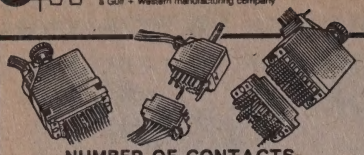
Series — No. of Contacts — Variation

The complete 13-digit number includes Series (7021, 7022 or 7023) plus codes for number and type of contacts.

For Example: 00-7021-035-000-001 is a Series 7021 connector with 35 contacts, for 1/16" card thickness.

Rack-and-Panel Connectors

SERIES 8016 WITH .130" x .150" GRID



NUMBER OF CONTACTS
020, 038, 056, 090, or 120.

504—60 8017 0663 .024"x.026"x.170"

#217—60 8017 05 13 Solder/.098" tab

#218—60 8017 06 13. Solderless wrap tail, .024x.050x.567"

#750—60 8017 06 23. Solderless wrap tail, .024x.050x.760"

296—60 8017 06 33. Solderless wrap tail, .024x.026x.580"

†000—60 8017 03 13 Crimp (loose)

†000—60 8017 03 23 Crimp (1800 reel)

Insertable removable Varilok™ contacts. Guide pins and sockets ensure correct alignment. Polarizing hardware can be reset by user (36 possible positions per pair). Optional cover with top or side cable entry and clamp. Current rating: 8.5 amps max. Contact material: phosphor bronze per QQ-B-750, Comp. A; 10 microinches gold plate over 30-100 microinches nickel. Insulator: diallyl phthalate, glass-filled, flame resistant per MIL-M-14F, type SDGF; or polycarbonate thermoplastic. #terminations should be insulated. †Must be ordered separately. Cover: metal.

20 CONTACTS

Type Connector	Variation Code: Polycarbonate	Variation Code: Diallyl	Cover & Cable Entrance	Actuating Screw	Fixed Nut
Plug	001	701	None	Yes	No
	002	703	None	No	Yes
	903	803	Top*	Yes	No
	904	804	Side*	Yes	No
	905	805	Top*	No	Yes
	906	806	Side*	No	Yes
Receptacle	007	707	None	No	Yes
	008	708	None	Yes	No
	909	809	Top*	Yes	No
	910	810	Side*	Yes	No
	911	811	Top*	No	Yes
	912	812	Side*	No	Yes
Plug	013	713	None	No	No
	914	814	Top*	No	No
	915	815	Side*	No	No
Receptacle	016	716	None	No	No
	911	818	Top*	No	No
	918	818	Side*	No	No

*Use cover only with crimp contacts.

90 OR 120 CONTACTS

Type Conn.	Variation Code: Polycarbonate Std.	Polycarbonate X-Large	Diallyl Std.	Diallyl X-Large	Cover & Cable Entrance	Actuating Screw	Fixed Nut
Plug	001	.....	701	.....	None	Yes	No
	002	.....	702	.....	None	No	Yes
	903	931	803	831	Top	Yes	No
	904	932	804	822	Side	Yes	No
	905	933	805	833	Top	No	Yes
	906	934	806	834	Side	No	Yes
Rec.	007	.....	707	.....	None	No	Yes
	008	.....	708	.....	None	Yes	No
	909	935	809	835	Top	Yes	No
	910	936	810	836	Side	Yes	No
	911	937	811	837	Top	No	Yes
	912	938	812	838	Side	No	Yes

38 OR 56 CONTACTS

Type Conn.	Variation Code: Polycarbonate Std.	Polycarbonate Large	Polycarbonate X-Lge.	Diallyl Std.	Diallyl Large	Diallyl X-Lge.	Cover & Cable Entrance	Actuating Screw	Fixed Nut
Plug	001	.....	.....	701	.....	.....	None	Yes	No
	002	.....	.....	702	.....	.....	None	No	Yes
	903	919	931	803	819	831	Top	Yes	No
	904	920	932	804	820	832	Side	Yes	No
	905	921	933	805	821	833	Top	No	Yes
	906	922	934	806	Side	834	Side	No	Yes
Rec.	007	.....	.....	707	.....	.....	None	No	Yes
	008	.....	.....	708	.....	.....	None	Yes	No
	909	923	935	809	823	835	Top	Yes	No
	910	924	936	810	824	836	Side	Yes	No
	911	925	937	811	825	837	Top	No	Yes
	912	926	938	812	826	838	Side	No	Yes

HOW TO ORDER 8016 & 8026 SERIES

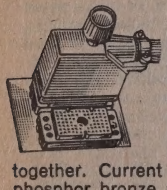
The complete connector part number consists of product series 8016 plus codes for no. of contacts, contact code and variation.

8016	056	217	001
Series	No. of Contacts	Contact Code	Variation

Example: (using above) 8016 series plug connector with 56 contacts using a solder tab contact that has a standard polycarbonate insulator with an actuating screw.

11

SERIES 8026



Economical subminiature high-density connrctors. Mini-Valok crimp/removable contacts available loose or on reels. Keyed, shrouded insulator. Jackscrews facilitate mating, lock connectors together. Current rating: 5 amps. Contacts: phosphor bronze per QQ-B-750, Comp. A; 10 microinches gold plate over 30-100 microinches nickel. Insulator: .100" spacing, diallyl phtalate, glass-filled; .125" spacing, polycarbonate. Cover: metal, except ††polycarbonate.

NUMBER OF CONTACTS

.100" Spacing: 033, 075 or 117
.125" Spacing: 055 or 079

CONTACT CODE

Order separately by part no.:
000-60 8261 0323. Crimp (3000 reel)
000-60 8216 0313. Crimp (loose)
491-60 8216 0413 Wrappable (.025 sq.)

VARIATION CODE—††33 CONTACT SIZE

Insulator Body	Code	Act. Screw	Fixed Nut	Polar. Pins	Cover
Male (Exposed) (Contacts)	701	Yes	No	Yes	No
	702	Yes	No	No	No
	703	No	Yes	Yes	No
	704	No	Yes	No	No
	725	Yes	No	Yes	Yes
	726	Yes	No	No	Yes
	727	No	Yes	Yes	Yes
	728	No	Yes	No	Yes
	733	No	No	Yes	No
	734	No	No	No	No
	745	No	No	Yes	Yes
	746	No	No	No	Yes

Variation Code (Cont.)

Insulator Body	Code	Act. Screw	Fixed Nut	Polar. Pins	Cover
FEMALE (Recessed Contacts)	801	No	Yes	Yes	No
	802	No	Yes	No	No
	803	Yes	No	Yes	No
	804	Yes	No	No	No
	825	No	Yes	Yes	Yes
	826	No	Yes	No	Yes
	827	Yes	No	Yes	Yes
	828	Yes	No	No	Yes
	833	No	No	Yes	No
	834	No	No	No	No
	845	No	No	Yes	Yes
	846	No	No	No	Yes

SIZES 55, 75, 79 AND 117 MALE INSULATOR (Exposed Contacts)

Sizes 55 and 79 available only with female.
(*)Cover, small clamp (†) cover, Large clamp

Variation Code: W/O Cover	*	†	Cable Entry	Actuating Screw	Fixed Nut	Polarizing Hdwe.
701	.....	.....	No	Yes	No	Yes
702	.....	.....	No	Yes	No	No
703	.....	.....	No	No	Yes	Yes
704	.....	.....	No	No	Yes	No
733	.....	.....	No	No	No	Yes
734	.....	.....	No	No	No	No
.....	705	713	Top	Yes	No	Yes
.....	706	714	Side	Yes	No	Yes
.....	707	715	Top	Yes	No	No
.....	708	716	Side	Yes	No	No
.....	709	717	Top	No	Yes	Yes
.....	710	718	Side	No	Yes	Yes
.....	711	719	Top	No	Yes	No
.....	712	720	Side	No	Yes	No
.....	735	739	Top	No	No	Yes
.....	736	740	Side	No	No	Yes
.....	737	741	Top	No	No	No
.....	738	742	Side	No	No	No

FEMALE (Recessed Contacts)

801	.....	.....	No	No	Yes	Yes
802	.....	.....	No	No	Yes	No
803	.....	.....	No	Yes	No	Yes
804	.....	.....	No	Yes	No	No
833	.....	.....	No	No	No	Yes
834	.....	.....	No	No	No	No
.....	805	813	Top	No	Yes	Yes
.....	806	814	Side	No	Yes	Yes
.....	807	815	Top	No	Yes	No
.....	808	816	Side	No	Yes	No
.....	809	817	Top	Yes	No	Yes
.....	810	818	Side	Yes	No	Yes
.....	811	819	Top	Yes	No	No
.....	812	820	Side	Yes	No	No
.....	835	839	Top	No	No	Yes
.....	836	840	Side	No	No	Yes
.....	837	841	Top	No	No	No
.....	838	842	Side	No	No	No

This series is also available as actuating nut unit. Contact your local NEWARK sales office for information.

CABLE STRAIN RELIEF CLAMP

Adjustable for large or small cable bundles. Versatile clamp assembly permits mounting in various directions: can mount on plug and/or receptacle. Available for sizes 38 and 56.

30-8026-9601—For plug and cable-to-cable applications

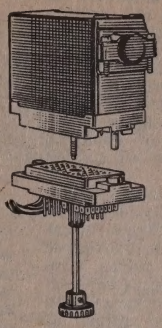
30-8026-9602—For receptacle applications

Rack-and-Panel Connectors

Elco Corporation
a Gulf + Western manufacturing company

SERIES 8017 RECTANGULAR WITH .150" OFFSET GRID

- **75, 100 or 130 Contacts**
- **Crimp, Solder/Taper Tab, Solderless Wrap and Taper Tab Terminations**
- **Removable VARILOK™ Contacts**



Rectangular rack-and-panel connectors with .150" offset grid, available with 75, 100 or 130 contacts. Polarizing hardware can be set to any of six positions at the factory; can also be reset by the user (36 possible polarizing position combinations per pair). Guide pins and sockets ensure correct alignment when mating. Optional cover, with top or side cable entrance and clamp. Available with or without actuating screw or nut. U.L. approved. Insertable/removable VARILOK™ contacts. Choice of terminations: .078" taper tab (216), solder/.098" wire hole (217), solderless wrap tail in choice of three sizes (218, 750 and 296), or crimp (to be ordered separately). Current rating: 8.5 amps maximum. Contact material: phosphor bronze per QQ-B-750, Composition A. Contact plating: 10-20 microinches gold plate over 30-150 microinches nickel plate. Cover material and finish: Steel with black wrinkle finish. Clamp material and finish: Zinc (fixed clamp) or steel (movable clamp) with black wrinkle finish. To Order, complete the 15-digit assembly as shown at right.

ORDERING CODE

Complete a 13-digit assembly number for each mating part, plug and receptacle:

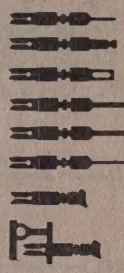
8017 — XXX — XXX — XXX

NUMBER OF CONTACTS
75 (075), 100 (100), 130 (130)

CONTACT CODE

For factory-installed contacts, use 3-digit code no. For loose contacts, use code no. 000 and order contacts separately by part no. (crimp contacts can only be ordered separately)

504—60 8017 06 63—Solderless PC Tail, .024" x .026" x .170"
216—60 8017 04 13—.078" taper tab
217—60 8017 05 13—Solder/.098" wire hole
218—60 8017 06 13—Solderless wrap, .024x.050x.567"
750—60 8017 06 23—Solderless wrap, .024x.050x.760"
296—60 8017 06 33—Solderless wrap, .024x.026x.580"
To be ordered separately:
000—60 8017 03 13—Crimp (loose)
000—60 8017 03 23—Crimp (1800 reel)



VARIATION CODE

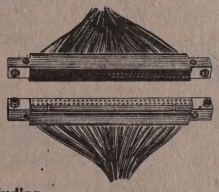
Description	Code	Cover and Cable Entry	Actuating Screw	Fixed Screw
PLUG	001	None	Yes	No
	002	None	No	Yes
	003	Top	Yes	No
	004	Side	Yes	No
	005	Top	No	Yes
	006	Side	No	Yes

Description	Code	Cover and Cable Entry	Actuating Nut	Fixed Nut
RECEPTACLE	007	None	Yes	No
	008	None	No	Yes
	009	Top	Yes	No
	010	Side	Yes	No
	011	Top	No	Yes
	012	Side	No	Yes

SERIES 8223 .100" VARICONtm PLUG/RECEPTACLES

FEATURES

- **Proven Varicon™ contact reliability**
- **Protected male; recessed female contacts**
- **Perpendicular or parallel connector mounting**
- **MIL-C-55302 QPL Approved**
- **Wide range of contact terminations including wire wrapping, p.c. solder tail, wire hole; wire crimp**
- **Polarity and keying are built into the connector body to prevent mismating**



SPECIFICATIONS

CURRENT RATING: 5 Amperes with 22 AWG wire.

CONTACT RESISTANCE: 6 Milliohms, maximum.

INSULATION RESISTANCE: 25000 Megohms, minimum.

INSULATION MATERIAL: Diallyl Phthalate, glass filled, flame resistant, per MIL-M-14F, Type SDGF.

WITHDRAWAL FORCE: 2 to 8 ounces per contact.

MILITARY SPECIFICATIONS: MIL-C-55302.

ORDERING CODE

(Complete a 13-digit number for each mating part)

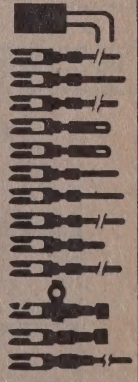
8223 024 000 001

No. of Contacts
024, 048, 072, 096

Contact Code

For factory-installed contacts, use 3-digit code no. For loose contacts, use code no. 000 and order contacts separately by part no. (crimp contacts can only be ordered separately)

CODE	DESCRIPTION	Part No.	Key No.
000	Coined Tail Formed 90° after Installing	60 8223 0223 60 8223 0213	1
473	PC Tail Coined	60 8223 0233	2
519	PC Tail Coined	60 8223 0213	2
520	PC Tail Coined	60 8223 0223	2
722	Wire Hole Tail	60 8200 1613	3
721	PC Tail .020 SQ.	60 8200 1623	4
736	PC Tail .020 SQ.	60 8200 1633	4
737	PC Tail .020 SQ.	60 8200 1643	4
753	PC Tail .020 SQ.	60 8200 1653	4
771	PC Tail .020 SQ.	60 8200 1663	4
000	Crimp Contact 22-30 AWG	60 8216 0323	5
000	Crimp Contact loose 22-30 AWG	60 8216 0313	5
491	Wrappable/Removable Contact .025 SQ.	60 8216 0413	6



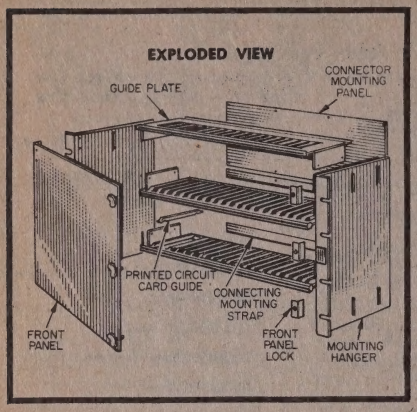
VARIATION CODE

INSULATOR TYPE	VARIATION	Use With Key No.	CONTACT STYLE
MALE (EXPOSED CONTACT)	001	1	Formed Contact Tail
	002	2	PC Coined Tail
		3	Wire Hole Tail
		4	PC Straight Tail
	003	5	Crimp Contact
		6	Wrappable/Removable
	004	1	Formed Contact Tail
	005		Formed Contact Tail

INSULATOR TYPE	VARIATION	Use With Key No.	CONTACT STYLE
FEMALE (RECESSED CONTACT)	901	1	Formed Contact Tail
	902	2	PC Coined Tail
		3	Wire Hole Tail
		4	PC Straight Tail
	903	5	Crimp Contact
		6	Wrappable/Removable
	904	1	Formed Contact Tail
	905		Formed Contact Tail

Varipak™ PC Card Enclosures & Access.

SERIES 9016 VARIPAK PC CARD ENCLOSURES



VARIPAK II is an enclosure for printed circuit cards and connectors. Mounted on back panel, connectors are easily accessible for cross wiring and check-out. Can be used in large logic storage cabinets, pull-out drawers, and as framework for small inst. panels. Made of Aluminum it consists of mounting hangers, Guide Plates: will support up to—

82 card guides—19" Single Varipak
164 card guides—19" Double Varipak
107 card guides—24" Single Varipak
214 card guides—24" Double Varipak

Printed circuit card guides, Connector mounting straps, Connector mounting panels, Front panels, and Identification marker strips. 64 standard models in 19" and 24" width units. *Vertical distance between mounting holes.

ORDERING CODE

03—9016—XX—XX—XX

ASSEMBLY NUMBER

Assembly Code Number Single Unit		Nom. P.C. Card Width	Dimension "A" Single Unit	Dimension "A" Double Unit	Dimension "B" Single Unit	Dimension "B" Double Unit	"C"	"D"	"*" For Double Unit	"*" For Double Unit
19.00	24.00									
02	52	4.500	5.218	10.468	2.250	2.250	4.000	5.500	7.500	3.000
06	56	4.500	5.218	10.468	2.250	2.250	5.500	8.500	7.500	3.000
10	60	4.500	5.218	10.468	2.250	2.250	7.000	8.500	7.500	3.000
14	64	4.500	5.218	10.468	2.250	2.250	8.000	11.00	7.500	3.000

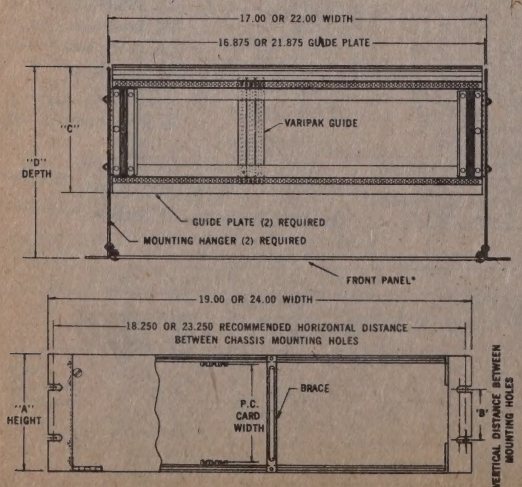
CONNECTOR MOUNTING

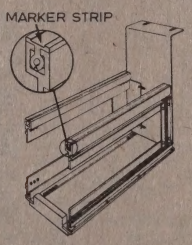
00—No Connector mounting parts
01—Blank Connector Panel
02—Blank Connector mounting straps
03—Connector mounting straps with 82 or 107 (.128" dia.) holes on .200" centers
04—Blank panel and blank connector mounting straps (for double tier models only).
05—Blank panel and connector mounting straps with 82 or 107 holes on .200" centers (for double tier models only)

ACCESSORIES

00—None
01—Marker strip
02—Front door panel
03—Marker strip and front door panel
04—Reinforcement bar
05—Reinforcement bar and front door panel

OVERALL DIMENSIONS

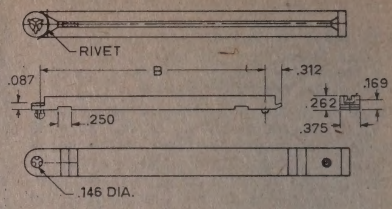




I.D. MARKER STRIP —63 9016 24 02. White matte surface to print PC rack positions. Made of extruded flexible polyvinyl. 16¾" long.

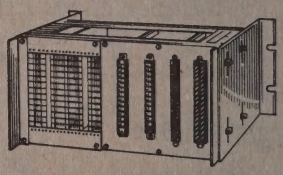
REINFORCEMENT BAR—63 9016 75 04. Provides additional support for heavy PC cards. Extruded aluminum, 16⅝" long. Clear chromate finish; other finishes available. Slides into leading edge (front) of guide plate. Provision for ID labels.

P.C. CARD GUIDES



For use with Varipak enclosures. Aligns card with connector; holds card in place. Rugged polycarbonate rated 280-300° F. Wide beveled lead-in edge for easy card alignment. Guides are easily assembled and removed, without damaging either the guide or the enclosure. Guide float allows for tolerance accumulation between guide and connector.

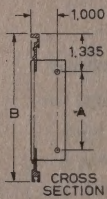
Part Number	Nom. Card Thick.	For Assembly No.	B
33 9016 12 01 01	1/16	02	2.651
33 9016 12 01 02	3/32	52	
33 9016 12 01 04	1/16	06	4.151
33 9016 12 01 05	3/32	56	
33 9016 12 01 07	1/16	10	5.651
33 9016 12 01 08	3/32	60	
33 9016 12 01 10	1/16	14	6.651
33 9016 12 01 11	3/32	64	



MOUNTING PANELS

For mounting PC connectors of various sizes in one unit. Made of 6061-T4 aluminum with clear chromate finish. Panel is shipped blank.

Part Number	Will Fit Assemblies
63 9016 11 01 02	02, 06, 10, 14
63 9016 11 01 06	52, 56, 60, 64



END GUIDE PLATES

Supports card guides, connector mounting straps or panels. Extruded 6023-T6 aluminum; clear chromate finish. 82 card guide mounting holes on .200" centers. Complete unit requires two end guide plates (double-tier unit also needs center guide plate).

Part Number	For Assembly No.	A	B	Model
33 9016 13 01 01	02	1.5	4.0	19.00
33 9016 13 01 02	06	3.0	5.5	
33 9016 13 01 03	10	4.5	7.0	
33 9016 13 01 04	14	5.5	8.0	
33 9016 13 01 11	52	1.5	4.0	24.00
33 9016 13 01 12	56	3.0	5.5	
33 9016 13 01 13	60	4.5	7.0	
33 9016 13 01 14	64	5.5	8.0	

All dimensions are in inches.

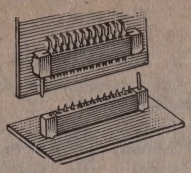
MOUNTING STRAPS

63 9016 23 01 01—End strap without connector mounting holes; available in six sizes
63 9016 50 01—End strap with 82 mounting holes

Connectors and Sockets

GW Elco Corporation
a Gulf + Western manufacturing company

SERIES 8129 .100" CONNECTORS



For parallel or perpendicular PC card mounting. Guide pins facilitate mating. Current rating: 5 amps. Contact and insulator material: Phosphor bronze per QQ-B-750, composition A. 10 microinches gold plating over 30 microinches nickel plating. Insulator material: glass-filled diallyl phthalate, flame resistance per MIL-M-14F, type SDGF.

NUMBER OF CONTACTS

6 (006), 9 (009), 12(012) or 15 (015).

CONTACT CODE

Use with Variant 001 or 005
610—contact type 60 8106 02 43

Use with Variant 002 or 006
603—contact type 60 8101 02 23

Use with Variant 003 or 007
603—contact type 60 8101 02 23
605—contact type 60 8101 04 13
610—contact type 60 8106 02 43

Use with Variant 004 or 008
605—contact type 60 8101 04 13
610—contact type 60 8106 02 43

VARIATION CODE

WITHOUT KEYING

001—with side mounting brackets for recessed or flush mounting to edge of PC card (contact tails are formed)
002—with upright mounting brackets
003—without mounting brackets
004—with side mounting brackets for recessed or flush mounting to edge of PC card (contact tails not formed)

HOW TO ORDER

8XXX — XXX — XXX — XXX

Series — No. of Contacts — Contact Code — Variation Code

TRANSISTOR SOCKETS (3 AND 4-PIN)

3301/3303/3304 3305 3307/3308 0799 Mtg. Ring

Stock No.	Type No.	Pins	Insulator	Contacts	Mounting Type	1-99	100-249
99F5000	05 3301	4	MICA	BCSPGF	Flat Saddle	.83	.74
99F5001	05 3303	4	MICA	BCSPGF	PC Solder	.57	.52
99F5002	05 3304	4	MICA	BCSPGF	Mtg. Ring†	.57	.52
99F5003	05 3305	4	MICA	BCSPGF	PC Solder	.42	.38
99F5004	05 3307	4	MICA	BCSPGF	Mtg. Ring†	.57	.52
99F5005	05 3308	4	DPA	BCSPGF	PC Solder	.57	.52
99F5006	05 0799	3*	MICA	BCSPGFTD	Retainer†	.83	.74
99F5007	65 0004 7105 Retainer for 05 0799, 05 0803					.06	.05
99F5008	65 0004 7202 Mounting Ring (BRCP)					.09	.08

*In-line sockets. †Order mtg. ring or retainer separately.

TERMINOLOGY

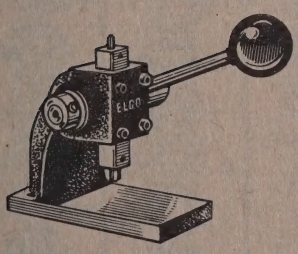
To simplify the tables, the following symbols are used to describe part materials and platings:

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
BC	Beryllium Copper	MICA	Mica Filled Phenolic
BR	Brass	PH	Phosphor Bronze
CP	Cadmium Plating	SP	Silver Plating
DAP	Diallyl Phthalate	TLP	Tin-Lead Plating
GP	Gold Flash		

Example: PHSPTD—Phosphor bronze, silver plated, tin dipped

Connector Installation Tools

HAND STAKER



- **¼" Ton Capacity**
- **Stakes most currently available contacts.**

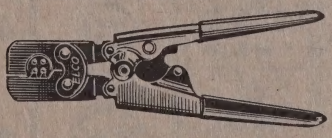
MODEL NO. 06 1856 01. Designed for use as a multi-purpose laboratory tool. Will stake most contacts presently available. ¼" ton capacity, working surface: 2" x 2⅛", Ram dimensions: ½" x ½" x 2½". **99F5009. NET** **91.57**

CONTACT EXTRACTION TOOLS

Designed to extract contacts from their insulator quickly and easily, without damage to either contacts or insulator.

Stock No.	Type	For	1-up
99F5010	06 1877 04	Varilok Con.	11.00
99F5011	06 7699 01	Mini-Varilok Con. (8026)	12.50
99F5012	06 7770 01	Mini-Varilok Con. (8221, 8223, 8229)	12.50

CONTACT CRIMPING PLIERS



Designed for hand crimping of contacts; well suited for maintenance, model shop and small scale production purposes. Independently adjustable for conductor and insulator.

Stock No.	Type	Contact Capability	1-up
99F5014	06 7515 01	#60 8017 03 13	61.00
99F5015	06 7852 01	#60 8017 03 13	49.95
99F5016	06 7700 11	#60 8216 03 13	160.00

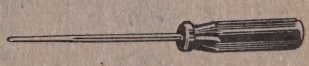
INSTALLATION EQUIPMENT

1989 02

1773 03

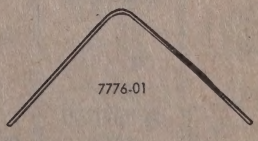
Stock No.	Description	
99F5019	06 1989 02—for series 8016 and 8026	17.00
99F5020	06 1773 03—for series 8017 and 8018	20.91

CONTACT INSERTION TOOLS



7638-01

1742-04



7776-01

Solder and wire wrap insertion tools, except VARILOK & MINI-VARILOK, insert contacts directly into insulator.

Stock No.	Model	Contacts	1-up
99F5013	06-7638-01	8026, 8221 8223, 8229	23.50
99F5018	06-7776-01	8026, 8221 8223, 8229	3.44
99F5017	06-1742-04	Varilok	4.25
99F5021	06-7698-01	Mini-Varilok	9.50

11

BUNKER RAMO

AMPHENOL NORTH AMERICA
Bunker Ramo Corporation

AMPHENOL® CONNECTORS

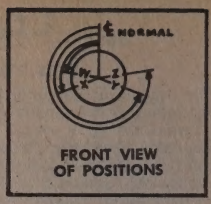
Exclusive non-rotating contact design simplifies soldering and lowers termination cost. Blue diallyl phthalate inserts provide high insulating resistance and dimensional stability in the presence of both high humidity and high temperature. Only Amphenol MS "A" and "B" inserts feature molded barriers between each contact.

CURRENT RATING:

Contact Size	20	16	12	8	4	0
Amperes	10	22	41	73	135	245

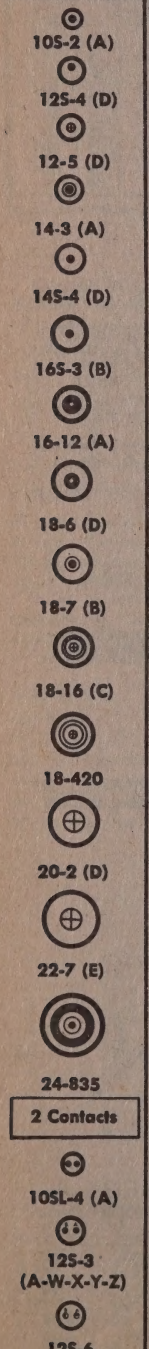
POLARIZATION

Alternate Insert Positions Are Listed Under Each Insert



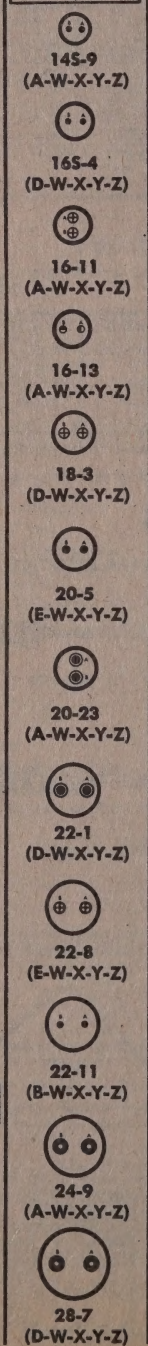
FRONT VIEW OF POSITIONS

1 Contact

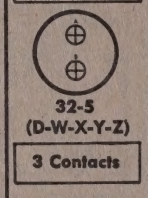


2 Contacts

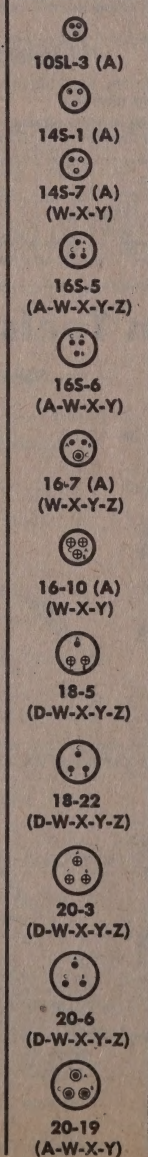
2 Contacts



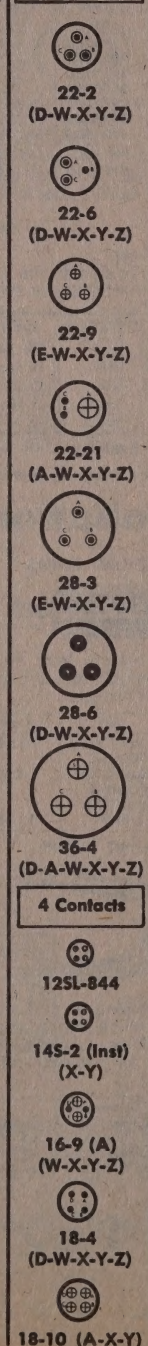
2 Contacts



3 Contacts

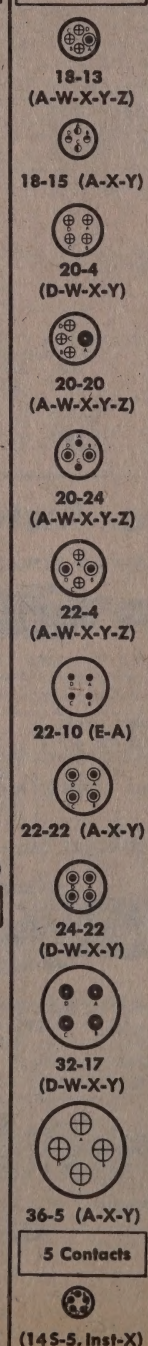


3 Contacts (Con't)



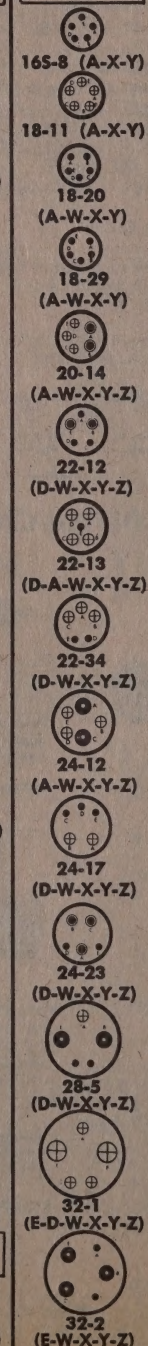
4 Contacts

4 Contacts (Con't)

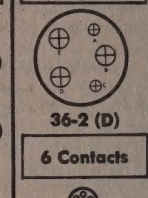


5 Contacts

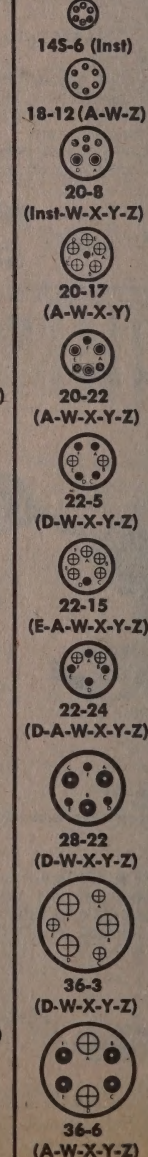
5 Contacts (Con't)



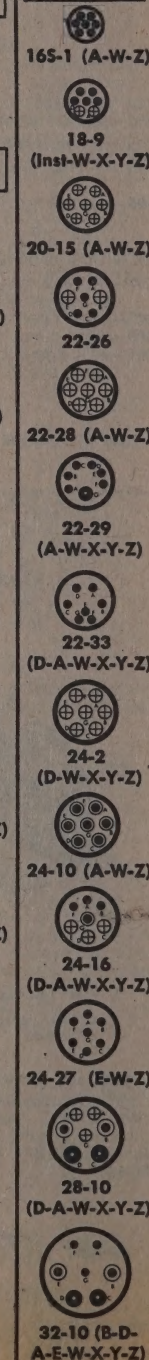
5 Contacts (Con't)



6 Contacts



7 Contacts



11

AMPHENOL® CONNECTORS

AMPHENOL NORTH AMERICA
Bunker Ramo Corporation
BUNKER RAMO

97 3101 A 28-21 S Y 639

Series Number
Like MS but Amphenol exclusive design for A & B construction.

Shell Type
3100 Wall Receptacle
3101 Cable Receptacle
3102 Box Receptacle
3106 Straight Plug
3108 Angle Plug

Shell Construction
A-Solid B-Split

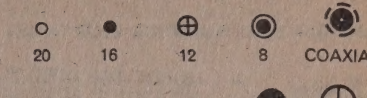
Shell Finish
Omit for standard finish
639-Clear cadmium plate

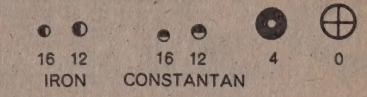
Alternate Insert Position
Omit for standard position W, X, Y, or Z for alternate positions, depending on insert.

Contact
P-Pin S-Socket

Insert Number Consist Of
Shell Size: 10SL, 12S, 12, 14S 14, 16S, 16, 18, 20 22, 24, 28, 32, 36
Configuration: Code numbers are listed under each insert below.

CODE OF WIRE SIZES

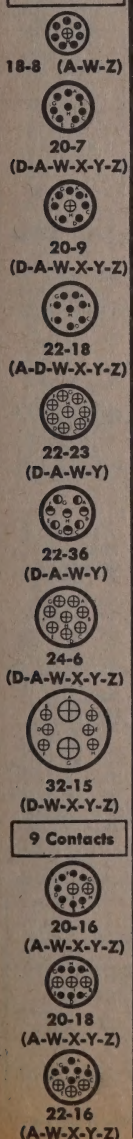




Service*	Inst	A	D	E	B	C
DC**	250	700	1250	1750	2450	4200
AC (rms) **	200	500	900	1250	1750	3000

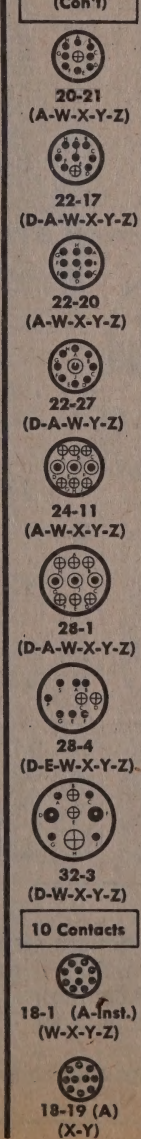
(*) codes are listed under each insert configuration below. Inst. service normally for low voltages and currents.
(**) limiting oper. volts at sea level.

8 Contacts



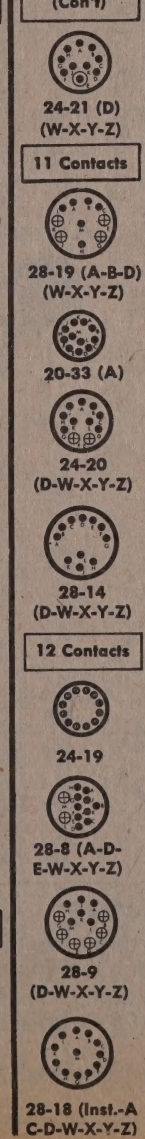
9 Contacts

9 Contacts (Con't)



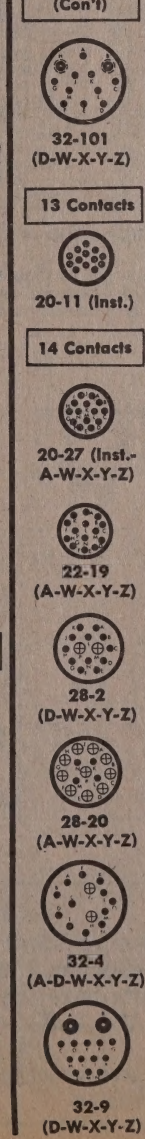
10 Contacts

10 Contacts (Con't)



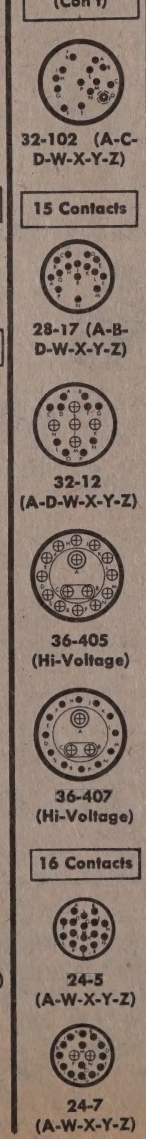
11 Contacts
12 Contacts

12 Contacts (Con't)



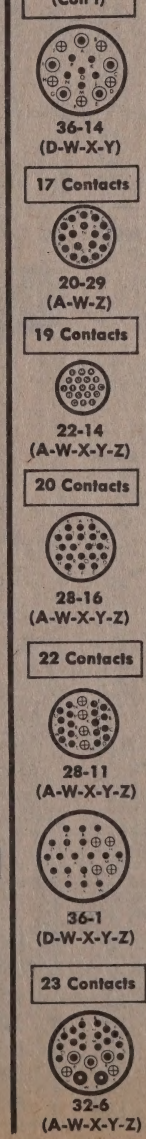
13 Contacts
14 Contacts

14 Contacts (Con't)



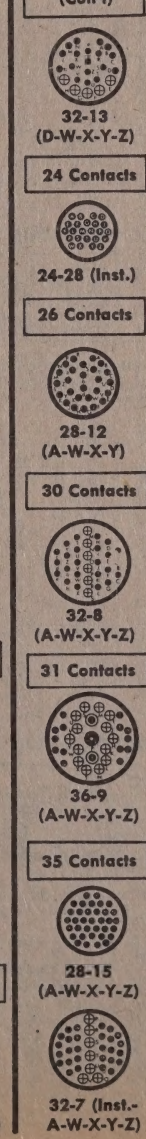
15 Contacts
16 Contacts

16 Contacts (Con't)



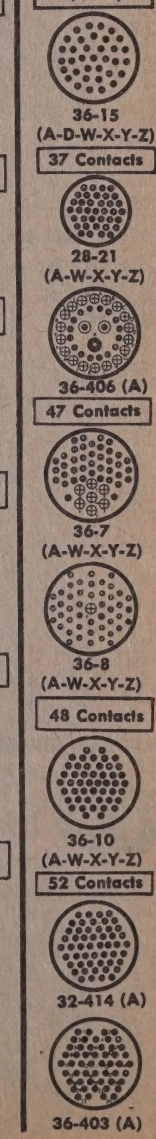
17 Contacts
19 Contacts
20 Contacts
22 Contacts
23 Contacts

23 Contacts (Con't)



24 Contacts
26 Contacts
30 Contacts
31 Contacts
35 Contacts

35 Contacts (Con't)



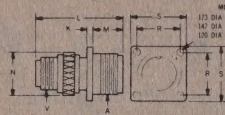
37 Contacts
47 Contacts
48 Contacts
52 Contacts

11

AMPHENOL® CONNECTORS

DIMENSIONAL INFORMATION (INCHES)
PIN & SOCKET INSERTS ARE INTERCHANGEABLE WITHIN PLUG & RECEPTACLE SHELLS EXCEPT FOR (SL)) SHELL SIZES

MS 3100A WALL MOUNTING RECEPTACLES



Solid shell construction. Integral polarizing key.

MS 3101A CABLE RECEPTACLES

Solid shell construction. Integral polarizing key. MS/AN fittings.

MS 3102A BOX MOUNTING RECEPTACLES

One piece aluminum die cast shell. Internal polarizing key. Solid shell.

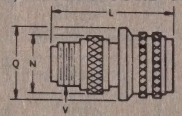
MS3100A & MS3101A

Connector Size	A Coupling Threads	K	L	M	N	O	R	S	V Fitting Threads
10S	5/8—24	5/64	1 5/16	9/16	5/8	.688	2 3/32	1	1/2—28
10SL	5/8—24	5/64	1 3/32	9/16	5/8	.812	2 3/32	1	5/8—24
12S	3/4—20	5/64	1 15/32	9/16	2 5/32	.812	1 3/16	1 3/32	5/8—24
12	3/4—20	5/64	1 27/32	3/4	2 5/32	.812	1 3/32	1 3/32	5/8—24
14S	7/8—20	5/64	1 7/16	9/16	7/8	.938	2 3/32	1 3/16	3/4—20
14	7/8—20	5/64	1 27/32	3/4	7/8	.938	2 3/32	1 3/16	3/4—20
16S	1 —20	5/64	1 31/64	9/16	1	1.062	3 1/32	1 9/32	7/8—20
16	1 —20	1/8	1 57/64	3/4	1	1.062	3 1/32	1 9/32	7/8—20
18	1 1/8—18	1/8	2	3/4	1 1/8	1.188	1 1/16	1 3/8	1 —20
20	1 1/4—18	1/8	2 1/8	3/4	1 1/4	1.312	1 5/32	1 1/2	1 3/16—18
22	1 3/8—18	1/8	2 1/8	3/4	1 3/8	1.438	1 1/4	1 5/8	1 3/16—18
24	1 1/2—18	1/8	2 1/4	1 3/16	1 1/2	1.562	1 3/8	1 3/4	1 7/16—18
28	1 3/4—18	1/8	2 1/4	1 3/16	1 3/4	1.812	1 9/16	2	1 7/16—18
32	2 —18	1/8	2 3/8	7/8	2 1/32	2.062	1 3/4	2 1/4	1 3/4—18
36	2 1/4—16	1/8	2 3/8	7/8	2 1/4	2.312	1 15/16	2 1/2	2 —18

MS3102A

Connector Size	A Coupling Threads	K	L	M	N	O	R	S
10S	5/8—24	5/64	2 7/32	9/16	1/2	.688	2 3/32	1
10SL	5/8—24	5/64	2 7/32	3 5/64	5/8	.812	2 3/32	1
12S	3/4—20	5/64	6 1/64	9/16	1 1/16	.812	1 3/16	1 3/32
12	3/4—20	5/64	1 5/16	3/4	1 1/16	.812	1 3/16	1 3/32
12SL	3/4—20	5/64	2 7/32	3 5/64	1 1/16	.938	1 3/16	1 3/32
14S	7/8—20	5/64	1 5/16	9/16	3/4	.938	2 3/32	1 3/16
14	7/8—20	5/64	1 5/16	3/4	3/4	.938	2 3/32	1 3/16
16S	1 —20	5/64	1 5/16	9/16	7/8	1.062	3 1/32	1 9/32
16	1 —20	1/8	1 11/16	3/4	7/8	1.062	3 1/32	1 9/32
18	1 1/8—18	1/8	1 11/32	3/4	1	1.188	1 1/16	1 3/8
20	1 1/4—18	1/8	1 11/32	3/4	1 1/8	1.312	1 3/32	1 1/2
22	1 3/8—18	1/8	1 11/32	3/4	1 1/4	1.438	1 1/4	1 5/8
24	1 1/2—18	1/8	1 11/32	1 3/16	1 3/8	1.562	1 3/8	1 3/4
28	1 3/4—18	1/8	1 11/32	1 3/16	1 5/8	1.812	1 9/16	2
32	2 —18	1/8	1 7/16	7/8	1 29/32	2.062	1 3/4	2 1/4
36	2 1/4—16	1/8	1 7/16	7/8	2 1/8	2.312	1 15/16	2 1/2

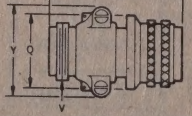
MS3106A–STRAIGHT PLUG–SOLID SHELL



Extremely high tensile strength coupling ring. Polarizing keyway. Mates with all types of MS receptacles. Standard fittings may be used on back shell.

Connector Size	L	N	Q	V Fitting Threads
10S	1 5/16	5/8	7/8	1/2—28
10SL	1 3/8	3/4	7/8	5/8—24
12S	1 7/16	2 5/32	1	5/8—24
12	1 7/8	2 5/32	1	5/8—24
12SL	1 31/64	7/8	1	3/4—20
14S	1 7/16	7/8	1 1/8	3/4—20
14	1 7/8	7/8	1 1/8	3/4—20
16S	1 29/64	1	1 1/4	7/8—20
16	1 57/64	1	1 1/4	7/8—20
18	2	1 1/8	1 11/32	1 —20
20	2 1/8	1 1/4	1 13/32	1 3/16—18
22	2 1/8	1 3/8	1 13/32	1 3/16—18
24	2 1/4	1 1/2	1 23/32	1 7/16—18
28	2 1/4	1 3/4	1 31/32	1 7/16—18
32	2 3/8	2 1/32	2 7/32	1 3/4—18
36	2 3/8	2 1/4	2 15/32	2 —18

MS3106B—STRAIGHT PLUG—SPLIT SHELL

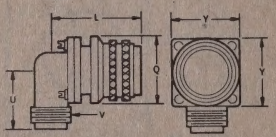


Back shell threaded for all standard fittings. One or both halves of the back shell may be removed.

Connector Size	L	Q	V Fitting Threads	Y
14S	1 11/16	1 1/8	3/4—20	1 5/32
16S	1 11/16	1 1/4	7/8—20	1 1/4
18	2 1/16	1 11/32	1 —20	1 41/64
20	2 1/8	1 13/32	1 3/16—18	1 13/16
22	2 1/8	1 13/32	1 3/16—18	1 15/16
24	2 5/32	1 23/32	1 7/16—18	2 1/16
28	2 5/32	1 31/32	1 7/16—18	2 5/16
32	2 5/16	2 7/32	1 3/4—18	2 1 9/32
36	2 1/32	2 1/32	2 —18	2 27/32

MS 3108A—ANGLE PLUG—SOLID SHELL

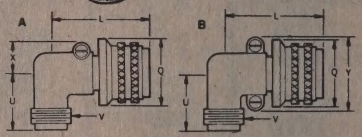
Right-angle configuration. Use where space in front is at a premium.



Connector Size	L	Q	U	V Fitting Threads	Y
10S	1 1/4	7/8	7/8	1/2—28	2 3/32
10SL	1 5/16	7/8	1	5/8—24	1 1/16
12S	1 3/8	1	1	5/8—24	1 1/16
12SL	1 3/8	1	1	3/4—20	1 1/16
12	1 13/64	1	1	5/8—24	1 1/16
14S	1 3/8	1 1/8	1	3/4—20	1 1/16
14	1 13/16	1 1/8	1	3/4—20	1 1/16
16S	1 1/2	1 1/4	1 1/8	7/8—20	1 5/16
16	1 15/16	1 1/4	1 1/8	7/8—20	1 5/16
18	1 15/16	1 11/32	1 1/8	1 —20	1 5/16
20	2 1/16	1 13/32	1 5/16	1 3/16—18	1 7/8
22	2 1/16	1 13/32	1 5/16	1 3/16—18	1 5/8
24	2 1 5/32	1 23/32	1 1/2	1 7/16—18	2
28	2 1 5/16	1 31/32	1 1/2	1 7/16—18	2
32	2 1 1/16	2 7/32	1 2 5/32	1 3/4—18	2 1/2
36	2 1 1/16	2 1 5/32	1 2 5/32	2 —18	2 1/2

MS 3108B—ANGLE PLUG—SPLIT SHELL

Longitudinally split 90° back shell. One or both halves removable for soldering.



A Connector Size	L	Q	U	V Fitting Threads	X
10S	1 3/16	7/8	7/8	1/2—28	
10SL	1 1/2	7/8	1	5/8—24	
12S	1 5/16	1	1	5/8—24	1/2
12	1 7/8	1	1	5/8—24	1/2
14S	1 23/32	1 1/8	1 1/16	3/4—20	2 1/32
14	1 15/16	1 1/8	1 1/16	3/4—20	2 1/32

B Connector Size	L	Q	U	V Fitting Threads	Y
16S	1 3/4	1 1/4	1 1/8	7/8—20	1 1/2
16	2 1/8	1 1/4	1 1/8	7/8—20	1 1/2
18	2 5/32	1 11/32	1 3/16	1 —20	1 41/64
20	2 3/8	1 13/32	1 5/16	1 3/16—18	1 13/16
22	2 13/16	1 13/32	1 5/16	1 3/16—18	1 15/16
24	2 5/8	1 23/32	1 7/16	1 7/16—18	2 1/16
28	2 5/8	1 31/32	1 7/16	1 7/16—18	2 5/16
32	2 13/16	2 7/32	1 3/4	1 3/4—18	2 1 9/32
36	2 27/32	2 1 5/32	1 1 5/16	2 —18	2 27/32

NOTE

If you prefer the standard dull-olive cadmium plate finish, which is non-reflective, then no suffix number is needed. If you would rather have the shiny, clear cadmium plate finish, just add the suffix (639) at the end of your part number.

Both finishes give you the same high conductivity and resistance to corrosion.

Meet current MIL-C-5015 specifications; interchangeable with units made to meet previous specs. Finish: Cadmium-plated aluminum with olive drab chromate conversion coating; non-reflective, corrosion-resistant. Inserts: Molded diallyl phthalate; offers dimensional stability, high insulation resistance, high arc resistance. Contacts: Non-rotating, silver-plated; pre-tinned solder pockets. Coupling Rings: Made from solid aluminum bar stock.

RECEPTACLES

MATING PLUGS

Shell Style Insert	3100A- EACH 1-9	3100A- EACH 10-49	3101A- EACH 1-9	3101A- EACH 10-49	3102A- EACH 1-9	3102A- EACH 10-49	Total Contacts	Shell Style Insert	3106A- EACH 1-9	3106A- EACH 10-49	3106B- EACH 1-9	3106B- EACH 10-49	3108A- EACH 1-9	3108A- EACH 10-49	3108B- EACH 1-9	3108B- EACH 10-49
10S-02P	4.61	3.52	3.76	2.87	1.73	1.32	1	10S-02S	4.04	3.10						
10S-02S	4.69	3.57	3.83	2.92	1.82	1.38	1	10S-02P	4.03	3.07						
10SL-03P	2.88	2.20	4.34	3.31	2.25	1.71	3	10SL-03S	3.52	2.69			6.22	4.74	3.22	2.45
10SL-04P	2.86	2.18	4.06	3.11	2.25	1.71	2	10SL-04S	3.44	2.61			6.19	4.72	3.17	2.43
12S-03P	2.81	2.15	3.29	2.52	1.50	1.15	2	12S-03S	2.74	2.10			6.33	4.84	3.46	2.64
12S-03S	2.86	2.18	3.35	2.56	1.62	1.23	2	12S-03P	2.57	1.97			6.29	4.81	3.42	2.61
12S-04P	3.22	2.45	3.83	2.92	1.84	1.40	1	12S-04S	3.10	2.36			7.15	5.45	4.00	3.06
12S-04S	3.22	2.45	3.83	2.92	1.84	1.40	1	12S-04P	3.10	2.36			7.15	5.45	4.00	3.06
12S-06P	10.04	7.67	10.62	8.11	8.61	6.57	2	12S-06S	10.50	8.02			14.57	11.12	11.34	8.64
12S-06S	10.68	8.15	11.16	8.53	9.16	6.99	2	12S-06P	9.85	7.51			13.91	10.61	10.70	8.17
12SL-844P					4.04	3.10	4	12SL-844S	7.53	5.75			11.34	8.64		
12-05P	3.83	2.92	4.28	3.26	2.36	1.82	1	12-05S	4.15	3.17			7.29	5.57	4.41	3.35
12-05S	4.06	3.11	4.58	3.50	2.71	2.06	1	12-05P	3.85	2.93			6.97	5.33	4.06	3.11
14S-01P	2.96	2.26	3.63	2.77	1.99	1.52	3	14S-01S	3.07	2.34	3.63	2.77	6.22	4.75	3.42	2.61
14S-01S	3.07	2.34	3.70	2.83	2.01	1.53	3	14S-01P	2.96	2.26	3.61	2.76	6.21	4.73	3.35	2.56
14S-02P	3.30	2.53	3.61	2.76	1.97	1.50	4	14S-02S	3.17	2.43	3.82	2.91	6.33	4.84	3.58	2.73
14S-02S	3.56	2.72	3.83	2.92	2.11	1.62	4	14S-02P	2.95	2.25	3.60	2.74	6.18	4.72	3.31	2.53
14S-04P	3.17	2.43	3.87	2.97	1.98	1.50	1	14S-04S	3.22	2.45	4.00	3.06	6.90	5.26	3.68	2.81
14S-04S	3.22	2.45	4.03	3.07	2.12	1.62	1	14S-04P	3.17	2.43	3.85	2.93	6.77	5.17	3.56	2.72
14S-05P	3.29	2.52	3.95	3.00	2.23	1.70	5	14S-05S	3.42	2.61	4.06	3.11	6.64	5.06	3.72	2.84
14S-05S	3.42	2.61	4.10	3.13	2.40	1.84	5	14S-05P	3.29	2.52	3.87	2.96	6.46	4.93	3.61	2.76
14S-06P	3.42	2.61	4.10	3.13	2.40	1.84	6	14S-06S	3.46	2.64	4.12	3.14	6.68	5.10	3.83	2.92
14S-06S	3.46	2.64	4.18	3.18	2.44	1.86	6	14S-06P	3.42	2.61	4.06	3.11	6.64	5.06	3.72	2.84
14S-07P	2.96	2.26	3.63	2.77	1.99	1.52	3	14S-07S	3.07	2.34	3.63	2.77	6.22	4.75	3.42	2.61
14S-07S	3.07	2.34	3.70	2.83	2.01	1.53	3	14S-07P	2.96	2.26	3.61	2.76	6.21	4.73	3.35	2.56
14S-09P	2.83	2.17	3.46	2.64	1.76	1.34	2	14S-09S	2.86	2.18	3.46	2.64	6.07	4.64	3.27	3.56
14S-09S	2.86	2.18	3.58	2.73	1.79	1.37	2	14S-09P	2.83	2.17	3.44	2.62	6.05	4.62	3.17	2.43
14S-10P	3.68	2.81	4.41	3.35	2.48	1.90		14S-10S	4.00	3.06	4.69	3.57	7.53	5.75	4.34	3.31
14S-10S	4.00	3.06	4.71	3.60	2.81	2.15		14S-10P	3.68	2.81	4.34	3.31	7.24	5.54	4.04	3.10
16S-01P	3.82	2.91	4.12	3.14	2.42	1.85	7	16S-01S	3.82	2.91	4.70	3.59	8.36	6.39	4.47	3.41
16S-01S	4.20	3.21	4.48	3.43	2.81	2.15	7	16S-01P	3.42	2.61	4.38	3.33	7.99	6.10	4.10	3.13
16S-04P	3.76	2.87	4.06	3.11	2.23	1.70	2	16S-04S	3.52	2.69	4.58	3.50	8.61	6.57	4.17	3.18
16S-04S	3.87	2.97	4.28	3.26	2.33	1.77	2	16S-04P	3.30	2.53	4.41	3.35	8.42	6.42	4.04	3.10
16S-05P	3.60	2.74	3.87	2.96	2.18	1.67	3	16S-05S	3.29	2.52	4.23	3.22	7.82	5.97	3.95	3.00
16S-05S	3.63	2.77	3.99	3.04	2.30	1.76	3	16S-05P	3.17	2.43	4.18	3.18	7.74	5.91	3.83	2.92
16S-08P	3.70	2.83	4.06	3.11	2.38	1.82	5	16S-08S	3.44	2.62	4.42	3.37	8.10	6.12	4.12	3.14
16S-08S	3.83	2.92	4.18	3.18	2.44	1.86	5	16S-08P	3.31	2.53	4.25	3.25	7.84	5.98	3.99	3.04
16-09P	4.71	3.60	4.85	3.71	2.86	2.18	4	16-09S	5.02	3.84			9.16	6.99	6.12	4.68
16-09S	5.25	4.00	5.46	4.17	3.52	2.69	4	16-09P	4.47	3.41			8.65	6.61	5.56	4.26
16-10P	3.57	3.13	4.20	3.21	2.44	1.86	3	16-10S	4.33	3.31			8.03	6.13	5.29	4.03
16-10S	4.55	3.47	4.67	3.56	2.88	2.19	3	16-10P	3.83	2.92			7.57	5.78	4.84	3.69
16-11P	4.28	3.26	4.41	3.35	2.44	1.86	2	16-11S	4.58	3.50			8.73	6.65	5.60	4.29
16-11S	4.76	3.63	4.95	3.77	3.00	2.28	2	16-11P	4.03	3.07			8.17	6.24	5.10	3.88
16-13P	10.36	7.90	10.54	8.03	8.61	6.57	2	16-13S	11.73	8.94			15.89	12.12	12.84	9.80
16-13S	12.01	9.17	12.14	9.27	10.18	7.77	2	16-13P	10.14	7.73			14.30	10.91	11.16	8.53
18-01P	4.69	3.58	5.29	4.03	3.27	2.50	10	18-01S	4.93	3.77	5.77	4.40	9.53	7.28	5.99	4.57
18-01S	5.12	3.90	5.73	4.36	3.61	2.76	10	18-01P	4.48	3.43	5.38	4.11	9.12	6.97	5.56	4.24
18-03P	4.17	3.18	4.85	3.71	2.58	1.98	2	18-03S	4.96	3.77	5.92	4.52	10.14	7.73	6.14	4.69
18-03S	5.20	3.97	5.86	4.47	3.54	2.70	2	18-03P	4.00	3.06	4.96	3.77	9.12	6.96	5.20	3.97
18-04P	3.82	2.91	4.38	3.33	2.33	1.82	4	18-04S	3.87	2.96	4.70	3.59	8.56	6.53	4.99	3.81
18-04S	4.12	3.14	4.67	3.56	2.57	1.97	4	18-04P	3.60	2.74	4.47	3.41	8.18	6.25	4.67	3.56
18-05P	4.04	3.10	4.71	3.60	2.36	1.82	3	18-05S	4.34	3.31	5.26	4.02	9.59	7.31	5.58	4.27
18-05S	4.60	3.52	5.22	3.98	2.88	2.20	3	18-05P	3.83	2.92	4.76	3.63	8.99	6.86	5.02	3.84
18-08P	4.69	3.58	5.29	4.03	3.27	2.50	8	18-08S	4.84	3.69	5.73	4.36	9.48	7.24	5.90	4.50
18-08S	5.01	3.83	5.56	4.24	3.58	2.73	8	18-08P	4.48	3.43	5.38	4.11	9.12	6.97	5.56	4.24
18-09P	5.01	3.82	5.60	4.29	3.30	2.53	7	18-09S	5.12	3.92	6.12	4.68	10.34	7.89	6.42	4.89
18-09S	5.42	4.14	6.01	4.59	3.71	2.82	7	18-09P	4.73	3.61	5.74	4.38	9.92	7.57	5.98	4.56
18-10P	4.55	3.47	5.12	3.90	3.07	2.34	4	18-10S	4.84	3.69	5.73	4.36	9.48	7.24	5.90	4.50
18-10S	5.01	3.83	5.56	4.24	3.58	2.73	4	18-10P	4.33	3.31	5.22	3.99	8.97	6.84	5.40	4.13
18-11P	4.55	3.47	5.12	3.90	3.07	2.34	5	18-11S	4.48	3.43	5.38	4.11	9.12	6.97	5.56	4.24
18-11S	4.69	4.00	5.29	4.03	3.27	2.50	5	18-11P	4.33	3.31	5.22	3.99	8.97	6.84	5.40	4.13
18-12P	4.23	3.22	4.84	3.69	2.76	2.11	6	18-12S	4.33	3.31	5.22	3.99	8.97	6.84	5.40	4.13
18-12S	4.55	3.47	5.12	3.90	3.07	2.34	6	18-12P	4.06	3.11	4.93	3.77	8.63	6.60	5.12	3.91
18-13P	5.12	3.92	5.77	4.41	3.52	2.69	4	18-13S	5.56	4.26	6.56	5.01	10.70	8.17	6.77	5.17
18-16P	4.60	3.52	5.22	3.98	2.88	2.20	1	18-16S	5.12	3.92	6.12	4.68	10.34	7.89	6.42	4.89
18-16S	5.42	4.14	6.01	4.59	3.71	2.82	1	18-16P	4.34	3.31	5.26	4.02	9.59	7.31	5.58	4.27
18-19P	6.33	4.84	6.97	5.31	4.93	3.77	10	18-19S	4.99	3.81	5.88	4.49	9.62	7.34	6.07	4.64
18-19S	5.22	3.99	5.77	4.40	3.70	2.83	10	18-19P	6.18	4.72	7.03	5.36	10.78	8.24	7.25	5.54
18-20P	4.58	3.50	5.20	3.97	2.86	2.18	5	18-20S	4.60	3.52	5.58	4.27	9.83	7.49	5.86	4.47
18-20S	4.85	3.71	5.54	4.21	3.17	2.43	5	18-20P	4.29	3.28	5.25	4.00	9.50	7.27	5.56	4.26
18-22P	4.17	3.18	4.85	3.71	2.58	1.98	3	18-22S	4.29	3.28	5.25	4.00	9.50	7.27	5.56	4.26
18-22S	4.58	3.50	5.20	3.97	2.86	2.18	3	18-22P	4.00	3.06	4.96	3.77	9.12	6.96	5.20	3.97
18-29P	4.60	3.52	5.22	3.98	2.88	2.20	5	18-29S	4.34	3.31	5.26	4.02	9.59	7.31	5.58	4.27
18-29S	4.60	3.52	5.22	3.98	2.88	2.20	5	18-29P	4.34	3.31	5.26	4.02	9.59	7.31	5.58	4.27
20-03P	5.02	3.84	5.42	4.14	3.10	2.36	3	20-03S	7.10	5.42	7.88	6.00	12.50	9.54	8.21	6.28
20-03S	6.61	5.04	6.96	5.30	4.69	3.57	3	20-03P	5.58	4.27	6.29	4.81	10.87	8.30	6.63	5.05
20-04P	4.70	3.59	5.07	3.87	2.96	2.26	4	20-04S	5.90	4.50	6.60	5.03	10.66	8.15	6.92	5.28
20-04S	5.40	4.13	5.75	4.39	3.63	2.77	4	20-04P	5.25	4.00	5.90	4.50	9.97	7.61	6.21	4.73
20-05P	5.22	3.98	5.58	4.27	3.22	2.45	2	20-05S	6.20	4.72	6.96	5.30	11.56	8.81	7.22	5.57
20-05S	5.69	4.34	6.01	4.59	3.71	2.82	2	20-05P	5.77	18.35	6.56	5.01	11.11	8.47	6.91	5.26

AMPHENOL® CONNECTORS

Shell Style Insert	RECEPTACLES 3100A- EACH 1-9	3100A- EACH 10-49	3101A- EACH 1-9	3101A- EACH 10-49	3102A- EACH 1-9	3102A- EACH 10-49	Total Contacts	Shell Style Insert	MATING PLUGS 3106A EACH 1-9	3106A EACH 10-49	3106B EACH 1-9	3106B EACH 10-49	3108A EACH 1-9	3108A EACH 10-49	3108B EACH 1-9	3108B EACH 10-49
20-06P	4.76	3.63	5.10	3.88	2.65	2.15	3	20-06S	5.42	4.13	6.12	4.67	10.70	8.16	6.45	4.92
20-06S	4.85	3.71	5.20	3.97	2.86	2.18	3	20-06P	5.25	4.00	6.01	4.59	10.64	8.13	6.41	4.89
20-07P	4.70	3.59	5.07	3.87	2.96	2.18	8	20-07S	5.61	4.28	6.29	4.81	10.41	7.93	6.64	5.06
20-07S	5.16	3.95	5.46	4.17	3.42	2.61	8	20-07P	5.25	4.00	5.90	4.49	9.96	7.60	6.20	4.73
20-08P	6.05	4.62	6.44	4.91	4.06	3.11	6	20-08S	7.56	5.77	8.33	6.36	12.89	9.84	8.67	6.61
20-08S	7.04	5.38	7.45	5.68	5.10	3.88	6	20-08P	6.60	5.04	7.39	5.63	11.60	9.12	7.74	5.90
20-09P	5.74	4.38	6.05	4.62	3.76	2.87	8	20-09S	6.41	4.89	7.06	5.41	11.69	8.93	7.45	5.69
20-09S	5.86	4.47	6.14	4.69	3.85	2.93	8	20-09P	6.21	4.74	6.96	5.32	11.62	8.87	7.39	5.63
20-11P	6.77	5.17	7.06	5.41	4.76	3.63	13	20-11S	10.85	8.27	11.62	8.87	16.22	12.39	11.94	9.12
20-11S	10.34	7.89	10.68	8.15	8.39	6.41	13	20-11P	7.28	5.57	7.97	6.07	12.61	9.63	8.38	6.40
20-14P	6.42	4.89	6.71	5.12	4.41	3.35	5	20-14S	8.75	6.69	9.50	7.26	14.06	10.73	9.85	7.51
20-14S	8.21	6.28	8.61	6.57	6.22	4.74	5	20-14P	6.92	5.28	7.60	5.79	12.20	9.31	7.93	6.06
20-15P	5.25	4.00	5.54	4.21	3.46	2.64	7	20-15S	7.59	5.79	8.27	6.31	12.37	9.45	8.58	6.54
20-15S	7.10	5.42	7.45	5.69	5.38	4.11	7	20-15P	5.75	4.39	6.33	4.83	10.46	7.98	6.68	5.10
20-16P	5.29	4.03	5.56	4.24	3.58	2.73	9	20-16S	6.16	4.70	6.74	5.15	10.85	8.29	7.05	5.39
20-16S	5.61	4.29	5.92	4.52	3.87	2.96	9	20-16P	5.77	4.40	6.38	4.87	10.54	8.04	6.72	5.13
20-17P	5.86	4.47	6.14	4.69	3.85	2.93	6	20-17S	7.60	5.79	8.39	6.40	13.00	9.91	8.72	6.65
20-17S	7.06	5.41	7.46	5.70	5.12	3.92	6	20-17P	6.41	4.89	7.06	5.41	11.69	8.93	7.45	5.69
20-18P	6.14	4.69	6.56	5.01	4.17	3.18	9	20-18S	7.39	5.62	8.10	6.17	12.68	9.67	8.33	6.36
20-18S	6.81	5.20	7.10	5.42	4.85	3.71	9	20-18P	6.71	5.12	7.45	5.69	12.04	9.18	7.79	5.96
20-19P	6.56	5.01	6.93	5.28	4.58	3.50	3	20-19S	8.50	6.49	9.26	7.06	13.87	10.58	9.61	7.32
20-19S	7.93	6.07	8.34	6.36	6.02	4.59	3	20-19P	7.04	5.37	7.79	5.96	12.42	9.49	8.12	6.19
20-21P	5.74	4.38	6.05	4.62	3.75	2.87	9	20-21S	6.58	5.02	7.28	5.57	11.88	9.07	7.60	5.79
20-21S	6.02	4.59	6.42	4.89	4.04	3.10	9	20-21P	6.21	4.38	6.96	5.32	11.62	8.87	7.39	5.63
20-22P	6.77	5.17	7.06	5.41	4.76	3.63	6	20-22S	8.50	6.49	9.26	7.06	13.86	10.59	9.60	7.32
20-22S	7.93	6.07	8.34	6.36	6.02	4.59	6	20-22P	7.24	5.69	7.97	6.08	12.61	9.62	8.38	6.40
20-23P	5.69	4.34	6.02	4.59	3.71	2.82	2	20-23S	6.76	5.16	7.47	5.70	12.07	9.21	7.82	5.97
20-23S	6.20	4.72	6.59	5.03	4.28	3.26	2	20-23P	6.19	4.72	6.95	5.30	11.56	8.81	7.28	5.57
20-24P	5.86	4.47	6.14	4.69	3.85	2.93	4	20-24S	7.79	5.96	8.50	6.49	13.05	9.96	8.79	6.71
20-24S	7.24	5.54	7.56	5.77	5.25	4.00	4	20-24P	6.41	4.89	7.06	5.41	11.69	8.93	7.45	5.69
20-27P	5.40	4.13	5.75	4.39	3.63	2.77	14	20-27S	6.38	4.87	7.05	5.38	11.18	8.53	7.38	5.63
20-27S	5.92	4.52	6.22	4.75	4.20	3.21	14	20-27P	5.89	4.49	6.59	5.02	10.65	8.14	6.91	5.28
20-29P	5.88	4.49	6.18	4.72	4.12	3.14	17	20-29S	6.99	5.32	7.69	5.86	11.74	8.97	7.98	6.10
20-29S	6.50	4.98	6.79	5.18	4.70	3.59	17	20-29P	6.31	4.82	6.99	5.32	11.14	8.49	7.29	5.57
20-33P	6.56	5.01	6.91	5.26	4.58	3.50	11	20-33S	7.24	5.53	7.93	6.06	12.55	9.58	8.33	6.36
20-33S	6.71	5.12	7.04	5.38	4.73	3.61	11	20-33P	7.04	5.37	7.79	5.96	12.42	9.49	8.12	6.19
22-01P	6.02	4.59	6.29	4.81	3.66	2.80	2	22-01S	6.96	5.32	7.90	6.02	12.86	9.83	8.38	6.40
22-01S	6.97	5.33	7.29	5.57	4.71	3.60	2	22-01P	6.01	4.59	6.90	5.26	11.79	9.00	7.28	5.57
22-02P	6.44	4.91	6.71	5.12	4.06	3.11	3	22-02S	7.82	5.97	8.75	6.69	13.70	10.45	9.16	6.99
22-02S	7.83	5.97	8.12	6.20	5.56	4.26	3	22-02P	6.43	4.91	7.39	5.63	12.31	9.39	7.79	5.96
22-04P	6.63	5.05	6.96	5.30	4.34	3.31	4	22-04S	7.53	5.75	8.47	6.48	13.40	10.24	8.94	6.83
22-04S	7.53	5.74	7.83	5.97	5.22	3.98	4	22-04P	6.63	5.05	7.56	5.77	12.53	9.55	7.97	6.07
22-05P	6.20	4.72	6.56	5.01	3.87	2.97	6	22-05S	6.21	4.74	7.14	5.45	12.14	9.26	7.60	5.79
22-05S	6.22	4.74	6.59	5.03	4.00	3.06	6	22-05P	6.19	4.72	7.09	5.42	12.07	9.21	7.56	5.77
22-06P	6.12	4.68	6.44	4.91	3.83	2.92	3	22-06S	7.14	5.45	8.12	6.19	13.04	9.95	8.61	6.56
22-06S	7.15	5.45	7.48	5.71	4.90	3.74	3	22-06P	6.12	4.67	7.04	5.37	12.01	9.17	7.47	5.70
22-08P	5.22	3.98	5.56	4.26	2.88	2.20	2	22-08S	6.60	5.04	7.53	5.75	12.50	9.54	7.93	6.06
22-08S	6.61	5.04	6.93	5.28	4.29	3.28	2	22-08P	5.22	3.98	6.14	4.69	11.11	8.47	6.61	5.04
22-09P	5.54	4.21	5.77	4.41	3.17	2.43	3	22-09S	6.96	5.32	7.90	6.02	12.86	9.83	8.38	6.40
22-09S	6.96	5.33	7.29	5.57	4.71	3.60	3	22-09P	5.53	4.21	6.43	4.91	11.33	8.64	6.90	5.26
22-10P	5.54	4.21	5.77	4.41	3.17	2.43	4	22-10S	5.73	4.38	6.63	5.05	11.62	8.87	7.06	5.41
22-10S	5.74	4.38	6.02	4.59	3.44	2.61	4	22-10P	5.53	4.21	6.43	4.91	11.33	8.64	6.90	5.26
22-11P	5.10	3.88	5.42	4.14	2.81	2.15	2	22-11S	5.53	4.21	6.43	4.91	11.33	8.64	6.90	5.26
22-11S	5.54	4.21	5.77	4.41	3.17	2.43	2	22-11P	5.10	3.88	6.01	4.59	10.98	8.36	6.46	4.92
22-12P	6.63	5.05	6.96	5.30	4.34	3.31	5	22-12S	7.74	5.90	8.65	6.60	13.59	10.37	9.01	6.88
22-12S	7.74	5.91	7.93	6.07	5.42	4.14	5	22-12P	6.63	5.05	7.56	5.77	12.53	9.55	7.97	6.08
22-14P	6.60	5.03	6.79	5.18	4.48	3.43	19	22-14S	7.50	5.72	8.35	6.38	12.76	9.74	8.77	6.69
22-14S	7.51	5.73	7.79	5.95	5.46	4.17	19	22-14P	6.59	5.02	7.38	5.63	11.84	9.03	7.78	5.95
22-15P	6.59	5.03	6.91	5.26	4.28	3.26	6	22-15S	7.97	6.07	8.97	6.85	13.89	10.60	9.40	7.18
22-19P	6.46	4.93	6.73	5.14	4.43	3.38	14	22-19S	6.59	5.02	7.38	5.63	11.84	9.03	7.78	5.95
22-19S	6.60	5.03	6.79	5.18	4.48	3.43	14	22-19P	6.46	4.93	7.29	5.57	11.65	8.89	7.73	5.89
22-20P	6.29	4.81	6.61	5.04	4.03	3.07	9	22-20S	6.60	5.04	7.53	5.75	12.50	9.54	7.93	6.06
22-20S	6.61	5.04	6.93	5.28	4.29	3.28	9	22-20P	6.29	4.80	7.24	5.53	12.16	9.29	7.74	5.90
22-22P	7.45	5.68	7.74	5.91	5.10	3.88	4	22-22S	9.33	7.12	10.21	7.79	15.20	11.61	10.67	8.14
22-22S	9.33	7.13	9.61	7.33	6.97	5.33	4	22-22P	7.44	5.67	8.33	6.36	13.32	10.17	8.75	6.69
22-23P	7.06	5.41	7.45	5.68	4.76	3.63	8	22-23S	9.09	6.93	10.04	7.66	14.94	11.41	10.49	8.02
22-23S	9.10	6.94	9.41	7.18	6.81	5.20	8	22-23P	7.06	5.41	7.97	6.08	13.00	9.91	8.47	6.48
22-27P	6.97	5.33	7.29	5.57	4.71	3.60	9	22-27S	7.53	5.75	8.47	6.48	13.40	10.24	8.94	6.83
22-27S	7.53	5.75	7.83	5.97	5.22	3.98	9	22-27P	6.96	5.32	7.90	6.02	12.86	9.83	8.39	6.40
22-28P	6.71	5.12	6.97	5.33	4.41	3.35	7	22-28S	9.26	7.06	10.18	7.77	15.05	11.49	10.64	8.13
22-28S	9.27	7.06	9.59	7.31	6.95	5.30	7	22-28P	6.71	5.12	7.60	5.79	12.55	9.58	8.10	6.17
22-29P	7.29	5.57	7.56	5.77	5.01	3.82	7	22-29S	8.26	6.31	9.16	6.99	14.11	10.77	9.64	7.36
22-29S	8.26	6.31	8.61	6.57	5.98	4.56	7	22-29P	7.28	5.57	8.20	6.28	13.15	10.04	8.67	6.62
22-34P	6.14	4.69	6.46	4.92	3.85	2.93	5	22-34S	6.44	4.91	7.39	5.63	12.31	9.39	7.79	5.96
22-34S	6.44	4.91	6.71	5.12	4.06	3.11	5	22-34P	6.14	4.69	7.06	5.41	12.04	9.18	7.53	5.75
22-36P	32.06	24.47	32.33	24.67	29.78	22.73	8	22-36S	35.08	26.78	36.05	27.52	40.98	31.28	36.44	27.80
22-36S	35.08	26.78	35.40	27.02	32.83	25.07	8	22-36P	32.05	24.46	33.02	25.20	37.95	28.96	33.40	25.49
24-02P	6.65	5.09	6.68	5.10	4.23	3.22	7	24-02S	8.14	6.20	9.67	7.38	13.79	10.53	8.87	6.77
24-02S	8.03	6.13	8.05	6.15	5.61	4.29	7	24-02P	6.74	5.15	8.27	6.31	12.40	9.47	7.50	5.72
24-05P	8.50	6.31	8.34	6.36	5.58	4.27	16	24-05S	9.44	7.22	11.11	8.47	15.75	12.03	10.28	7.84
24-05S	9.33	7.13	9.36	7.15	6.61	5.04	16	24-05P	8.42	6.41	10.08	7.70	14.74	11.25	9.26	7.06
24-06P	7.77	5.95	7.80	5.96	5.02	3.84	8	24-06S	10.21	7.79	11.88	9.07	16.57	12.64	11.07	8.44
24-06S	10.09	7.70	10.14	7.73	7.45	5.68	8	24-06P	7.88	6.00	9.58	7.30	14.23	10.87	8.72	6.65
24-07P	7.73	5.90	7.74	5.91	5.29	4.03	16	24-07S	8.44	6.44	9.91	7.57	14.07	10.74	9.18	7.01

11

CALL, WRITE OR WIRE YOUR NEAREST NEWARK FACILITY FOR PRICES ON HIGHER QUANTITIES

RECEPTACLES

MATING PLUGS

Shell Style / Insert	3100A- EACH 1-9	3100A- EACH 10-49	3101A- EACH 1-9	3101A- EACH 10-49	3102A- EACH 1-9	3102A- EACH 10-49	Total Contacts	Shell Style / Insert	3106A- EACH 1-9	3106A- EACH 10-49	3106B- EACH 1-9	3106B- EACH 10-49	3108A- EACH 1-9	3108A- EACH 10-49	3108B- EACH 1-9	3108B- EACH 10-49
24-07S	8.34	6.35	8.36	6.39	5.90	4.50	16	24-07P	7.82	5.96	9.33	7.13	13.42	10.26	8.58	6.55
24-09P	7.39	3.51	7.45	5.68	4.69	3.57	2	24-09S	8.34	6.36	9.94	7.59	14.60	11.15	9.12	6.96
24-09S	8.17	6.24	8.21	6.28	5.54	4.21	2	24-09P	7.48	5.71	9.12	6.96	13.81	9.96	8.34	6.36
24-10P	10.77	8.22	10.83	8.26	8.10	6.17	7	24-10S	12.50	9.54	14.11	10.77	18.79	14.34	13.35	10.19
24-10S	12.41	9.47	12.43	9.49	10.14	7.73	7	24-10P	10.87	8.30	12.56	9.59	17.22	13.15	11.73	8.94
24-11P	8.18	6.25	8.27	6.31	5.86	4.47	9	24-11S	10.56	8.05	12.04	9.18	16.19	12.35	11.32	8.63
24-11S	10.45	7.98	10.47	7.99	8.03	6.13	9	24-11P	8.36	6.39	9.84	7.50	14.02	10.70	9.10	6.94
24-12P	9.61	7.33	9.64	7.36	6.93	5.28	5	24-12S	11.64	8.89	13.35	10.19	17.98	13.72	12.50	9.54
24-12S	11.54	8.79	11.56	8.81	8.77	6.70	5	24-12P	9.77	7.46	11.45	8.75	16.03	12.23	10.62	8.11
24-17P	6.61	5.04	6.63	5.05	3.87	2.97	5	24-17S	7.48	5.71	9.12	6.96	13.81	10.55	8.34	6.36
24-17S	7.39	5.63	7.45	5.68	4.69	3.57	5	24-17P	6.77	5.17	8.42	6.42	13.04	9.96	7.56	5.77
24-19P	8.26	6.31	8.34	6.36	5.58	4.27	12	24-19S	8.97	6.85	10.65	8.14	15.30	11.69	9.83	7.49
24-19S	8.77	6.70	8.79	6.71	6.12	4.68	12	24-19P	8.42	6.42	10.09	7.70	14.75	11.25	9.27	7.06
24-20P	7.74	5.91	7.77	5.95	5.01	3.82	11	24-20S	7.90	6.03	9.61	7.33	14.26	10.88	8.75	6.69
24-20S	7.80	5.96	7.83	5.97	5.10	3.88	11	24-20P	7.83	5.97	9.50	7.27	14.11	10.77	8.68	6.62
24-21P	7.74	5.91	7.77	5.95	5.01	3.82	10	24-21S	8.42	6.42	10.09	7.70	14.75	11.25	9.27	7.06
24-21S	8.26	6.31	8.34	6.36	5.58	4.27	10	24-21P	8.34	6.36	9.50	7.27	14.11	10.77	8.68	6.62
24-22P	8.75	6.69	8.77	6.70	6.05	4.62	4	24-22S	11.02	8.41	12.68	9.67	17.33	13.22	11.83	9.01
24-22S	10.24	8.27	10.87	8.30	8.17	6.24	4	24-22P	8.94	6.83	10.62	8.11	15.28	11.65	9.77	7.46
24-27P	6.61	5.04	6.63	5.05	3.87	2.97	7	24-27S	6.96	5.30	8.65	6.61	13.33	10.17	7.80	5.96
24-27S	6.81	5.20	6.91	5.26	4.06	3.11	7	24-27P	6.77	5.17	8.42	6.42	13.04	9.96	7.56	5.77
24-28P	8.05	6.15	8.12	6.20	5.73	4.36	24	24-28S	9.26	7.05	10.75	8.20	14.94	11.41	9.97	7.61
24-28S	9.12	6.97	9.18	7.01	6.73	5.14	24	24-28P	8.18	6.25	9.62	7.34	13.86	10.58	8.97	6.84
24-835P	7.80	5.96	7.83	5.97	5.10	3.88	1	24-835S	9.77	7.46	11.45	8.75	16.03	12.23	10.62	8.11
24-835S	9.61	7.33	9.64	7.36	6.93	5.28	1	24-835P	7.90	6.03	9.61	7.33	14.26	10.88	8.75	6.69
28-01P	9.50	7.27	10.46	7.99	6.96	5.30	1	28-01S	12.50	9.54	13.37	10.21	18.77	14.33	13.46	10.27
28-01S	12.14	9.27	13.04	9.96	9.61	7.33	9	28-01P	9.85	7.51	10.70	8.17	16.12	12.29	10.83	8.26
28-02P	8.47	6.48	9.41	7.18	5.92	4.52	14	28-02S	9.41	7.18	10.29	7.85	15.70	11.98	10.36	7.90
28-02S	9.01	6.88	9.94	7.59	6.56	5.01	14	28-02P	8.79	6.71	9.67	7.39	15.04	11.47	9.83	7.49
28-03P	8.75	6.69	9.67	7.39	6.20	4.72	3	28-03S	9.64	7.36	10.54	8.03	15.89	12.12	10.65	8.14
28-03S	9.33	7.13	10.21	7.80	6.77	5.17	3	28-03P	9.10	6.94	9.94	7.59	15.37	11.74	10.09	7.70
28-06P	10.29	7.85	11.16	8.53	7.77	5.95	3	28-06S	11.83	9.01	12.72	9.71	18.77	13.81	12.84	9.80
28-06S	11.54	8.79	12.48	9.51	8.97	6.85	12	28-06P	10.65	8.14	11.54	8.79	16.87	12.86	11.62	8.88
28-08P	8.47	6.48	9.41	7.18	5.92	4.52	12	28-08S	9.10	6.94	9.93	7.59	15.37	11.74	10.09	7.70
28-08S	8.75	6.69	9.67	7.39	6.20	4.72	12	28-08P	8.77	6.70	9.67	7.39	15.04	11.47	9.83	7.49
28-09P	8.97	6.85	9.87	7.53	6.44	4.91	12	28-09S	10.14	7.73	11.02	8.41	16.40	12.51	11.11	8.47
28-09S	9.83	7.49	10.70	8.17	7.24	5.54	12	28-09P	9.33	7.13	10.18	7.77	15.58	11.89	10.29	7.85
28-10P	10.37	7.92	11.19	8.54	8.05	6.15	7	28-10S	13.34	10.18	15.86	12.11	19.00	14.50	14.23	10.86
28-10S	13.03	9.96	13.89	10.62	10.79	8.24	7	28-10P	10.66	8.15	11.46	8.75	16.30	12.44	11.51	8.78
28-11P	8.58	6.55	9.41	7.17	6.29	4.81	22	28-11S	10.73	8.19	11.48	8.77	16.34	12.47	11.60	8.86
28-11S	10.40	7.93	11.21	8.56	8.12	6.20	22	28-11P	8.86	6.76	9.67	7.38	14.48	11.06	9.70	7.41
28-12P	8.86	6.78	9.70	7.41	6.65	5.09	26	28-12S	10.73	8.19	11.48	8.77	16.34	12.47	11.60	8.86
28-12S	10.40	7.93	11.21	8.56	8.12	6.20	26	28-12P	9.23	7.04	9.97	7.61	14.82	11.30	10.11	7.71
28-14P	9.59	7.31	10.50	8.02	6.97	5.33	11	28-14S	10.83	8.26	11.70	8.93	17.11	13.05	11.79	9.00
28-14S	10.50	8.02	11.45	8.75	7.90	6.03	11	28-14P	9.87	7.53	10.77	8.22	16.21	12.36	10.86	8.27
28-15P	9.97	7.61	10.84	8.27	7.74	5.91	35	28-15S	11.90	9.08	12.60	9.62	17.45	13.32	12.74	9.71
28-15S	11.51	8.78	12.38	9.45	9.26	7.05	35	28-15P	10.32	7.87	11.15	8.50	15.88	12.13	11.19	8.54
28-16P	8.82	6.73	9.67	7.38	6.60	5.03	20	28-16S	9.23	7.04	9.97	7.61	14.82	11.30	10.11	7.71
28-16S	8.88	6.78	9.70	7.41	6.65	5.09	20	28-16P	9.12	6.97	9.92	7.57	14.71	11.22	9.97	7.61
28-17P	8.39	6.41	9.33	7.13	5.86	4.47	15	28-17S	9.33	7.13	10.17	7.77	15.58	11.89	10.29	7.85
28-17S	8.97	6.85	9.87	7.53	6.44	4.91	15	28-17P	8.73	6.65	9.61	7.32	14.94	11.41	9.61	7.33
28-18P	8.12	6.20	9.01	6.88	5.56	4.26	12	28-18S	9.16	6.99	10.08	7.70	15.45	11.78	10.18	7.77
28-18S	8.79	6.71	9.83	7.49	6.29	4.81	12	28-18P	8.47	6.48	9.36	7.15	14.75	11.25	9.45	7.22
28-19P	8.21	6.28	9.12	6.96	5.69	4.34	10	28-19S	10.34	7.89	11.15	8.52	16.59	12.65	12.80	8.63
28-19S	9.94	7.59	10.87	8.30	7.46	5.70	10	28-19P	8.61	8.56	9.45	7.22	14.86	11.34	9.59	7.30
28-20P	8.63	6.60	9.50	7.27	6.33	4.84	14	28-20S	9.91	7.57	10.73	8.18	15.54	11.85	10.78	8.24
28-20S	9.62	7.34	10.45	7.98	7.33	5.60	14	28-20P	8.97	6.84	9.70	7.41	14.55	11.11	9.84	7.50
28-21P	10.32	7.87	11.17	8.53	8.03	6.13	37	28-21S	12.01	9.16	12.82	9.77	17.57	13.42	12.90	9.85
28-21S	11.65	8.90	12.53	9.57	9.48	7.24	37	28-21P	10.61	8.11	11.38	8.68	16.19	12.35	11.48	8.77
28-22P	11.34	8.64	12.31	9.40	8.77	6.70	6	28-22S	13.86	10.58	14.75	11.25	20.12	15.36	14.86	11.34
32-04S	10.98	8.37	11.79	9.00	8.17	6.24	14	32-04P	11.62	8.87	11.69	8.93	18.92	14.45	12.48	9.51
32-05P	12.01	9.17	12.84	9.80	9.16	6.99	2	32-05S	15.35	11.72	15.42	11.77	22.67	17.52	16.21	12.36
32-05S	13.33	10.17	14.06	10.73	10.50	8.02	2	32-05P	14.02	10.71	14.11	10.77	21.38	16.32	14.88	11.36
32-06P	11.51	8.78	12.28	9.36	9.05	6.91	23	32-06S	18.25	13.93	18.32	13.98	24.79	18.92	19.00	14.49
32-06S	16.38	12.50	17.15	13.09	13.90	10.62	23	32-06P	13.34	10.18	13.42	10.25	19.94	15.22	14.09	10.76
32-07P	12.21	9.31	13.04	9.96	9.45	7.22	35	32-07S	17.64	13.46	17.71	13.50	25.02	19.09	18.47	14.09
32-07S	15.78	11.89	16.40	12.51	12.75	9.73	35	32-07P	14.30	10.91	14.43	11.01	21.62	16.51	15.05	11.49
32-08P	11.94	9.12	12.71	9.70	9.48	7.24	30	32-08S	13.94	10.63	14.05	10.73	20.47	15.62	14.69	11.20
32-08S	12.14	9.27	12.88	9.83	9.62	7.34	30	32-08P	13.77	10.50	13.85	10.58	20.30	15.49	14.50	11.07
32-09P	11.51	8.77	12.31	9.40	8.68	6.62	14	32-09S	15.05	11.49	15.27	11.65	22.46	17.14	15.93	12.16
32-09S	13.04	9.96	13.89	10.60	10.29	7.85	14	32-09P	13.47	10.28	13.61	10.40	20.85	15.91	14.34	10.94
32-12P	9.94	7.59	10.83	8.26	7.15	5.45	15	32-12S	14.51	11.08	14.56	11.12	21.81	16.65	15.35	11.72
32-12S	12.48	9.51	13.33	10.17	9.64	7.36	15	32-12P	12.04	9.18	12.14	9.26	19.38	14.78	12.86	9.83
32-13P	11.07	8.44	11.89	9.08	8.26	6.31	23	32-13S	14.70	11.20	14.78	11.29	22.05	16.82	15.51	11.85
32-13S	12.62	9.63	13.46	10.27	9.85	7.51	23	32-13P	13.05	9.96	13.26	10.12	20.47	15.61	13.91	10.61
32-15P	15.21	11.61	15.97	12.18	12.43	9.49	8	32-15S	18.76	14.32	18.84	14.37	26.09	19.91	19.59	14.95
32-15S	16.74	12.78	17.55	13.39	13.89	10.60	8	32-15P	17.21	13.15	17.32	13.22	24.60	18.78	18.05	13.77
32-17P	15.00	11.45	15.86	12.11	12.21	9.31	4	32-17S	18.51	14.13	18.59	14.18	25.79	19.70	19.35	14.76
32-17S	16.46	12.56	17.28	13.18	13.68	10.44	4	32-17P	17.11	13.05	17.19	13.13	24.38	18.60	17.92	13.68
32-101P	28.25	21.58	29.09	22.20	25.47	19.46	12	32-101S	28.50	21.76	28.58	21.80	35.83	27.35	29.34	22.39
32-101S	26.44	20.18	27.32	20.84	23.63	18.05	12	32-101P	30.28	23.10	30.35	23.17	37.62	28.72	31.13	23.75
32-102P	20.84	15.90	21.63	16.52	18.00	13.75	14	32-102S	26.20	20.00	26.38	20.13	33.59	25.64	27.06	20.65
32-102S	24.23	18.48	25.07	19.14	21.39	16.33	14	32-102P	22.83	17.43	22.93	17.49	30.32	23.06	23.65	18.05
32-414P	18.51	14.13	19.35	14.76	15.74	12.01	52	32-414S	26.74	20.42	26.85	20.48	34.10	26.03	27.60	21.06
32-414S	24.71	18.85	25.56	19.51	21.88	16.70	52	32-414P	20.55	15.68	20.63	15.74	27.91	21.31	21.38	16.33
36-01P	12.62	9.63	13.02	9.93	8.47	6.48	22	36-01S	17.49	13.35	17.78	13.58	25.46	19.43	18.76	14.32
36-04P	18.00	13.75	18.42	14.06	13.87	10.58	3	36-04S	22.93	17.49	23.31	17.80	30.87	23.55	24.24	18.50

11

AMPHENOL CONNECTORS

RECEPTACLES / MATING PLUGS

Shell Style Insert	3100A- Each 1-9	3100A- Each 10-49	3101A- Each 1-9	3101A- Each 10-49	3102A- Each 1-9	3102A- Each 10-49	Total Contacts	Shell Style Insert	3106A- Each 1-9	3106A- Each 10-49	3106B- Each 1-9	3106B- Each 10-49	3108A- Each 1-9	3108A- Each 10-49	3108B- Each 1-9	3108B- Each 10-49
36-04S	21.33	16.28	21.71	16.57	17.17	13.10	3	36-04P	19.65	15.00	20.00	15.26	27.60	21.06	20.92	15.98
36-07P	17.41	13.27	17.74	13.55	13.27	10.12	47	36-07S	20.85	15.91	21.22	16.20	28.75	21.93	22.14	16.90
36-07S	19.20	14.65	19.59	14.95	15.00	11.45	47	36-07P	18.98	14.49	19.38	14.79	27.00	20.61	20.34	15.52
36-08P	16.80	12.84	17.22	13.55	12.68	9.67	47	36-08S	19.65	15.00	20.00	15.26	27.60	21.06	20.92	15.98
36-08S	18.00	13.75	18.41	14.06	13.87	10.58	47	36-08P	18.51	14.13	18.84	14.37	26.44	20.18	19.74	15.06
36-09P	20.00	15.26	20.44	15.60	15.86	12.11	31	36-09S	25.95	19.79	26.27	20.04	33.91	25.88	27.23	20.79
36-09S	24.29	18.55	24.68	18.84	20.12	15.36	31	36-09P	21.71	16.57	22.05	16.82	29.61	22.59	22.93	17.49
36-10P	14.82	11.30	15.13	11.54	11.14	8.49	48	36-10S	17.49	13.35	17.81	13.60	24.53	18.73	18.61	14.20
36-10S	16.01	12.21	16.36	12.48	12.28	9.36	48	36-10P	16.29	12.43	16.60	12.66	23.38	17.85	17.45	13.31
36-14P	22.14	16.90	22.48	17.16	17.98	13.72	16	36-14S	25.36	19.35	25.67	19.59	33.25	25.37	26.63	20.32
36-14S	23.65	18.05	24.06	18.37	19.55	14.91	16	36-14P	23.80	18.17	24.19	18.47	31.70	24.18	25.09	19.15
36-15P	14.06	10.73	14.51	11.08	9.91	7.57	35	36-15S	17.16	13.10	17.49	13.35	25.09	19.15	18.41	14.06
36-15S	15.45	11.78	15.86	12.11	11.31	8.63	35	36-15P	15.75	12.03	16.11	12.29	23.65	18.05	17.06	13.02
36-403P	20.00	15.26	20.44	15.60	15.86	12.10	52	36-403S	28.52	21.77	28.94	22.09	36.44	27.80	29.82	22.76
36-403S	26.85	20.49	27.32	20.84	22.72	17.32	52	36-403P	21.71	16.57	22.05	16.82	29.61	22.59	22.93	17.49
36-404P	23.25	17.73	23.63	18.04	19.14	14.62	..	36-404S	29.16	22.26	29.48	22.50	37.14	28.33	30.45	23.25
36-404S	27.48	20.98	27.91	21.31	23.36	17.84	..	36-404P	24.88	18.99	25.23	19.26	32.89	25.10	26.19	19.99
36-405P	27.43	20.94	27.86	21.24	23.31	17.80	15	36-405S	36.12	27.57	36.44	27.80	44.10	33.66	37.40	28.54
36-405S	34.48	26.31	34.90	26.62	30.28	23.10	15	36-405P	29.14	22.23	29.46	22.47	37.08	28.30	30.35	23.17

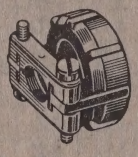
HARDWARE FOR CIRCULAR CONNECTORS

If you want a shiny, clear, cadmium plate finish, just add the suffix (639) at the end of your part number.

CABLE CLAMP

One half of clamp is fixed. Two fiber washers included. *Stepdown.

Type	Fits Shell	1-9	10-49	50-99	100-499
97-3057-3	8S, 10S	1.84	1.39	1.25	1.17
97-3057-4	12, 12S	1.89	1.41	1.26	1.18
97-3057-6	14, 14S	1.94	1.45	1.29	1.21
97-3057-8	16, 16S	2.10	1.58	1.41	1.30
97-3057-10	18	1.77	1.33	1.18	1.09
97-3057-10-6*	18	1.88	1.43	1.27	1.20
97-3057-12	20, 22	1.90	1.45	1.30	1.22
97-3057-12-6*	20, 22	1.90	1.45	1.30	1.22
97-3057-16	24, 28	1.91	1.47	1.33	1.24
97-3057-20	32	2.79	2.11	1.89	1.75
97-3057-24	36	2.86	2.17	1.94	1.80
97-3057-28	40	3.12	2.37	2.13	1.98



MS CABLE CLAMP

Both clamping halves float. To order clamp with bushing, add -1 to the Amphenol part no. Two telescoping bushings are supplied with size 16 and larger.

Type	Fits Shell	1-9	10-49	50-99	100-499
97-3057-1004	10SL, 12, 12S	1.86	1.41	1.27	1.17
97-3057-1007	12SL, 14, 14S	1.91	1.45	1.30	1.22
97-3057-1008	16, 16S	2.06	1.57	1.41	1.31
97-3057-1010	18	1.75	1.33	1.19	1.11
97-3057-1012	20, 22	1.75	1.33	1.19	1.11
97-3057-1016	24, 28	1.87	1.42	1.28	1.19
97-3057-1020	32	2.71	2.07	1.86	1.73
97-3057-1024	36	2.71	2.07	1.86	1.73

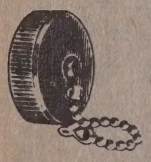
RUBBER BUSHING

Designed for use with adjacent clamps. Provides wire and cable protection and acts as reducing bushing.

Type	Cable O.D	EACH 1-9	10-49	50-99	100-499
9779-513-3	0.130	.24	.18	.16	.15
9779-513-4	0.220	.27	.20	.18	.17
9779-513-6	0.312	.28	.21	.19	.18
9779-513-8	0.437	.24	.18	.16	.15
9779-513-10	0.562	.24	.18	.16	.15
9779-513-12	0.625	.27	.20	.18	.17
9779-513-16	0.750	.33	.25	.23	.21
9779-513-20	0.937	.52	.40	.36	.34
9779-513-24	1.250	.52	.40	.36	.34

11

9760 DUST CAPS FOR RECEPTACLES



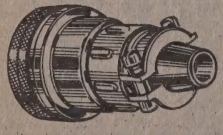
Internal threads for use with Amphenol MS-3100A, MS3101A, and MS3102A receptacles. Includes beaded chains for mounting. Av. wt., 2 oz.

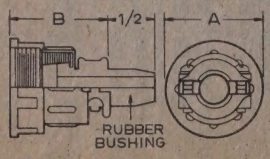
Type	Fits Shell	EACH 1-9	10-49	50-99	100-999
9760-10	10S, 10SL	1.06	.95	.80	.63
9760-12	12, 12S, 12SL	.96	.85	.70	.56
9760-14	14, 14S	1.06	.95	.80	.63
9760-16	16, 16S	1.16	1.01	.84	.70
9760-18	18	1.37	1.18	1.00	.79
9760-20	20	1.51	1.30	1.06	.95
9760-22	22	1.73	1.48	1.21	1.00
9760-24	24	2.14	1.73	1.54	1.43
9760-28	28	2.37	2.07	1.71	1.39
9760-32	32	3.38	2.58	2.32	2.14
9760-36	36	3.88	2.96	2.66	2.48

9760P DUST CAPS FOR PLUGS

Male caps and chains for plugs MS3106 and MS3108 listed on facing page. Has external threads, provides tight dust-free cover. Av. wt., 2 oz.

Type	Fits Shell	EACH 1-9	10-49	50-99	100-999
9760-10P	10S, 10SL	1.32	1.15	.94	.74
9760-12P	12, 12S	1.44	1.28	1.04	.84
9760-14P	14, 14S	1.66	1.43	1.19	.94
9760-16P	16, 16S	1.89	1.63	1.36	1.07
9760-18P	18	2.11	1.66	1.44	1.34
9760-20P	20	2.14	2.83	1.48	1.38
9760-22P	22	2.49	2.14	1.78	1.43
9760-24P	24	2.97	2.57	2.14	1.71
9760-28P	28	3.12	2.70	2.25	1.84
9760-32P	32	4.59	3.96	3.30	2.71
9760-36P	36	5.29	4.10	3.61	3.37



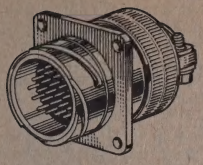


WATERPROOF CABLE CLAMPS

Complete waterproof cable clamp assembly. Number 9767, consists of a 97-3057 Cable Clamp, a rubber bushing, a washer and a 97-3055 Adaptor.

Type	Connector Size	Dimensions Inches A	B	Max. Cable O.D. Inches	Each 1-9	10-49	50-99	100-499
9767-12-4	10SL, 12S, 12	25/32	1-17/32		3.43	2.73	2.40	2.13
9767-14-4	12SL, 14S, 14	29/32	1-17/32	7/32	3.64	2.86	2.58	2.42
9767-16-4	16S, 16	1-1/16	1-17/32		4.80	3.65	3.26	3.05
9767-14-6	12SL, 14S, 14	29/32	1-19/32		3.52	2.78	2.50	2.35
9767-16-6	16S, 16	1-1/16	1-19/32	11/32	3.54	2.80	2.53	2.37
9767-18-6	18	1-3/16	1-19/32		3.54	2.80	2.53	2.37
9767-18-8	18	1-3/16	1-19/32	7/16	3.92	2.98	2.67	2.48
9767-22-8	20, 22	1-3/8	1-19/32		4.07	3.14	2.78	2.58
9767-22-10	20, 22	1-3/8	1-19/32	9/16	4.14	3.19	2.82	2.62
9767-28-12	24, 28	1-5/8	1-21/32	11/16	5.23	4.26	3.68	3.41
9767-32-16	32	1-15/16	1-27/32	27/32	9.53	7.30	6.56	6.12

67 SERIES MinniE® ENVIRONMENT RESISTANT CONNECTORS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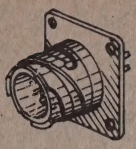
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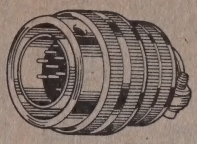
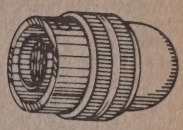
67-03E

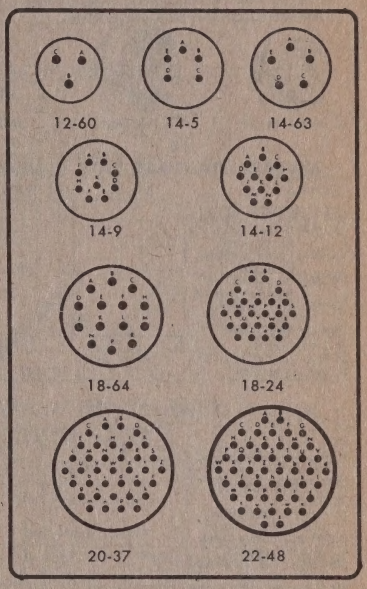

67-06C

67-06E


67-06P

Takes 1500V rms @ 70,000 ft. (No derating for altitude required up to 70,000 feet if sealed connectors are mated.) Vibration resistance per Method 204, MIL-STD-202A; 10-2000 cps @ 20 G's. Temperature cycling range per MIL-C-5015 is −67°F to +257°F. Exceeds moisture resistance requirements of MIL-C-5015. Face seal gasket has individual barriers to isolate each contact.

Clamp and grommet combine to form unitized seal for easy maintenance. Flattened incline angle of bayonet slots facilitates mating. Yellow ring on receptable shell gives visual indication of connector engagement. Type P construction for potting. Type E has utilized grommet/clamp sealing conductor at back.
U.L. Recognized.



Shell Insert	67-00 C 1-9	67-00 C 10-49	67-02 E 1-9	67-02 E 10-49	67-03 E 1-9	67-03 E 10-49	67-06 C 1-9	67-06 C 10-49	67-06 E 1-9	67-06 E 10-49	67-06 P 1-9	67-06 P 10-49
12-60P	40.30	30.57	15.13	11.48	18.09	13.72	22.09	16.75	39.29	29.80	17.55	13.31
12-60S	42.17	31.98	16.62	12.61	19.46	14.76	23.93	18.15	41.81	31.71	19.42	14.73
14-5P	20.02	15.18	12.44	9.44	15.13	11.48	18.98	14.40	23.43	17.77	16.37	12.42
14-5S	21.84	16.56	13.87	10.52	16.89	12.81	20.84	15.81	25.30	19.19	18.20	13.80
14-9P	20.22	15.34	12.79	9.70	15.32	11.62	19.21	14.57	23.60	17.90	16.60	12.59
14-9S	23.72	17.99	14.95	11.34	18.69	14.18	22.69	17.21	27.08	20.54	20.08	15.23
14-12P	20.91	15.86	13.39	10.16	15.92	12.07	19.91	15.10	28.19	21.38	17.26	13.09
14-12S	26.00	19.72	17.14	13.00	20.84	15.81	24.96	18.93	33.31	25.26	22.36	16.96
14-63P	22.85	17.33	18.09	13.72	20.89	15.84	21.82	16.55	28.34	21.49	19.21	14.57
14-63S	25.46	19.31	17.97	13.63	20.12	15.26	24.45	18.54	30.93	23.46	21.82	16.55
18-24P	36.62	27.77	19.25	14.60	20.00	15.17	25.21	19.12	44.73	33.93	21.59	16.38
18-24S	44.86	34.02	23.64	17.93	27.57	20.91	33.45	25.37	52.95	40.16	29.81	22.61
18-64P	35.54	26.96	16.79	12.73	18.13	13.75	24.14	18.31	43.61	33.08	20.49	15.54
18-64S	39.74	30.14	19.56	14.84	22.42	17.00	28.36	21.51	47.84	36.28	24.72	18.75
20-37P	35.71	27.08	23.08	17.51	26.85	20.36	28.05	21.27	37.32	28.31	24.18	18.34
20-37S	49.80	37.77	37.61	28.53	38.27	29.03	42.12	31.95	51.44	39.01	38.25	29.01
22-48P	46.72	35.43	29.77	22.58	72.93	55.31	43.47	32.97	131.22	99.52	30.30	22.98
22-48S	61.50	46.64	41.52	31.49	89.67	68.01	58.23	44.16	146.00	110.73	45.08	34.19

11

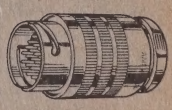
165 SERIES MINIATURE MS TYPE CONNECTORS

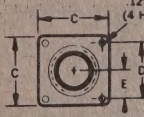
- **Pressure-proof and waterproof, mated or apart**
- **Extremely efficient in operation**
- **Built-in cable clamp**

Pressure-proof and completely waterproof mated or apart. Withstand government saltspray tests by many hours in excess of standards. Extremely efficient in operation, contacts are bronze, gold plated over silver. Features built-in cable clamp. Average Shpg. wt. 3 oz.
U.L. Recognized.

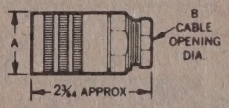
Square Flange Receptacle

Plug for Jacketed Cable

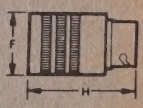

Cable Receptacle



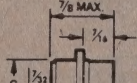
Receptacle



Plug

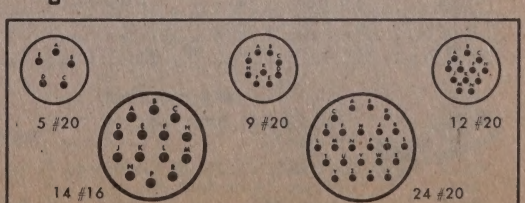


Cable Receptacle



	A	B	C	D	E	F	G	H
Small	57/64	3/8	1 1/16	2 5/32	2 5/64	7/8	1 3/16	1 59/64
Large	1 9/64	2 1/32	1 5/16	3 1/32	3 1/64	1 1/8	1 1/16	1 13/16

No.	Type	Description	Contacts @ AWG	1-9	10-49	50-99
38F300	165-9	Sml. plug	12-#20 male	12.71	9.63	8.10
38F301	165-10	Sml. plug	12-#20 female	16.52	12.54	10.54
38F302	165-11	Sml. recpt.	12-#20 male	9.45	7.17	6.04
38F303	165-12	Sml. recpt.	12-#20 female	13.12	9.96	8.36
40F008	165-11-1002	Cable recpt.	12-#20 male	15.44	11.72	9.86
40F009	165-12-1002	Cable recpt.	12-#20 female	19.22	14.58	12.25
38F304	165-13	Sml. plug	9-#20 male	11.19	8.48	7.14
38F305	165-14	Sml. plug	9-#20 female	14.61	11.08	9.33
38F306	165-15	Sml. recpt.	9-#20 male	7.88	5.98	5.03
38F307	165-16	Sml. recpt.	9-#20 female	11.29	8.57	7.19
40F010	165-15-1002	Cable recpt.	9-#20 male	13.88	10.53	8.86
38F312	165-25	Lge. plug	24-#20 male	22.57	17.12	14.40
38F313	165-26	Lge. plug	24-#20 female	26.04	19.75	16.60
38F314	165-27	Lge. recpt.	24-#20 male	15.97	12.12	10.19
38F315	165-28	Lge. recpt.	24-#20 female	19.38	14.70	12.36
38F316	165-29	Lge. plug	14-#16 male	16.86	12.79	10.76
38F317	165-30	Lge. plug	14-#16 female	21.00	15.93	13.40
38F318	165-31	Lge. recpt.	14-#16 male	10.32	7.83	6.58
38F319	165-32	Lge. recpt.	14-#16 female	14.43	10.95	9.20
38F320	165-33	Sml. plug	5-#20 male	10.91	8.28	6.96
38F321	165-34	Sml. plug	5-#20 female	13.43	10.19	8.57
38F322	165-35	Sml. recpt.	5-#20 male	7.36	5.58	4.70
38F323	165-36	Sml. recpt.	5-#20 female	9.87	7.49	6.30
40F011	165-35-1002	Cable recpt.	5-#20 male	13.43	10.19	8.57



MERLIN 118 SERIES CONNECTORS

Rear release, polymer contact retention connector. Qualified to MIL-C-83723 Series I, MIL-C-0026482 Series II and MIL-C-26482 Series II. Greater dielectric spacing through elimination of metal contact retention clips. Uses integrally molded polymer contact retention clips. Thermoplastic polymer resistant to alkalies, acids, fuels and solvents. Closed entry socket inserts and contacts eliminates mis-mating due to bent pins. Bayonet coupling system. 5 key shell polarization. Self-sealing rear grommets. Visual mating indicators. Durable conductive shell finish. Static peripheral shell seal maintains system integrity. Monoblock construction-inserts bonded to shells. Accepts standard MIL-C-26482 Series 2, MIL-C-83723 and NAS 1599 hardware. Fluorosilicone fluid resistant seal material. Interfacial mating seal. Shell to shell grounding fingers. Intermateable and intermountable.

Square Flange

Cable Rcpt.

Single Hole Rcpt.

Plug

MILITARY STANDARD PART NUMBER FOR MIL-C-26482

MS3470-L2255PN

- SPECIFICATION NUMBER: MS3470-Receptacle, narrow flange mount; MS3471-Receptacle Cable Connecting; MS3474-Receptacle, rear mounting jam nut; MS3476-Plug, straight
- ALTERNATE INSERT POSITION: N, W, X, Y, Z
- CONTACT TYPE: P-Pin Contact; S-Socket Contact
- CONNECTOR CLASS: E-Order Class L; L-Fluid Resistant, 200°C, conductive finish
- SHELL SIZE: 8 10 12 14 16 18 20 22 24
- INSERT ARRANGEMENT: SEE CHART ON RIGHT

MILITARY STANDARD PART NUMBER FOR MIL-C-83723

M832723-02R2255N

- SPECIFICATION NUMBER
- ALTERNATE INSERT POSITION: N, W, X, Y, Z
- SHELL AND CONTACT STYLE: 01-Narrow Square Flange with socket contacts; 02-Narrow Square Flange with pin contacts; 05-Single Hole Mount with socket contacts; 06-Single Hole Mount with pin contacts; 07-Cable Receptacle with socket contacts; 08-Cable Receptacle with pin contacts; 13-Straight Plug with socket contacts; 14-Straight Plug with pin contacts
- INSERT ARRANGEMENT: SEE CHART ON RIGHT
- CONNECTOR CLASS: R-Fluid Resistant 200°C, conductive finish
- SHELL SIZE: 8 10 12 14 16 18 20 22 24

HOW TO ORDER MERLIN 118 CONNECTORS

118-20L22-55PN(101)

- SERIES DESIGNATION
- MILITARY SPECIFICATION: MIL-C-83723; MIL-C-26482; MIL-C-0026482
- DEVIATION: (101) Connector less contacts
- ALTERNATE INSERT POSITION: N, W, X, Y, Z
- CONTACT TYPE: P-Pin Contact; S-Socket Contact
- SHELL STYLE: 0-Square Flange Receptacle; 1-Cable Connecting Receptacle; 3-Single Hole Mtg. Receptacle; 6-Straight Plug
- CONNECTOR CLASS: E-Order Class L; R-Order Class L; L-Fluid Resistant, 200°C conductive finish (MIL-C-26482)
- SHELL SIZE: 8 10 12 14 16 18 20 22 24
- INSERT ARRANGEMENT: SEE CHART ON RIGHT

Class L meets or exceeds requirements of Classes E & R.

ACCESSORY HARDWARE

Available for shell sizes 8 through 24, has a Electroless Nickel finish, and is QPL'd to MIL-C-26482, Series II. For additional information contact your nearest NEWARK facility.

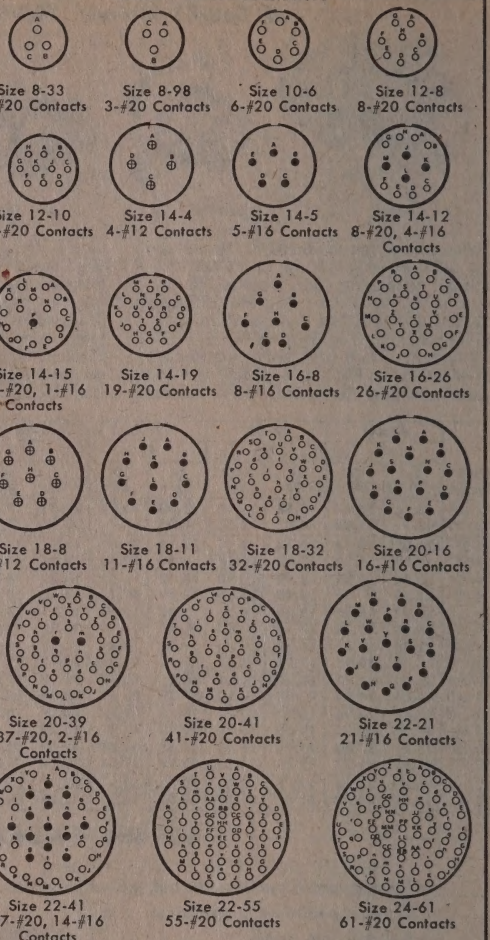
Type	Mil. Type	Fig.	Description
118-3416-XXEN	MS3416-XXEN	A	Straight backshell or "E" Nut
118-3417-XXN	MS3417-XXN	B	Straight Cable Clamp
118-3418-XXN	MS3418-XXN	C	90° Cable Clamp

CRIMPING TOOL

Type 294-542. Basic tool.
38F1404. NET.....153.38

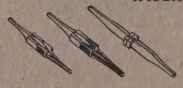
294-1889-1. M22520/1-02 Turret Head. To be used with above Basic tool.
39F1432. NET.....61.13

INSERT ARRANGEMENTS

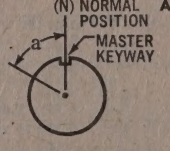


Contact identification is for front face of pin insert.

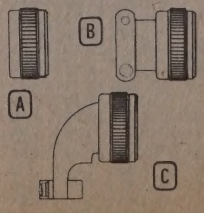
INSERTION/EXTRACTION TOOLS



Stk. No.	Type No.	Contact Size	Each
38F1401	294-108	20	.30
38F1402	294-109	16	.40
38F1403	294-110	12	2.77



VERTICAL C/L OF INSERT ROTATED IN RESPECT TO MASTER KEYWAY



ALTERNATE INSERT POSITIONS

Shell Size	Insert Arrangement	a N	a W	a X	a Y	a Z
8	-33	0°	90°	—	—	—
8	-89	0°	—	—	—	—
10	-6	0°	90°	—	—	—
12	-8	0°	90°	112°	203°	292°
12	-10	0°	60°	155°	270°	295°
14	-4	0°	45°	—	—	—
14	-5	0°	40°	92°	184°	273°
14	-12	0°	43°	90°	—	—
14	-15	0°	17°	110°	155°	234°
14	-19	0°	30°	165°	315°	—
16	-8	0°	54°	152°	180°	331°
16	-26	0°	60°	—	275°	338°
18	-8	0°	180°	—	—	—
18	-11	0°	62°	119°	241°	340°
18	-32	0°	35°	138°	222°	265°
20	-16	0°	238°	318°	333°	347°
20	-39	0°	63°	144°	252°	333°
20	-41	0°	45°	126°	225°	—
22	-21	0°	16°	135°	175°	349°
22	-41	0°	39°	135°	264°	—
22	-55	0°	30°	142°	226°	314°
24	-61	0°	30°	180°	270°	324°

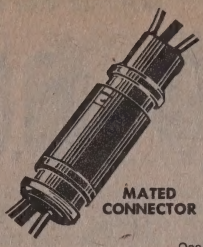
AMPHENOL® CONNECTORS

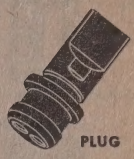
AMPHENOL NORTH AMERICA
Bunker Ramo Corporation

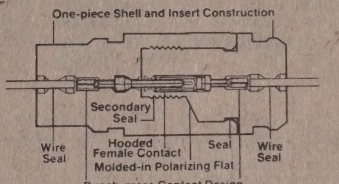
BUNKER RAMO

All resilient, one piece, waterproof connector. Incorporates crimp Poke-Home contacts. High performance, low cost. Ideally suited for applications where an environmentally sealed, inexpensive connector is needed. Waterproof seals to prevent liquid entry. One piece shell and insert construction for longer service life. Abrasion resistant. Impervious to water, lubricants, fuel, ozone and road salts. Hooded female contacts and molded-in polarizing flat for high reliability. Installed and maintained with inexpensive hand crimp and insertion tools. Simple, positive, push-pull coupling for easy mating. Cable to cable or panel mounting. Voltage Rating: limiting operating voltage at sea level DC 250 volts, AC 200 volts RMS. Current Rating: 8 amps continuous. Temperature Range: Continuous operation from −40°C to +105°C.

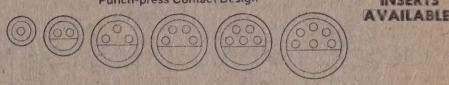
44 SERIES







INSERTS AVAILABLE



RECEPTACLES

Stock No.	Contacts	Type	1-9	10-49	50-99
61F1699	1	44-104-10001-02	.67	.53	.45
61F1700	2	44-104-10002-02	.69	.54	.46
61F1706	3	44-104-10003-02	.71	.57	.49
61F1710	4	44-104-10004-02	.81	.64	.55
61F1730	5	44-104-10005-02	.88	.70	.60
61F1749	6	44-104-10006-02	.93	.74	.63

PLUGS

Stock No.	Contacts	Type	1-9	10-49	50-99
61F1698	1	44-103-10001	.64	.51	.43
61F1715	2	44-103-10002	.65	.52	.44
61F1741	3	44-103-10003	.68	.54	.46
61F1726	4	44-103-10004	.77	.61	.52
61F1745	5	44-103-10005	.84	.66	.57
61F1712	6	44-103-10006	.89	.70	.60

CONTACTS

Sold in packages of 100 only.

Stk. No.	Contacts	Type	Per Pkg. of 100 1-4	5-9	10-49
61F1733	Pin	44-100-1414P-100-101	5.57	4.62	4.36
61F1718	Socket	44-102-1414S-100-101	13.13	11.08	10.34

Stk. No.	Contacts	Type	Per Pkg. of 500 Each	2-9	10-19
38F916	Pin	44-100-1414P-500-101	22.89	21.53	16.80
38F917	Socket	44-102-1414S-500-101	53.51	49.98	36.54

Stk. No.	Contacts	Type	Per Pkg. of 1000 Each	2-9	10-19
38F918	Pin	44-100-1414P-1000-101	42.47	32.55	25.94
38F919	Socket	44-102-1414S-1000-101	97.76	71.35	61.16

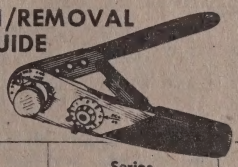
INSERTION AND REMOVAL TOOLS

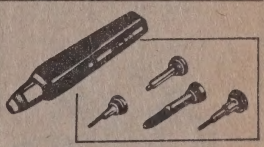
61F1702. 294-562: Full cycle hand crimp tool.....Each 51.00
61F1711. 357-561: Economy hand crimp tool.....Each 9.50
61F1703. 294-553: Hand contact insertion tool.....Each 5.10
61F1724. 294-557: Socket contact removal tool.....Each 8.81
61F1754. 294-556: Pin contact removal tool.....Each 6.71

Selection Chart

	Part Number	Insertion Tool	Removal Tool
Pin Contact	44-100-1414P	294-553	294-556
Socket Contacts	44-102-1414S	294-553	294-557

11





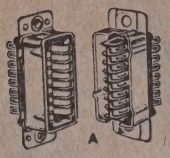
CRIMPING/INSERTION/REMOVAL TOOL GUIDE

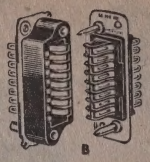
Stock No.	Type No.	For use with RG- ( )/U Cables	Series	Function	Each
57F3110	227-944	Frame only for all 227-1221-xx Die Sets		Frame only	106.00
61F1704	227-1221-57	55, 58, 141, 223. 303, 400	N	Crimp	45.50
61F1708	227-1221-59	59, 62, 140, 210	Braid	Crimp	45.50
61F1720	227-1221-29	5, 6, 21, 143, 212, 222, 304	&	Crimp	45.50
61F1728	227-1221-25	8, 9, 11, 87A, 149, 165, 213, 214 216, 225, 393	Contact	Crimp	45.50
61F1713	227-1221-09	122, 174, 179, 180, 188, 195	BNC/TNC	Crimp	45.50
57F3111	227-1221-11	55, 58, 141, 142, 223, 303, 400	Braid	Crimp	45.50
57F3112	227-1221-13	59, 62, 140, 120	&	Crimp	45.50
61F1732	227-1221-15	71	Contact	Crimp	45.50
57F3111	227-1221-11	55, 58, 141, 142, 223, 303, 400	MHV	Crimp	45.50
57F3111	227-1221-11	55, 58, 141, 142, 223, 303, 400	UHF	Crimp	45.50
57F3112	227-1221-13	59, 62, 140, 210	Braid	Crimp	45.50
61F1717	227-1221-23	8, 11, 149, 213	Only	Crimp	45.50
61F1713	227-1221-09	122, 174, 179, 180, 187, 188, 195	SMA	Crimp	45.50
57F3111	227-1221-11	55, 58, 141, 142, 223, 303, 400		Crimp	45.50
38F1440	227-900	174, 179, 187, 188	Braid	Crimp	78.00
38F1441	227-901	180, 195	Only	Crimp	78.00
61F1739	227-902	Adapter for 27-14			17.50
61F1735	227-913	Adapter for 27-4, 27-8, 27-10			7.75
61F1747	227-914	Adapter for 27-16, 27-20, 27-22			5.50
61F1705	357-564		32	Crimp	65.20
61F1711	357-561		32	Econ Crimp	9.50
61F1743	356-228		32	Insert/Remove	14.20
39F3044	357-100		17	Crimp	113.91
38F1437	357-300-2	17-763, 766, 1037, 1038	17	Locator	22.19
39F1262	356-200			Tool Handle	7.60
39F3037	356-400-1	17-763		Insertion	14.00
39F3038	356-400-5	17-763		Removal	6.29
35F1148	KA-260	3 piece (12, 16, 20)	Various	Insertion Kit	38.25
35F1149	KR-260	3 piece (12, 16, 20)	Various	Removal Kit	40.80

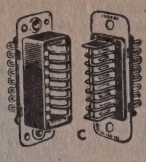
BUNKER RAMO | AMPHENOL NORTH AMERICA Bunker Ramo Corporation

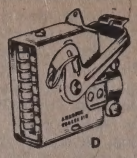
AMPHENOL CONNECTORS

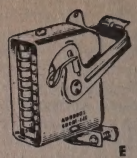
AMPHENOL BLUE RIBBON CONNECTORS

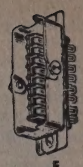












Barrier polarization type connectors are designed for interconnecting electronic sub-assemblies, circuit switching, rerouting and other multi-contact applications. Interlocking design of mating dielectric bodies provide positive polarization. The dimensional stability and high tensile strength of Amphenol Blue dielectric make this type of polarization possible. Float mounted receptacle corrects misalignment of plug and receptacle. Corrosion resistant, stainless steel molded-in mounting plates and housing. Rated: 5 amps, 800 volts DC at sea level, 300 volts at 70,000 ft. altitude. Av. Shpg. Wt. 3 oz.

(A) BARRIER POLARIZATION CONNECTORS WITH KEYED SHELLS

Male

Stk. No.	Type	Con.	1-9	10-49	50-99	100-249
42FX182	26-4101-8P	8	3.82	3.31	2.70	2.44
42FX183	26-4101-16P	16	5.91	4.98	4.07	3.67
42FX184	26-4101-24P	24	6.81	5.75	4.70	4.24
42FX185	26-4101-32P	32	7.73	6.53	5.32	4.82
		Female				
42FX186	26-4201-8S	8	4.49	3.80	3.09	2.79
42FX187	26-4201-16S	16	6.06	5.13	4.19	3.77
42FX188	26-4201-24S	24	7.27	6.14	5.01	4.52
42FX189	26-4201-32S	32	8.46	7.15	5.83	5.27

(B) PIN POLARIZATION TYPE CONNECTORS

Male

Stk. No.	Type	Con.	1-9	10-49	50-99	100-249
39FX132	26-159-16	16	3.76	3.20	2.61	2.35
39FX134	26-159-24	24	4.49	3.80	3.10	2.79
39FX136	26-159-32	32	5.69	4.76	3.92	3.54
		Female				
39FX133	26-190-16	16	4.81	4.07	3.31	2.99
39FX135	26-190-24	24	6.04	5.10	4.16	3.76
39FX137	26-190-32	32	6.82	5.97	4.87	4.40

(C) BARRIER POLARIZATION TYPE CONNECTORS

Male

Stk. No.	Type	Con.	1-9	10-49	50-99	100-249
39FX130	26-182	8	2.18	1.84	1.50	1.35
42FX150	26-4100-8P	8	1.43	1.23	1.01	.91
42FX151	26-4100-16P	16	2.69	2.28	1.88	1.71
42FX152	26-4100-24P	24	3.30	2.79	2.30	2.08
42FX153	26-4100-32P	32	3.86	3.29	2.70	2.48
		Female				
39FX131	26-183	8	3.40	2.88	2.34	2.12
42FX154	26-4200-8S	8	2.32	1.95	1.62	1.44
42FX155	26-4200-16S	16	3.41	2.90	2.37	2.14
42FX156	26-4200-24S	24	4.06	3.44	2.82	2.55
42FX157	26-4200-32S	32	4.87	4.14	3.40	3.08

(D) CABLE TYPE—END OUTLET—KEYED LOCK SHELLS

Mate with 4401 series plugs and sockets.

Male

Stk. No.	Type	Con.	1-9	10-49	50-99	100-249
42FX158	26-4301-8P	8	10.52	8.87	7.24	6.53
42FX159	26-4301-16P	16	13.18	11.13	9.08	8.21
42FX160	26-4301-24P	24	14.81	12.51	10.20	9.22
42FX161	26-4301-32P	32	16.41	13.87	11.32	10.21
		Female				
42FX162	26-4301-8S	8	12.77	10.78	8.80	7.95
42FX163	26-4301-16S	16	14.25	12.02	9.81	8.86
42FX164	26-4301-24S	24	16.64	14.05	11.46	10.35
42FX165	26-4301-32S	32	18.03	15.22	12.42	11.22

(E) CABLE TYPE—SIDE OUTLET—KEYED LATCH LOCK SHELLS

Mate with 4401 Series plugs and sockets.

Male

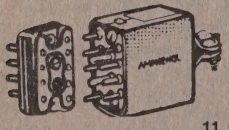
Stk. No.	Type	Con.	1-9	10-49	50-99	100-249
42FX174	26-4501-8P	8	11.06	9.33	7.61	6.88
42FX175	26-4501-16P	16	13.16	11.11	9.06	8.18
42FX176	26-4501-24P	24	14.81	12.51	10.20	9.22
42FX177	26-4501-32P	32	16.42	13.87	11.32	10.21
		Female				
42FX178	26-4501-8S	8	11.78	9.96	8.12	7.34
42FX179	26-4501-16S	16	14.25	12.01	9.81	8.86
42FX180	26-4501-24S	24	16.07	13.56	11.08	10.00
42FX181	26-4501-32S	32	17.75	14.99	12.23	10.59

(F) CHASSIS TYPE—KEYED LATCH—LOCK SHELLS

Mate with 4301 and 4501 Series plugs and sockets.

Male

Stk. No.	Type	Con.	1-9	10-49	50-99	100-249
42FX166	26-4401-8P	8	6.04	5.09	4.16	3.76
42FX167	26-4401-16P	16	7.90	6.67	5.45	4.92
42FX168	26-4401-24P	24	8.91	7.51	6.14	5.54
42FX169	26-4401-32P	32	9.04	7.63	6.24	5.47
		Female				
42FX170	26-4401-8S	8	7.27	6.14	5.01	4.52
42FX171	26-4401-16S	16	8.93	7.54	6.15	5.56
42FX172	26-4401-24S	24	10.13	8.56	6.99	6.30
42FX173	26-4401-32S	32	11.46	9.67	7.89	7.13



126 SERIES RECTANGULAR PLUGS AND SOCKETS

Rated 900V rms. Gold over silver contacts. Aluminum housing except (*) insert-only. #12 rated 23 amps, #20 rated 7½ amps. Av. Shpg. Wt. 3 oz.

11 CONTACTS

Stk. No.	Type	Contact #12	Contact #20	Description	1-49	50-99	100-249
39FX050	126-804*	2	9	Plug-Chassis type	1.85	1.33	1.12
39FX051	126-805*	2	9	Socket-chassis type	1.90	1.37	1.14
39FX052	126-809	2	9	Plug with cable clamp	2.87	2.07	1.73
39FX053	126-808	2	9	Socket with cable clamp	3.10	2.23	1.87

15 CONTACTS

39FX054	126-151*	3	12	Plug chassis type	2.44	1.75	1.47
39FX055	126-150*	3	12	Socket chassis type	1.87	1.35	1.13
39FX056	126-152	3	12	Plug with cable clamp	4.63	4.07	2.80
39FX057	126-153	3	12	Socket with cable clamp	3.65	2.64	2.22

20 CONTACTS

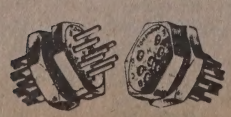
30FX058	126-806*	4	16	Plug chassis type	2.89	2.08	1.74
39FX059	126-807*	4	16	Socket chassis type	2.32	1.68	1.41
39FX060	126-811	4	16	Plug with cable clamp	4.49	3.23	2.72
39FX061	126-810	4	16	Socket with cable clamp	3.97	2.87	2.40

WITH HOOD AND CLAMP

Stk. No.	Type	Cont.	Desc.	1-49	50-99	100-249
42FX119	126-215	4	Socket	2.53	1.83	1.53
42FX120	126-217	5	Plug	2.82	2.04	1.71
42FX121	126-223	5	Socket	3.61	2.60	2.18
42FX122	126-195	7	Plug	3.12	2.25	1.88
42FX123	126-196	7	Socket	4.20	3.02	2.54
42FX124	126-220	9	Plug	3.36	2.43	2.04
42FX125	126-222	9	Socket	4.79	3.45	2.90

WITH LOCKING CLIP

42FX112	126-214	4	Plug	1.53	1.10	.92
42FX113	126-216	5	Plug	1.35	.98	.82
42FX114	126-218	5	Socket	2.16	1.56	1.31
42FX115	126-197	7	Plug	1.65	1.19	1.00
42FX116	126-198	7	Socket	2.75	1.98	1.67
42FX117	126-219	9	Plug	1.87	1.35	1.13
42FX118	126-221	9	Socket	3.36	2.43	2.04



126 SERIES HEX CONNECTORS

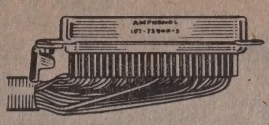
For inter-connecting miniature equipment. Uses inter-changeable brass, hardware and gold-finished contacts. Type 1-105 dielectric body molds, silver plated bases. For No. 20AWG or No. 22 JAN C-76 wire. Has ⅝" threaded body with hex nut panel mounting. Ship. wt. 2 oz.

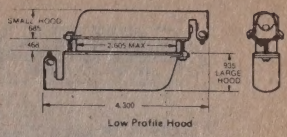
Stk. No.	Type	Contact	Description	1-49	50-99	100-240
42FX100	126-010	5	Chassis Plug	1.31	.95	.79
42FX101	126-011	5	Chassis Socket	2.06	1.48	1.24
42FX104	126-191	7	Chassis Plug	1.51	1.09	.91
42FX105	126-192	7	Chassis Socket	2.57	1.86	1.55
42FX102	126-012	9	Chassis Plug	1.81	1.30	1.09
42FX103	126-013	9	Chassis Socket	3.20	2.31	1.94
42FX108	126-1063	Hood and clamp assembly		1.06	.77	.64
42FX109	126-1064-02	Locking sleeve for card conn.		.57	.41	.35
42FX110	126-1069-02	Clip retainer for chassis unit		.14	.09	.08

11

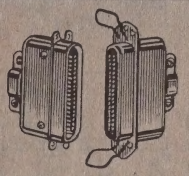
SERIES 157 MICRO-PIERCE SOLDERLESS TERMINATION SYSTEM

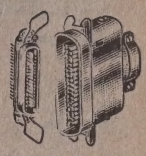
Designed to combine the proven reliability and engineering of the standard Micro Ribbon connector with the important cash and time savings advantages of a portable, solderless field termination system. Unique insulation piercing contact permits fast, easy, reliable solderless termination. All mounting arrangements, panel cut-outs and dimensions are identical to the standard Series 57.





Low Profile Hood


Cable to Cable Type


Cable to Panel Type

CABLE TO PANEL

Stk. No.	Type	Cont.	Description	1-9	10-49	50-99	100-249
40F6356	157-32140	14	Top cable entry plug	5.13	4.45	3.53	3.17
40F6357	157-32240	24	Top cable entry plug	5.68	4.79	3.90	3.53
40F6358	157-32360	36	Top cable entry plug	6.95	5.90	4.80	4.30
40F6359	157-32500	50	Top cable entry plug	7.67	6.50	5.32	4.79
40F6360	157-42140	14	Receptacle	3.43	2.87	2.36	2.12
40F6361	157-42240	24	Receptacle	4.04	3.42	2.81	2.54
40F6362	157-42360	36	Receptacle	4.43	3.74	3.07	2.78
40F6363	157-42500	50	Receptacle	5.76	4.88	3.99	3.58

CABLE TO CABLE RECEPTACLES

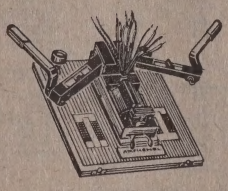
40F6364	157-62140	14	Top cable entry	5.76	4.80	3.88	3.49
40F6365	157-62240	24	Top cable entry	7.32	6.03	4.99	4.51
40F6366	157-62360	36	Top cable entry	7.78	6.53	5.18	4.78
40F6367	157-62500	50	Top cable entry	9.39	7.92	6.42	5.78

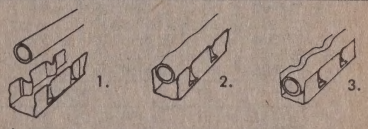
CABLE TO CABLE

Stock No.	Type	Description	1-9	10-49	50-99	100-249
39F3600	157-72500-3	Plug-steel, low-profile hood	5.10	4.30	3.53	3.16
39F3601	157-82500-3	Receptacle, low-profile hood	5.10	4.30	3.53	3.16

TELE-PIERCE FIELD TERMINATOR

Type 356-246. Portable, hand operated. Capable of terminating up to 64 contacts in one operation. Designed to terminate 157 Series Micro-Pierce connectors to 25 pair "D" type inside running cables having 24 or 26 gauge solid conductors with PVC or irradiated PVC insulation. Holds connector in position, facilitates wire fanning and insertion, terminates and trims wires in one motion. Termination is mechanically and electrically reliable, gas-tight, and has low resistance with no soldering required. 12" x 10½" x 5", 11¾ lbs. including carrying case.
39F3608. Type 356-246. **NET**.....400.00





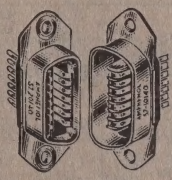
1. Conductor about to be inserted
2. Conductor insulation being pierced
3. Conductor bottomed in contact

11

MICRO-RIBBON CONNECTORS (SOLDER VERSION)

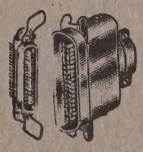
RACK AND PANEL TYPE (Solder Tail)

Stk. No.	Type	Cont.	Descrip.	1-9	10-49	50-99	100-249
42F190	57-10140	14	Male	2.68	2.27	1.84	1.70
42F193	57-20140	14	Female	2.76	2.33	1.88	1.73
42F191	57-10240	24	Male	3.61	3.06	2.66	2.26
42F194	57-20240	24	Female	3.69	3.12	2.57	2.29
42F192	57-10360	36	Male	4.18	3.55	2.88	2.63
42F195	57-20360	36	Female	4.27	3.61	2.97	2.69
42F132	57-10500	50	Male	5.47	4.65	3.78	3.40
42F133	57-20500	50	Female	5.51	4.70	3.85	3.48


Rack and Panel Type

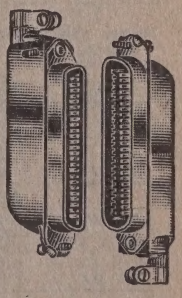
CABLE TO PANEL TYPE (Latch type; Top cable entry)

Stk. No.	Type	Cont.	Descrip.	1-9	10-49	50-99	100-249
42F126	57-30140	14	Male	5.11	4.43	3.51	3.15
42F127	57-40140	14	Female	3.41	2.85	2.33	2.10
42F128	57-30240	24	Male	5.66	4.76	3.88	3.51
42F129	57-40240	24	Female	4.03	3.40	2.79	2.51
42F130	57-30360	36	Male	6.93	5.87	4.78	4.28
42F131	57-40360	36	Female	4.43	3.74	3.05	2.76
42F134	57-30500	50	Male	7.65	6.48	5.30	4.76
42F135	57-40500	50	Female	5.73	4.85	3.96	3.58


Cable to Panel Type

CABLE TO CABLE TYPE (Low Profile)

Stk. No.	Type	Cont.	Descrip.	1-9	10-49	50-99	100-249
42F198	57-10500-7	50	Male	6.24	5.32	4.36	3.88
42F199	57-20500-7	50	Female	5.56	5.61	4.58	4.10


Cable to Cable Type

RACK AND PANEL TYPE (PC Tails)

Stock No.	Type	Cont.	Descrip.	1-9	10-49	50-99	100-249
40F6336	57-10140-4	14	Male	3.02	2.57	2.09	1.87
40F6337	57-20140-8	14	Female	3.45	2.93	2.39	2.13
40F6338	57-10240-3	24	Male	4.11	3.48	2.83	2.54
40F6339	57-20240-8	24	Female	4.17	3.53	2.88	2.60
40F6340	57-10360-13	36	Male	4.94	4.19	3.42	3.07
40F6341	57-20360-9	36	Female	5.06	4.27	3.51	3.15
40F6342	57-10500-27	50	Male	6.57	5.55	4.55	4.08
40F6343	57-20500-31	50	Female	6.63	5.60	4.60	4.12

CABLE TO PANEL TYPE (Plug; Side cable entry)

Stock No.	Type	Contacts	1-9	10-49	50-99	100-249
40F6344	57-50140	14	6.90	6.44	4.72	4.24
40F6345	57-50240	24	7.71	6.50	5.12	4.73
40F6346	57-50360	36	8.50	7.13	5.93	5.09
40F6347	57-50500	50	9.30	7.83	6.34	5.75

CABLE TO CABLE TYPE (Receptacle)

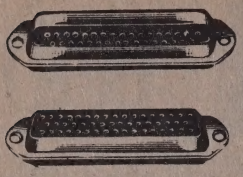
Stock No.	Type	Contacts	1-9	10-49	50-99	100-249
40F6348	57-60140	14	5.73	4.78	3.86	3.46
40F6349	57-60240	24	7.30	6.03	4.97	4.48
40F6350	57-60360	36	7.75	6.51	5.16	4.75
40F6351	57-60500	50	9.37	7.90	6.40	5.76

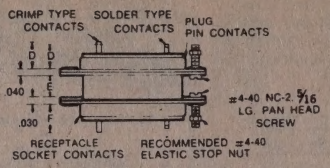
BUNKER RAMO

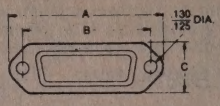
AMPHENOL NORTH AMERICA
Bunker Ramo Corporation

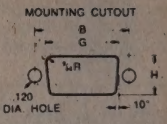
AMPHENOL CONNECTORS

SERIES 17 MIN RAC® CONNECTORS









Poke Home

Conn. Size	A Max.	B	C Max.	D (1)	D (2)	D Encapsulated Contact Line Only	D Rear Release	E All Lines	F (1)	F (2)	F Encapsulated Contact Line Only	MOUNTING DIM.—ALL LINES G Min Back Mtg.	G Min Front Mtg.	H Min. Back Mtg.	H Min. Front Mtg.
9	1.239	.984	.515	25/64	9/32	25/64	23/64	15/64	13/32	1/4	25/64	.798	.830	.448	.505
15	1.567	1.312	.515	25/64	9/32	25/64	23/64	15/64	13/32	1/4	25/64	1.116	1.161	.448	.505
25	2.114	1.852	.515	25/64	9/32	25/64	23/64	15/64	13/32	1/4	25/64	1.654	1.701	.448	.505
37	2.754	2.500	.515	25/64	9/32	25/64	23/64	15/64	13/32	1/4	25/64	2.304	2.348	.448	.505
50	2.661	2.406	.626	25/64	9/32	25/64	23/64	15/64	13/32	1/4	25/64	2.210	2.285	.559	.645

REAR RELEASE CONTACT

Crimp, snap-in contacts are loaded with fingertip pressure, no insertion tools required. Rated @ 3-5 amps. Temp. Range: —55°C to 125°C. Dielectric-glass filled nylon. Wire Size: 22-26 AWG.

RECEPTACLES

Stk. No.	Contacty	Type	1-9	10-24	25-99	100-249
38F902	9	17-81090-18	.91	.82	.74	.65
38F903	15	17-81050-18	1.00	.88	.82	.71
38F904	25	17-81250-18	1.06	.92	.84	.74
38F905	37	17-81370-18	1.30	1.14	1.01	.82
38F906	50	17-81500-18	1.45	1.25	1.14	.95

PLUGS

38F907	9	17-91090-18	.90	.81	.73	.64
38F908	15	17-91150-18	.99	.87	.80	.66
38F909	25	17-91250-18	1.04	.89	.82	.68
38F910	37	17-91370-18	1.28	1.11	.99	.80
38F911	50	17-91500-18	1.50	1.30	1.11	.95

CONTACTS

Stock No.	Type No.	Description	per pkg. of 100 10-49	50-99	100-249
38F912	17-1391-04-100	Female	6.29	5.77	5.25
38F913	17-1392-04-100	Male	5.46	5.05	4.64

TOOLS

38F914	357-571	Hand Crimp	57.45	Each
38F915	356-214	Extraction	.40	Each

ORIGINAL POKE-HOME

Solder type contacts are gold-over-copper plated brass, rated 7.5 amps, -55°C to 125°C.

PLUGS Chromate finish

Stk. No.	Type	Contacts	1-9	10-24	25-99	100-249
39F1370	17-20090	9	1.75	1.48	1.29	1.06
39F1371	17-20150	15	2.36	2.00	1.75	1.45
39F1372	17-20250	25	3.44	2.93	2.54	2.04
39F1373	17-20370	37	4.62	3.94	3.43	2.82
39F1374	17-20500	50	5.84	4.97	4.33	3.60

RECEPTACLES Chromate finish

39F1360	17-10090	9	2.38	2.01	1.76	1.45
39F1361	17-10150	15	3.37	2.85	2.49	2.08
39F1362	17-10250	25	5.06	4.31	3.75	3.12
39F1363	17-10370	37	7.15	6.09	5.33	4.41
39F1364	17-10500	50	9.18	7.81	6.80	5.67

ENCAPSULATED CONTACT

Contacts buried in nylon. Solder cup contacts: gold over copper plated brass, rated 7.5 amps. —55°C to +125°C.

RECEPTACLES

Stk. No.	Contacts	Type	1-9	10-24	25-99	100-249
39F2110	9	17-10090-1 (390)	2.21	1.88	1.65	1.37
39F2112	15	17-10150-1 (390)	3.03	2.59	2.37	1.94
39F2114	25	17-10250-1 (390)	4.59	3.93	3.52	2.92
39F2116	37	17-10370-1 (390)	6.40	5.47	5.08	4.17
39F2118	50	17-10500-1 (390)	8.47	7.24	6.48	5.32

PLUGS

39F2111	9	17-20090-1 (390)	1.70	1.46	1.23	1.00
39F2113	15	17-20150-1 (390)	2.34	2.00	1.70	1.41
39F2115	25	17-20250-1 (390)	3.45	2.95	2.37	1.98
39F2117	37	17-20370-1 (390)	4.91	4.21	3.39	2.81
39F2119	50	17-20500-1 (390)	6.20	5.30	4.27	3.64

FIXED CONTACT SERIES

Dielectric: 2-piece glass-filled nylon. Curr. rtg. 7.5A. Oper. temp. —55° to +125°C. Wire size: to 20 AWG. Captive solder contacts.

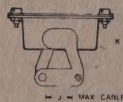
RECEPTACLE

Stk. No.	Type	1-9	10-24	25-99	100-249
40F6310	17-80090-15	2.15	1.82	1.59	1.31
40F6311	17-80150-15	3.16	2.69	2.34	1.95
40F6312	17-80250-15	4.90	4.17	3.63	3.01
40F6313	17-80370-15	5.92	5.04	4.38	4.01

PLUG

40F6314	17-90090-15	1.57	1.33	1.16	.96
40F6315	17-90150-15	2.14	1.83	1.59	1.33
40F6316	17-90250-15	3.16	2.67	2.33	1.93
40F6317	17-90370-15	4.22	3.59	3.12	2.60

17 SERIES MIN RAC ACCESSORIES



METAL CABLE HOUSING

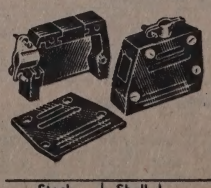
Used to adapt connector for cable to panel or cable to cable applications. Easily attached to connector by two screws.

Stk. No.	Contact	Type	1-9	10-24	25-99	100-249
39F1380	9	17-310-01	1.34	1.11	1.04	.95
39F1381	15	17-311-01	1.71	1.45	1.27	1.07
39F1382	25	17-312-01	1.79	1.52	1.32	1.11
39F1383	37	17-313-01	1.84	1.56	1.35	1.14
39F1384	50	17-314-01	1.87	1.60	1.38	1.16

MIN RAC LOCKING ASSEMBLIES

Spring latch except (*)screw type clip.

Stk. No.	Type	Use With Contact	1-9	10-24	25-99	100-249
39F1390	17-529	All except 50	.93	.77	.68	.57
39F1391	17-768*	All	1.07	.90	.79	.65
39F1392	17-770	All	.95	.80	.70	.59



PLASTIC BACKSHELL

Protects connector and secures its cable. Two piece construction permits installing at any convenient point in assembly process, and is easily removable for servicing. Interchangeable cable clamp and removable insert allows side or top cable entry location. Constructed of glass-filled nylon with hardware and clamp cadmium plated steel.

Stock No.	Shell Size	Type	1-9	10-24	25-99	100-249
39F1411	9	17-1370	1.26	1.06	.93	.82
38F1412	15	17-1371	1.29	1.10	.95	.83
38F1413	25	17-1372	1.31	1.11	.97	.81
38F1414	37	17-1373	1.37	1.15	1.00	.93
38F1415	50	17-1374	1.52	1.29	1.12	.96

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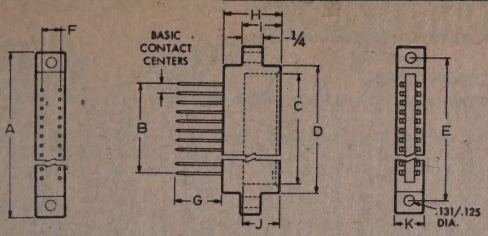
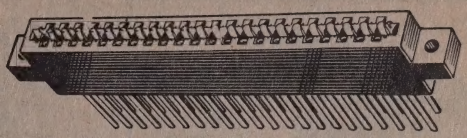


SERIES 261 WIRE-WRAP PC CONNECTORS



.100" CENTER .025 SQUARE WIRE WRAP POST

Stock No.	Type	No. Contacts	Dimensions A	B	C	D	E	F	G	H	I	J	K	EACH 1-49	50-99	100-249
39F3350	261-10015-2	15	2.474	1.400	1.720	1.874	2.156							3.16	2.65	2.22
39F3351	261-10018-2	18	2.774	1.700	2.020	2.174	2.458							3.63	3.03	2.56
39F3352	261-10022-2	22	3.174	2.100	2.420	2.574	2.856	.200	.615	.735	.494	.460	.348	4.24	3.56	2.98
39F3353	261-10030-2	30	3.974	2.900	3.220	3.374	3.656							5.30	4.45	3.73
39F3354	261-10036-2	36	4.574	3.500	3.820	3.974	4.256							6.16	5.16	4.37
39F3355	261-10043-2	43	5.274	4.200	4.520	4.674	4.956							7.18	5.99	5.03

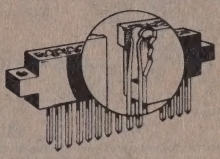
.125" CENTER .125 SQUARE WIRE WRAP POST

Stock No.	Type	No. Contacts	Dimensions A	B	C	D	E	F	G	H	I	J	K	EACH 1-49	50-99	100-249
39F3356	261-12515-2	15	2.824	1.750	2.070	2.224	2.506							3.16	2.65	2.22
39F3357	261-12518-2	18	3.199	2.125	2.445	2.599	2.881							3.63	3.03	2.56
39F3358	261-12522-2	22	3.699	2.625	2.945	3.099	3.381	.250	.615	.496	.738	.465	.365	4.24	3.56	2.98
39F3359	261-12528-2	28	4.449	3.375	3.695	3.849	4.131							5.30	4.45	3.73
39F3360	261-12536-2	36	5.449	4.375	4.695	4.849	5.131							6.16	5.16	4.37
39F3361	261-12543-2	43	6.324	5.250	5.570	5.724	6.006							7.18	5.99	5.03
39F3362	261-70005	Polarizing key for above												.05	.05	.05

.156" CENTER .035 X .050 RECTANGULAR POST

Stock No.	Type	No. Contacts	Dimensions A	B	C	D	E	F	G	H	I	J	K	EACH 1-49	50-99	100-249
38F1431	261-15615-2	15	3.258	2.184	2.504	2.658	2.940							4.07	3.42	2.87
38F1432	261-15618-2	18	3.726	2.652	2.972	3.126	3.408							4.71	3.98	3.34
38F1433	261-15622-2	22	4.350	3.276	3.596	3.750	4.032	.20	.750	.770	.512	.495	.348	5.44	4.59	3.85
38F1434	261-15628-2	28	5.286	4.212	4.532	4.686	4.968							6.69	5.64	4.76
38F1435	261-15636-2	36	6.534	5.460	5.780	5.934	6.216							8.41	7.07	5.98
38F1436	261-15643-2	43	7.626	6.552	6.872	7.026	7.308							9.91	8.34	6.92

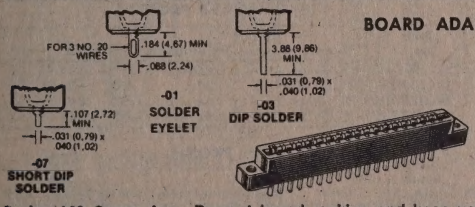
Pre-loaded Cantilever Contacts

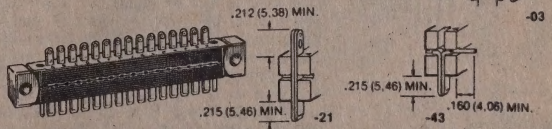


Basic Contact Centers

Dual readout of double-sided printed circuit boards. Pre-loaded cantilever-type contacts are assembled into dielectric with precise spacing for automatic solderless wrap terminations. Tail length is sufficient for three wire wraps plus space for bussing or PC board next to block. Contacts are confined in dielectric to determined pre-load force for fixed, definite separatioa eliminating possibility of shorts. Gold-plated phosphor bronze contacts rated at 5.0 amps. Voltage rating: 300 V rms at sea level. Minimum voltage breakdown: 1800 V rms. Contact resistance: 6.0 milliohms max. .025" square tail with 500001-type contacts. Insulator material: Black electrical grade phenolic. Avg. Shpg. wt. 3 oz.

BOARD ADAPTORS AND RECEPTACLES





Series 143 Connectors. Prevent board rocking and keep voltage losses at a minimum at extremes of temperature and vibration. If heavy cycling is anticipated, series 133 plug may be attached to board and mated with 143 connector. Pin identification is molded on top face and term. surface. Designed for flush mounting.

Series 133 Plugs. Combine excellent electrical performance with mechanical sturdiness. Repeated matings will not cause deformation of contacts. End caps prevent damage to mounting holes when mouning screws are tightened.

SERIES 143

Stock No.	Type No.	1-49	50-99	100-249	250-999
38F891	143-006-07	1.35	1.14	.95	.82
38F892	143-010-07	1.41	1.20	1.01	.88
38F893	143-012-07	1.55	1.33	1.10	.95
38F894	143-015-07	1.79	1.50	1.25	1.09
38F895	143-018-07	2.13	1.80	1.51	1.29
38F896	143-022-07	2.54	2.14	1.80	1.55

SERIES 133

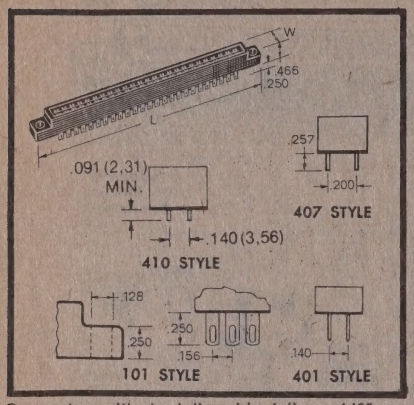
Stock No.	Type No.	1-49	50-99	100-249	250-999
38F885	133-006-43	2.60	2.19	1.84	1.50
38F886	133-010-43	2.14	1.77	1.52	1.20
38F887	133-012-43	2.63	2.22	1.86	1.61
38F888	133-015-43	2.94	2.47	2.08	1.79
38F889	133-018-43	3.01	2.54	2.13	1.85
38F890	133-022-43	3.33	2.81	2.36	2.03

SERIES 143 CARD EDGE CONNECTORS

Stock No.	Type No.	Cont.	1-49	50-99	100-249	250-999
42F304	143-006-01	6	1.35	1.14	.95	.82
42F300	143-010-01	10	1.41	1.20	1.01	.88
42F308	143-012-01	12	1.55	1.33	1.10	.95
42F301	143-015-01	15	1.79	1.50	1.25	1.09
42F302	143-018-01	18	2.13	1.80	1.51	1.29
42F303	143-022-01	22	2.54	2.14	1.80	1.56
42F309	143-006-03	6	1.35	1.14	.95	.82
42F310	143-010-03	10	1.41	1.20	1.01	.88
42F311	143-012-03	12	1.55	1.33	1.10	.95
42F312	143-015-03	15	1.79	1.50	1.25	1.09
42F313	143-018-03	18	2.13	1.80	1.51	1.29
42F314	143-022-03	22	2.54	2.14	1.80	1.55
42F305	143-953	Polarizing key for above				.06

SERIES 133—MALE PLUG ADAPTERS

Stock No.	Type No.	Cont.	1-49	50-99	100-249	250-999
42F316	133-010-03	10	2.14	1.77	1.52	1.29
42F317	133-012-03	12	2.63	2.22	1.86	1.61
42F318	133-015-03	15	2.94	2.47	2.08	1.79
42F319	133-018-03	18	3.01	2.54	2.13	1.85
42F320	133-022-03	22	3.33	2.81	2.36	2.03
42F307	133-006-03	6	2.60	2.19	1.84	1.59
42F196	133-006-21	6	2.89	2.40	2.03	1.74
42F136	133-010-21	10	2.48	2.08	1.75	1.51
42F137	133-015-21	15	3.49	2.93	2.47	2.11
42F138	133-018-21	18	3.60	3.01	2.55	2.19
42F139	133-022-21	22	4.11	3.45	2.89	2.49

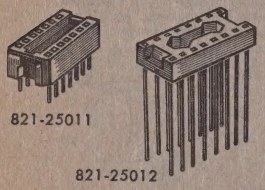


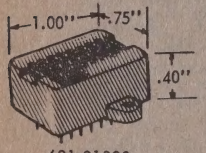
Connectors with short dip solder tails on .140" row spacing and dip solder tails with .200" row spacing terminations consist of the same economical materials and array of sizes (6 thru 43 positions) as the 225 Series solder eyelet connectors. **Specifications.** Operating voltage 600 VAC (RMS) at sea level; 150 VAC (RMS) at 70,000 ft. 5 amp current rating. Dielectric material is electrical grade black phenolic. Insulation resistance 5,000 megohms minimum. Copper alloy contacts with .000020" gold over copper. 30 mV maximum contact resistance at rated current. Board thickness .054" to .071".

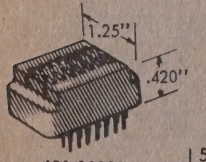
225 SERIES PC CONNECTORS

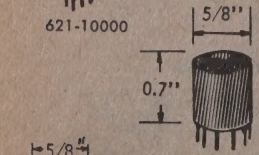
Stk. No.	Type	No. Cont.	1-49	50-99	100-249	250-499
SOLDER EYELET TERMINATION ON .140 ROW SPACING						
39F2350	225-20621-401 (117)	6 or 12	1.76	1.41	1.12	1.00
39F2351	225-21021-401 (117)	10 or 20	2.33	1.86	1.49	1.34
39F2352	225-21521-401 (117)	15 or 30	2.79	2.22	1.79	1.60
39F2353	225-21821-401 (117)	18 or 36	3.22	2.58	2.07	1.86
39F2354	225-22221-401 (117)	22 or 44	3.49	2.79	2.24	1.99
39F2355	225-22821-401 (117)	28 or 56	5.33	4.27	3.94	3.04
39F2356	225-23621-401 (117)	36 or 72	6.21	4.98	4.20	3.73
39F2357	225-24321-401 (117)	43 or 86	7.28	5.83	4.80	4.29
DIP SOLDER ON .200 ROW SPACING						
39F2390	225-20621-407 (117)	6 or 12	1.76	1.41	1.12	1.00
39F2391	225-21021-407 (117)	10 or 20	2.33	1.86	1.49	1.34
39F2392	225-21521-407 (117)	15 or 30	2.79	2.22	1.79	1.60
39F2393	225-21821-407 (117)	18 or 36	3.22	2.58	2.07	1.86
39F2394	225-22221-407 (117)	22 or 44	3.49	2.79	2.24	1.99
39F2395	225-22821-407 (117)	28 or 56	5.33	4.27	3.94	3.04
39F2396	225-23621-407 (117)	36 or 72	6.21	4.98	4.20	3.73
SOLDER EYELET TERMINATION						
39F1482	225-20621-101	6 or 12	2.42	1.93	1.54	1.39
39F1485	225-21021-101	10 or 20	3.16	2.55	2.05	1.83
39F1488	225-21521-101	15 or 30	3.80	3.06	2.45	2.18
39F1491	225-21821-101	18 or 36	4.23	3.40	2.70	2.43
39F1494	225-22221-101	22 or 44	5.12	4.12	3.29	2.95
39F1497	225-22821-101	28 or 56	7.17	5.84	4.61	4.10
42F325	225-23621-101	36 or 72	9.37	7.51	6.31	5.64
42F326	225-24321-101	43 or 86	10.42	8.34	7.03	6.27
DIP SOLDER ON .140 ROW SPACING						
40F000	225-20621-410 (117)	6 or 12	1.76	1.41	1.12	1.00
40F001	225-21021-410 (117)	10 or 20	2.23	1.86	1.49	1.34
40F002	225-21521-410 (117)	15 or 30	2.79	2.22	1.79	1.60
40F003	225-21821-410 (117)	18 or 36	3.22	2.58	2.07	1.86
40F004	225-22221-410 (117)	22 or 44	3.49	2.79	2.24	1.99
40F005	225-22821-410 (117)	28 or 56	5.33	4.27	3.94	3.04
40F006	225-23621-410 (117)	36 or 72	6.21	4.98	4.20	3.73
40F007	225-24321-410 (117)	43 or 86	7.28	5.83	4.80	4.29

11









AMPHENOL INTEGRATED CIRCUIT SOCKETS

Ⓐ DUAL-IN-LINE PRODUCTION

Both 821-25 and 821-20. Series are high reliability production mounting sockets for Dual-In-Line I.C. devices. For applications where it is desirable to provide easy replacement of individual DIP devices without risk of unsoldering from P.C. boards or replacing entire boards. Single piece construction dual wiping action contacts for round or flat leads. Front entry chamfered, maximum lead in. Wire wrappable and solder terminals. Snap on insulator lid for ease of contact replacement. (*) Contact material phosphor bronze. (†) Contact material beryllium copper.

Ⓑ DUAL-IN-TEST

Polysulfone body material for long term test temperature from −65°C to +150°C. Low leakage and high wear. One piece contacts of beryllium copper, nickel/gold plated, provides a gentle wiping action to insure low, uniform contact resistance. Contacts designed for minimal insertion and withdrawal forces consistent with electrical contact.

Ⓒ T. O. CAN TEST

Contacts give low, uniform resistance and do not scrape leads of device. Polarized mark provided on all sockets. Large entrances permit easy insertion. Reliable contact maintained despite severe environmental conditions. 631-150 and 631-200 designed for high density packing. 631-250 are teflon sockets for high temperature test operation. Cylindrical body for T.O. devices.

Ⓐ STANDARD PROFILE

Stock No.	Type	No. of Leads	Termination	1-99	499	999
39F3372	821-25011-144	14	solder	.77	.66	.61
39F3373	821-25011-164	16	solder	.93	.82	.76
39F3374	821-25012-144	14	wire wrap	1.01	.89	.82
39F3375	821-25012-164	16	wire wrap	1.05	1.04	.97

LOW PROFILE

Stock No.	Type	No. of Leads	Termination	1-991	499	999
39F3364	821-20011-144*	14	TAB	.40	.36	.32
39F3365	821-20011-164*	16	TAB	.46	.42	.38
39F3366	821-20012-144†	14	TAB	.41	.38	.34
39F3367	821-20012-164†	16	TAB	.48	.44	.40
39F3368	821-20013-144†	14	wire wrap	1.02	.83	.80
39F3369	821-20013-164†	16	wire wrap	1.18	.96	.93
39F3371	821-20042-184†	18	TAB	.52	.47	.42

Ⓑ DUAL-IN-LINE TEST

Stock No.	Type	No. of Leads	Mounting Flange	1-24	25-49	50-99
39F3382	621-01011-141	14	No	2.83	2.31	2.04
39F3383	621-01012-141	14	Yes	2.83	2.31	2.04
39F3384	621-01011-161	16	No	3.21	2.58	2.25
39F3385	621-01012-161	16	Yes	3.21	2.58	2.25

Ⓒ FOR HIGH DENSITY APPLICATION

Stock No.	Type	No. of Leads	Flange	1-24	25-49	50-99
39F3400	631-15031-61	6	No	4.45	3.07	2.54
39F3401	631-15031-81	8	No	4.83	3.33	2.77
39F3403	631-15031-101	10	No	4.95	3.41	2.88
39F3402	631-20012-81	8	Yes	4.84	3.34	2.78

FOR HIGH TEMPERATURE APPLICATIONS

Stock No.	Type	No. of Leads	Flange	1-24	25-49	50-99
39F3398	631-25041-32	3	No	1.44	.99	.91
39F3399	631-25041-42	4	No	1.87	1.29	1.06

MINIATURE CABLE CONNECTORS

For cables up to six conductors. Bakelite elements are housed in cadmium plated brass shells. Plugs are 1 3/16" long. Chassis units mount on 1 1/4" centers. Suffix "L" in Type—long (1 3/16") "S" short (13/16").

Stk. No.	Type	Fig.	Cont.	1-49	50-99	100-249	250-499
39F080	91-MPF-3L	F	3	1.74	1.45	1.26	1.07
39F3000	91-MPF3S	E	3	1.48	1.23	1.07	.92
39F082	91-MPM3L	F	3	1.71	1.42	1.23	1.05
39F3001	91-MPM3S	E	3	1.42	1.18	1.03	.88
39F081	91-MPF4L	F	4	1.61	1.34	1.17	1.00
39F3002	91-MPF4S	E	4	1.58	1.31	1.14	.98
39F083	91-MPM4L	F	4	1.48	1.23	1.07	.92
39F084	91-MPM5L	F	5	1.74	1.45	1.26	1.07
39F3003	91-MPM4S	E	4	1.67	1.39	1.21	1.03
39F085	91-MPM6L	F	6	1.22	1.02	.89	.76
39F090	78-PCG3	G	3	.80	.66	.58	.50
39F091	78-PCG4	G	4	.95	.79	.69	.60
39F092	78-PCG5	G	5	1.16	.96	.84	.73
39F093	78-PCG6	G	6	1.23	1.03	.89	.78

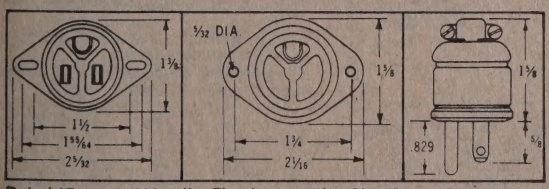
RECEPTACLES AND PLUGS

Mount on or below panels, or with cable terminals. Rates 110 volts, 15 amps or 250 volts, 10 amps. Bakelite insulation. Retainer ring types require 1 11/64" hole. Mounting plate types require 1 9/32" hole & mounting centers, slotted 1 1/2" to 1 7/8"; recessed shell types require 1 3/4" hole with mounting centers, 1 3/4". Two pole female receptacles take standard or polarized plugs. Fig. A with retainer ring. Fig. B with removable mounting plate. Fig. C with recessed shell. U.L. Approved. Av. shpg. wt. 3 oz.

Stk. No.	Type	Poles	Descrip	Fig.	1-49	50-99	100-249	250-499
39F100	160-61F	2	Fem. univ.	A	1.00	.83	.73	.63
39F101	160-60F	3	Fem. Pol.	A	1.05	.88	.76	.66
39F102	160-61M	2	Male Std.	A	1.03	.86	.74	.65
39F104	160-60M	3	Male Pol.	A	1.21	1.01	.87	.76
39F105	160-61-F1	2	Fem. univ.	B	1.21	1.01	.87	.76
39F106	160-60-F1	3	Fem. Pol.	B	1.23	1.03	.89	.78
39F110	160-61-F10	2	Fem. univ.	C	1.80	1.50	1.30	1.13
39F116 Type 61-MIP-61F Molded in plate receptacle. . Takes 2 pole plug					1.03	.86	.74	.65

2-POLE GROUNDING TYPE RECEPTACLES AND PLUGS

160-2N 160-4N 160-9N

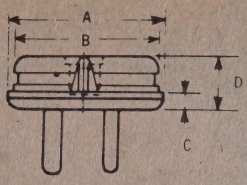


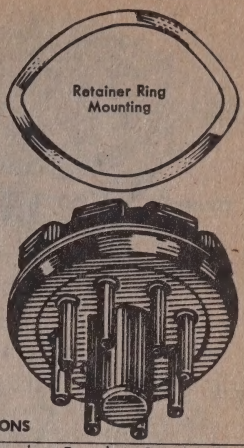
Rated 15 amps, 110 volts. Fig. A mount in 1 9/32" dia. center hole and two 9/32" holes on 1 1/2" to 1 39/64" centers. Fig B mount in 1 3/16" hole; two 9/32" screw holes on 1 1/4" centers. Fig. C 7/16" I.D. grommet or clamp to 3/4" O.D. (*) not illustrated. Meets MIL-M-14F req. Mount in 1 11/64" keyed hole.

Stk. No.	Type	Description	Fig.	1-49	50-99	100-249	250-999
39F1230	160-2-N	Fem. MIP	A	1.80	1.50	1.30	1.13
39F1231	160-3-N	Male MIP	A	2.49	2.08	1.80	1.57
39F1232	160-4-N	Fem. Flush Mtr.	B	2.70	2.25	1.95	1.70
39F1233	160-5-N	Male Flush Mtr.	B	2.93	2.44	2.12	1.85
39F1236	†160-8-N	Fem. Shl'd	C	2.31	1.93	1.67	1.46
39F1237	†160-9-N	Male Shl'd	C	2.52	2.10	1.82	1.59
39F1238	160-10-N	Fem. Insert	*	1.70	1.41	1.23	1.07
39F1239	160-11-N	Male Insert	*	2.00	1.67	1.45	1.26

(†)with steel cap for cable

TYPE "CP" PLUGS





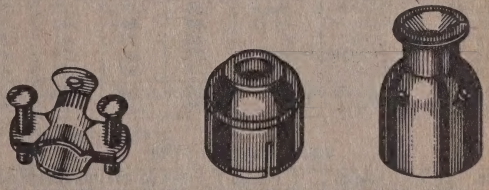
Can be assembled in any one of the plug caps or receptacle shells. Ideal for use as chassis connectors, with plug-in units. Plugs with 4, 5, 6 and 7 contacts do not have center guide post. Current rating is 5 amps except (†3) amps. Molded-in contacts are nickel plated brass. Size: 1 3/4x7/8". Wt. 2 oz.

DIMENSIONS

Part No.	A	B	C	D
86-CP4, -CP5, -CP6	1 1/4	1 5/32	5/32	7/16
86-CP8, -CP9, -CP11, -CP12	1 1/4	1 5/32	.145	7/16

Stk. No.	Type	Contacts	1-49	50-99	100-249	250-999
42F030	86-CP4	4	.49	.41	.35	.31
42F031	86-CP5	5	.51	.43	.37	.32
42F032	86-CP6	6	.54	.45	.39	.34
42F034	86-CP8	8 octal	.54	.45	.39	.34
42F036	86-CP9	9	.57	.47	.41	.36
42F037	86-CP11	11	.57	.47	.41	.36
42F038	86-CP12†	12	.59	.49	.43	.37

CAPS AND CABLE CLAMPS



86-3-CC4 86-3-13 86-3-858

Sturdy caps provide protected, attractive cable terminations when assembled with retainer type plugs and sockets. May be used with all grooved connectors. Steel caps are intended only as a protective housing and are not to be used in applications requiring frequent mating and unmating of connectors. For cable to cable or cable to panel applications, use molded thermo-plastic caps which have a strain relief grip. 3-858. Avg. shpg. wt. 2 oz.

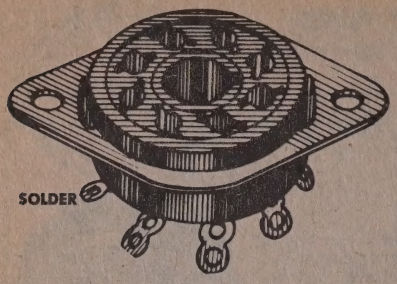
Stk. No.	Type	Description	1-49	50-99	100-249	250-999
42F017	86-3-13	Cap. with end grommet	.39	.32	.28	.24
39F150	86-3-CC4	Cable Clamp	.36	.30	.26	.23
38F1400	86-3-858	Thermoplastic, end outlet	.85	.71	.61	.53

STEEL MOUNTING SHELLS

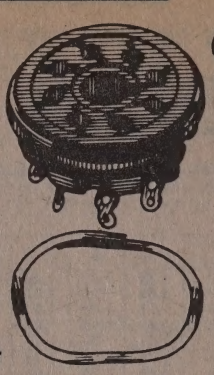
Type 23-1S extends 13/16' above or below chassis. Mounts in 1 3/4" hole. 3 notch holes for #6 screws. Type 61-61 recesses 1 3/16" only. Mounts in 1 7/16" hole. Two 9/32" screw holes on 1 3/4" center. Shpg. wt. 5 oz.

61-23 61-61

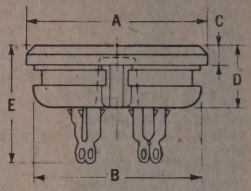
Stock No.	Type	1-49	50-99	100-249	250-499
39F1243	160-61-61	.64	.54	.47	.41
39F1242	160-61-23	.90	.75	.65	.57

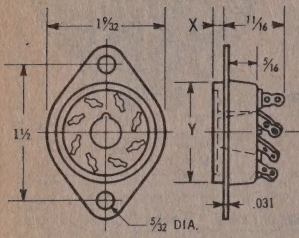


TYPE "MIP" SOCKETS



TYPE "S" SOCKETS





X=3/32 on MIP-4-5-6-7S & 7L
X=.145 on MIP-8-9-11-12
Y=1 7/64 on MIP-4-5-6-7S
Y=1 15/64 on MIP-7L-20
Y=1 7/64 on MIP-11-12

High dielectric bakelite body with molded in steel plate except (†) Mica-filled phenolic socket. *Requires 1 3/16" hole for mounting. All others mount in 1 5/32" hole. Shpg. wt., 2 oz.

SOLDER TYPES

Stock No.	Type	Prongs	1-49	50-99	100-249	250-999
38F840	77MIP4	4	.62	.51	.45	.39
38F841	77MIP5	5	.67	.56	.48	.42
38F842	77MIP6	6	.72	.60	.52	.45
38F843	77MIP7S	7S	.77	.64	.56	.49
38F845	77MIP8	Octal	.62	.51	.45	.39
38F846	*78-88-8	Octal	.59	.49	.43	.37
38F847	*78-88-8x	Loktal	.82	.68	.60	.52
38F848	77MIP9	9	.62	.51	.45	.39
38F849	77MIP11	11	.72	.60	.52	.45
39F1244	†77MIP11T	11	.75	.62	.54	.47
38F850	77MIP12	12	.67	.56	.48	.42
39F149	77MIP20	20	1.49	1.24	1.08	.94

PRINTED CIRCUIT TYPES

Stk. No.	Type	Prongs	1-49	50-99	100-249	250-999
42F825	77MIP8W-125	8	.75	.62	.54	.47
42F827	77MIP11W-125	11	.85	.71	.61	.53

WIRE WRAP TYPES

42F828	77MIP8W-500	8	.75	.62	.54	.47
42F830	77MIP11W-500	11	.85	.71	.61	.53

TYPE 147 & 59 MINIATURE SOCKETS

147 series mount in 5/8" chassis hole and have 7/8" mounting centers with 1/8" screw holes. **59 series** mount in 3/4" chassis hole and have 1 1/8" mounting centers with .095" rivet holes. All are Bottom-Mounting Type-Fig. A except those with (*), which are Top-Mounting Type-Fig. B. (Tube Shield Base incl.). Shp. wt. 2 oz.

Stock No.	Type	Insul.	Pins	1-49	50-99	100-249	250-999
38F870	77-147-500	Bakelite	7	.69	.58	.50	.44
38F872	77-147-505	Mica	7	.69	.58	.50	.44
38F873	77-59-409	Bakelite	9	.87	.73	.63	.55
38F874	77-59-410	Mica	9	.87	.73	.63	.55

MINIATURE RETAINER RING SOCKETS

For installation in compact electronic equipment. Black molded bakelite bodies. Mount in 5/8" round or "D" shaped hole with ring provided. Wt. 2 oz.

Stock No.	Type	Prongs	1-49	50-99	100-249	250-999
38F825	78-S3S	3	.31	.26	.22	.19
38F826	78-S4S	4	.39	.32	.28	.24
38F827	78-S5S	5	.51	.43	.37	.32
38F828	78-S6S	6	.54	.45	.39	.34

Sockets	A	B	C	D	E
78-S4, -S5, -S6, -S7S	1 1/4	1 5/32	.135	.420	Approx. 2 7/32
78-S8, -S9, -S11, -S12, -S16, -A7P, -A9P, -B	1 1/4	1 5/32	.145	.490	Approx. 7/8
78-S8L	1 1/4	1 5/32	3/32	2 3/64	9/16

Retainer ring sockets. For easy assembly to chassis or panel from 19 gauge (.044") to 16 gauge (.062") with tempered steel retainer ring. Black phenolic except (*) mica filled phenolic. Rotation feature permits lining up contacts. All mount in 1 11/64" to 1 13/32" hole. With retainer. Wt. 2 oz.

SOLDER TERMINALS

Stock No.	Type	Prongs	1-49	50-99	100-249	250-999
38F810	78S4	4	.57	.47	.41	.36
38F811	78S5	5	.62	.51	.45	.39
38F812	78S6	6	.67	.56	.48	.42
38F816	78S8	Octal	.62	.51	.45	.39
39F1045	78S8T*	8	.67	.56	.48	.42
38F817	78S9	9	.57	.47	.41	.36
38F821	78S11	11	.69	.58	.50	.44
39F1046	78S11T*	11	.77	.64	.56	.49

PRINTED CIRCUIT TYPES

Stock No.	Type	Prongs	1-49	50-99	100-249	250-999
42F814	78S8W-125	8	.62	.51	.45	.39
42F816	78S11W-125	11	.72	.60	.52	.45

RELAY SOCKETS

146-817

146-103, 146-104

Type 146-817. 11 contact socket with 4 molded-in threaded inserts. 600 V. RMS, 10 Amps. **Type 146-103.** 8 contact standard socket without tie point inserts top mounted. Molded in one piece of Melamine. Removable contacts. 1250 V. RMS, 5 Amps.

Type 146-104. 8 contact socket with 4 molded-in threaded inserts for tie points. Top mounted. Molded in one piece of Melamine. Removable contacts.

Type 146-203. Same as 146-103 above except bottom mounted.

Type 146-204. Same as 146-104 above except bottom mounted.

Stock No.	Type	Wt.	1-49	50-99	100-249	250-999
38F930	146-103	8 oz.	2.54	2.12	1.84	1.60
38F931	146-104	8 oz.	3.14	2.61	2.27	1.98
38F933	146-203	8 oz.	2.54	2.12	1.84	1.60
38F934	146-204	8 oz.	3.14	2.61	2.27	1.98
39F1247	146-817	10 oz.	5.47	4.56	3.96	3.45

Make NEWARK Your One Stop Source For All Your Electronic Components And Accessories

91T SERIES MICROPHONE CONNECTORS

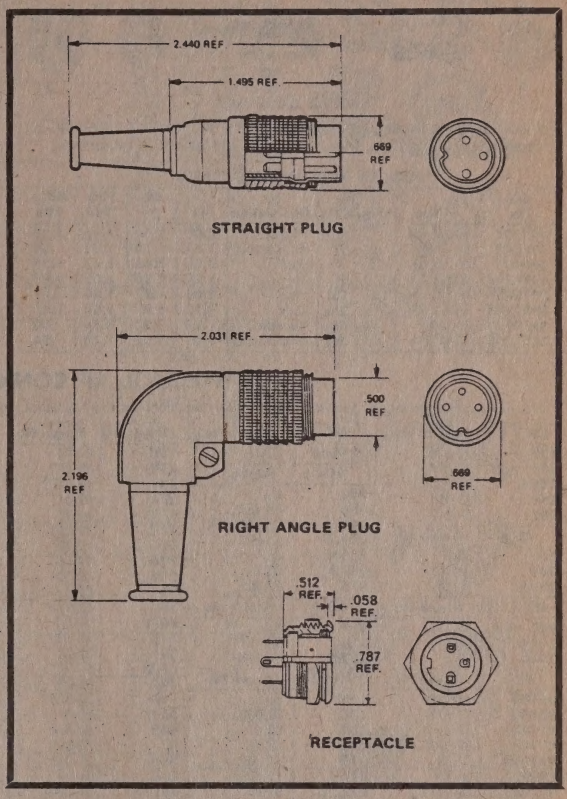
Miniature audio/electronic cable to panel connectors with up to 12 contacts. Approximately 33% smaller than Amphenol's standard 91 series coupling ring connectors, these miniatures are intermateable with some types of imported European electronic equipment. Accidental disconnection and problems from shock or vibration are eliminated by the screw lock coupling ring which tightens the connector halves together after engagement. Panel receptacles have spring-type socket contacts. Polarization is achieved by a key in the shell and by contact arrangement to prevent mismating.

CABLE PLUGS Bright nickel-plated shell and coupling ring. Molded black polycarbonate dielectric insert and bushing. Flexible clear PVC plastic strain relief. Positive internal cable clamp accepts cable up to 7/32" O.D. Easily disassembled for quick termination. Choice of straight or right angle cable outlet. Pin contacts with solder pot tails standard.

PANEL RECEPTACLES Machined brass shell with bright nickel plating. Mounts in .720" dia. keyed panel cutout with a hex type nut. Mates with either straight or right angle cable plugs. Socket contacts with pre-tinned solder eyelet tails standard.

SPECIFICATIONS

Current Rating: 3 amps per contact. **Voltage Rating:** 3, 4, 5, 6, and 7 contacts—120V; 12 contacts—60V. **Dielectric:** Black polycarbonate. **Contacts:** Pin — Silver-plated brass; Socket — Silver-plated phosphor bronze. **Wire Size:** 20 ga.



CABLE PLUGS

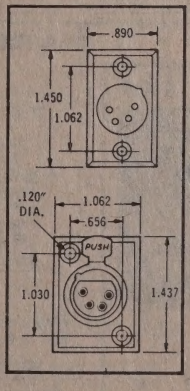
Stk. No.	Type	No. of Contacts	EACH 1-49	50-99	100-249	250-999
Straight						
47F020	91-T-3260-1	3	3.47	2.84	2.36	2.15
47F021	91-T-3300-1	4	3.47	2.84	2.36	2.05
47F022	91-T-3360-1	5	3.54	8.89	2.42	2.09
47F023	91-T-3400-1	6	3.89	3.17	2.65	2.29
47F024	91-T-3475-1	7	3.93	3.21	2.68	2.32
47F025	91-T-3635	12	6.54	5.34	4.46	3.86
Right Angle						
47F026	91-T-3360-6	5	.....	3.99	3.33	2.88
47T027	91-T-3400-6	6	4.89	4.01	3.34	2.90
47F028	91-T-3475-6	7	5.08	4.16	3.47	3.00
47F029	91-T-3635-6	12	9.26	7.58	6.31	5.47

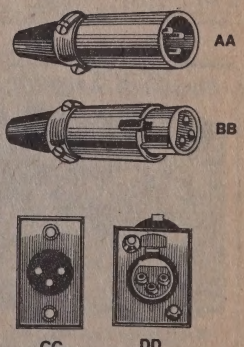
PANEL RECEPTACLES

Stk. No.	Type	No. of Contacts	EACH 1-49	50-99	100-249	250-999
47F030	91-T-3263-9	3	1.81	1.47	1.23	1.06
47F031	91-T-3303-9	4	1.87	1.53	1.28	1.10
47F032	91-T-3363-9	5	2.04	1.66	1.39	1.20
47F033	91-T-3403-9	6	2.06	1.68	1.41	1.22
47F034	91-T-3478-9	7	2.22	1.82	1.51	1.31
47F035	91-T-3638-9	12	4.99	4.08	3.40	2.95

SERIES 91 EXCELLITE MIC CONNECTORS

Low-level circuit cable connectors. Fully interchangeable with all industry standard latch-lock type audio connectors. Thermo-plastic body. Nickel plated. 50% lighter than zinc die-cast connectors. Pushbutton latching mechanism. Mechanical cable clamp accepts cables from .250" to .313" O.D. Copper alloy contacts. Unitized inserts. Solder cup type contacts. Positive ground. Polarization key of female connector, lock-in key-way on male to prevent mismating. 20°F to 160°F temp. rating. Insulation resistance exceeds 100 megohms.





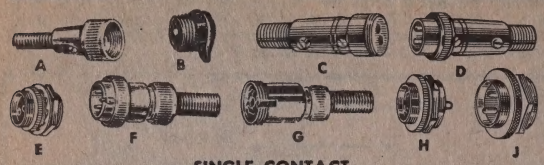
Stock No.	Type No.	Description	Fig.	No. of Contacts	1-49	50-99	100-249
39F3007	91-454	Female plug	BB	3	1.88	1.59	1.42
39F3008	91-458	Female plug	BB	4	2.38	1.98	1.77
39F3009	91-462	Female plug	BB	5	4.10	3.47	3.07
39F3004	91-453	Male Plug	AA	3	1.59	1.34	1.19
39F3005	91-457	Male plug	AA	4	1.75	1.51	1.31
39F3006	91-461	Male plug	AA	5	2.80	2.42	2.14
39F3010	91-455	Male recpt.	CC	3	1.44	1.22	1.06
39F3011	91-459	Male recpt.	CC	4	1.72	1.45	1.27
39F3012	91-463	Male recpt.	CC	5	2.18	1.88	1.63
39F3013	91-456	Female recpt.	DD	3	2.61	2.24	1.94
39F3014	91-460	Female recpt.	DD	4	2.51	2.14	1.87
39F3015	91-464	Female recpt.	DD	5	3.70	3.17	2.77

AMPHENOL STAINLESS STEEL SMA CROSS-REFERENCE GUIDE

Newark Stk. No.	Amphenol	OSM	Solitron	Sealectro	ITT	American
39F3324	901-9183-1	201-1	2902-6001	55-607-3703-31	150505-3051	2001-7941
39F3331	901-9204-CC	204CC	2950-6061	50-645-4530-31	150550-001	2052-1201
39F3333	901-9214-CC	214CC	2955-6003	50-646-4520-31	150542-0000	2051-1201
39F3332	901-9215	215	2950-6081	50-645-4504-31	150550-000	2052-0000
39F3325	901-9501-3	501-3	2903-6001	55-622-9188-31	.....	2031-5003
39F3326	901-9511-3	511-3	2903-6001	50-622-9188-31	150505-1270	2031-5006
39F3328	901-9521-3	521-3	2913-6001	50-628-9188-31	.....	2037-5006
39F3329	901-9531-3	531-3	2913-6001	50-628-9188-31	150520-1270	2037-5008
39F3327	901-9601-3	601-3	2903-6001	50-624-9188-31	150500-1270	2031-5012
39F3330	901-9602-3	602-3	2923-6001	50-625-9188-31	150510-1272	2032-5003

BUNKER RAMO AMPHENOL NORTH AMERICA Bunker Ramo Corporation

AMPHENOL CONNECTORS



SINGLE CONTACT

For standard audio equipment. Plugs can be converted to jacks by removing coupling ring. Mounts in .385" holes when grounded.

FOR USE WITH SHIELDED CABLE

Stk. No.	Type	Fig.	Con.	Description	1-49	50-99	100-249	250-499
39F007	80-M	....	1M	Plug	2.00	1.66	1.44	1.23
39F008	80-C	....	1F	Receptacle	1.42	1.18	1.03	.88
39F009	80-MC2F	C	2F	Jack	2.25	1.88	1.63	1.39
39F1284	80-MC2F1	....	2F	Plug	2.83	2.36	2.05	1.75
39F010	80-MC2M	J	2M	Plug	2.06	1.72	1.49	1.27
39F1285	80-MC2M1	....	2M	Jack	2.13	1.77	1.54	1.31
39F011	80-PC2F	H	2F	Receptacle	1.58	1.31	1.14	.98
39F1286	80-PC2M	....	2M	Receptacle	1.51	1.26	1.10	.94

MICROPHONE CONNECTORS

SINGLE BUTTON CONTACT

Shielded general purpose audio connector for use in microphones and wherever a single conductor, shielded connector is required. Screw on coupling ring to lock.

SINGLE BUTTON CONTACT

Stk. No.	Type	Fig.	Con.	Description	1-49	50-99	100-249	250-499
39F000	80-75-MC1F	A	1	Plug,	1.71	1.42	1.23	1.05
39F002	80-75-PC1M	C	1	Receptacle	1.45	1.21	1.05	.90

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OEM Factory Prices

AMPHENOL RF CONNECTOR CROSS INDEX

This is not a complete listing of military part numbers manufactured by Amphenol, but only a list of items which are stocked by Newark Electronics

CW-( )/U	Amph. No.
123	31-006
155	31-007
155A	31-027
159	31-017
282	31-210
M-( )	**Amph No.**
358	83-1T
359	83-1AP
359A	83-58
MX-( )/U	**Amph No.**
913	82-106
1142	82-512
1530	1050
NT-( )	**Amph No.**
49190	93-1SP
49190	83-822
49191	83-1J
49192	83-1AP
49192A	83-58
49293	83-1H
49194	83-1RTY
49194	83-1R
49195	83-1SPN
49195	83-756
49199	83-1T

NT-( )	Amph No.
491049	83-1F
PL-( )	**Amph No.**
258	83-1J
259	83-1SP
259	83-1SP-1050
259	83-822
259A	83-1SPN
259A	83-756
275	82-22F
SO-( )	**Amph No.**
239	83-1R
239	83-1RTY
239A	83-798
UG-( )/U	**Amph No.**
188	82-86
18C	82-203
21B	82-61
21C	82-96
21D	82-202
21E	82-3202
22B	82-62
22D	82-208
22E	82-3208
23B	82-63

UG-( )/U	Amph No.
23C	82-94
23D	82-209
23E	82-3209
27A	82-64
27B	82-98
27C	82-213
28A	82-99
29A	82-65
29B	82-101
30	82-66
30C	82-201
30D	91100
57B	82-100
58	82-24
58A	82-97
59A	82-38
59B	82-804
60A	82-39
60B	80-814
88	31-002
88B	31-018
88C	31-202
88E	31-3202
89	31-005
89A	31-019

UG-( )/U	Amph No.
89B	31-205
94A	81-84
95A	82-89
102	88-22SP
103	82-22R
104	83-22AP
106	83-1H
107A	83-26
107B	82-102
111	83-750
154	82-59
177	83-765
201A	31-216
212A	82-91
254A	31-016
260	31-012
260A	31-021
260B	31-212
261	31-015
261B	31-215
261B	31-211
273	31-028
274	31-008
274A	31-208
274B	31-2208

UG-( )/U	Amph No.
290	31-003
290A	31-203
291B	31-201
306	31-009
306A	31-209
318	26700
249A	31-217
352	82-80
358	82-215P
363	83-1F
414	47000
421	6275
422	6225
491A	31-218
492A	31-220
492D	31-3220
496	82-92
536	34000
536B	34025
560	82-805
564	82-508
565A	82-540
567A	82-535
568	82-504
569	82-505

UG-( )/U	Amph No.
572	82-503
573A	82-530
625B	31-236
628A	82-532
634	82-515
643	82-514
646	83-1AP
657	31-102
703	82-511
709A	82-534
710A	82-531
909	31-206
910	31-207
912	31-238
913	31-204
914	31-219
932A	27975
1033	84975
1051	2175
1094	31-221
1094A	31-2221
1098	31-222
1185	82-312
1186	82-313
1187	82-314
1213	82-320

DEARBORN NYLON LACING TAPE

NYLON LACING TAPE MIL-T-43435 TYPE I

Flat braided high-tenacity nylon yarn impregnated with microcrystalline fungicidal wax or to MIL specs. *Test tensile strength (lbs.); (†) Finishes code see box at left.

Stock No.	Mfr's Type	*	Width	Color	†	500-yard Spools EACH
37F2207	805032W	50 lbs.	.090"	Natural	A	9.55
37F2208	805032B	50 lbs.	.090"	Black	A	10.65
37F2209	805036W	50 lbs.	.090"	Natural	W	9.55
37F2210	805036B	50 lbs.	.090"	Black	W	11.00
37F2213	802534W	25 lbs.	.062"	Natural	W	6.15
37F2214	802534B	25 lbs.	.062"	Black	W	8.10

POLYESTER LACING TAPE MIL-T-43435 TYPE II

Flat braided polyester yarn impregnated with microcrystalline fungicidal wax or to meet MIL specs. 1½ lbs. *Test tensile strength (lbs.), (†) Finishes code see box at left.

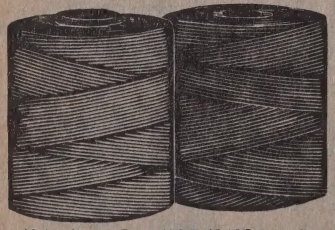
37F2215	805058W	50 lbs.	.090"	Natural*	A	8.90
37F2216	805058B	50 lbs.	.090"	Black	A	10.35
37F2217	805062W	50 lbs.	.090"	Natural	W	8.95
37F2218	805062B	50 lbs.	.090"	Black	W	10.35

NYLON LACING TWINE MIL-T-713D TYPE P

Round twisted nylon fiber impregnated with microcrystalline wax. Excellent knot retention, for lacing or spot ties. 32 lb. test 1100 yd. spool; 48 lb. test 750 yd. spool; 70 lb. test 550 yd. spool. *Test tensile strength (lbs.); (†) Finishes code see box at left.

Stock No.	Mfr's Type	*	Nom. Diam.	Spool Length	Color	†	1 Lb. Spools EACH
37F2219	807013W	70 lbs.	.039"	550 yds.	Natural	W	10.80
37F2220	807013B	70 lbs.	.039"	550 yds.	Black	W	11.90
37F2221	804814W	48 lbs.	.029"	750 yds.	Natural	W	10.80
37F2223	803215W	32 lbs.	.025"	1100 yds.	Natural	W	10.80
37F2224	803215B	32 lbs.	.025"	1100 yds.	Black	W	11.90

FINISHES AND COATINGS



Nylon Lacing Tape MIL-T-43435 Type I (Supersedes MIL-T-713D)

W-WAX (MIL SPEC B)

A microcrystalline fungicidal wax which exceeds MIL specs. Provides excellent knot retention and is suitable for either lacing or spot ties.

A-SYNTHETIC RESIN (MIL SPEC E)

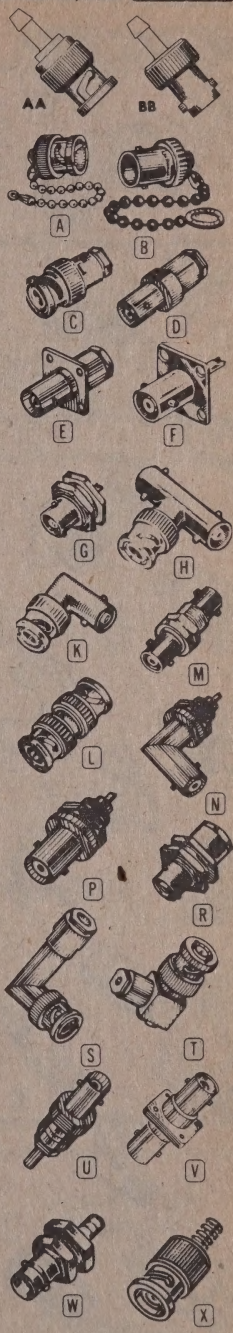
A synthetic rubber-like resin formulated with fungicidal ingredients. Handling characteristics are excellent, knot retention is outstanding; meets or exceeds MIL specs. requirements.

OPERATIONAL TEMPERATURE RANGES: −67°F to +250°F.

11

TYPE BNC CONNECTORS

Stock No.	Type P/N	RG/U Cables	Fig.	MIL Number	Description	1-24	25-99	100-499	500-999
38F920	31-4700	58	AA	.....	Quick connect Plug	1.53	1.19	.98	.84
38F921	31-4701	58	BB	.....	Quick connect Jack	2.26	1.76	1.45	1.24
38F922	31-4702	59	AA	.....	Quick Connect Plug	1.72	1.35	1.11	.95
38F923	31-4703	59	BB	.....	Quick Connect Jack	2.51	1.96	1.61	1.38
40F6318	31-4321	59, 62, 140, 210	X	M39012/16-0015	Plug (Crimp)	1.96	1.53	1.26	1.08
39F1446	31-321	59, 62, 140, 210	X	M23329/3-05	Plug (Crimp)	2.00	1.56	1.28	1.10
39F029	68175	59, 62, 140, 210	X	.....	Plug (Crimp)	1.69	1.32	1.08	.93
39F1044	31-359	59, 62, 140, 210	X	.....	Plug (Crimp)	5.11	3.99	3.27	2.81
40F6319	31-4320	58, 141	X	M39012/16-0013	Plug (Crimp)	1.89	1.47	1.21	1.04
39F1438	31-320	58, 141	X	M23329/3-01-03	Plug (Crimp)	2.00	1.56	1.28	1.10
39F1072	36775	58, 141	X	.....	Plug (Crimp)	1.69	1.32	1.08	.93
39F1042	31-351	58, 141	X	.....	Plug (Crimp)	4.98	3.88	3.19	2.74
40F6320	31-4326	55, 142. 223	X	M39012/16-0014	Plug (Crimp)	2.32	1.81	1.49	1.28
39F1442	31-326	55, 142. 223	X	M23329/3-02-04	Plug (Crimp)	1.93	1.50	1.23	1.06
39F1082	36875	55, 142, 223, 400	X	.....	Plug (Crimp)	1.78	1.39	1.14	.98
40F6321	31-315	174, 188	X	.....	Plug (Crimp)	2.91	2.27	1.86	1.60
39F1454	31-323	180	X	.....	Plug (Crimp)	2.51	1.96	1.61	1.38
40F6322	31-321-1000	Belden 8281	X	.....	Plug (Crimp)	2.18	1.70	1.40	1.20
40F6323	31-3302	59, 62. 71, 140, 210	C	.....	Plug (Crimp)	1.85	1.45	1.19	1.02
39F065	31-012	59, 62, 71, 140, 210	C	.....	Plug (Clamp)	1.62	1.26	1.04	.89
39F1006	31-021	59, 62, 71, 140, 210	C	.....	Plug (Clamp)	1.69	1.32	1.08	.93
39F1027	31-212	59, 62, 71, 140, 210	C	.....	Plug (Clamp)	1.44	1.12	.92	.79
39F1223	31-304	59, 62, 71, 140, 210	C	.....	Plug (Clamp)	2.64	2.06	1.69	1.45
40F6324	31-3301	55, 58, 141, 142, 223, 400	C	.....	Plug (Clamp)	1.69	1.32	1.08	.93
39F063	31-002	58, 141, 142, 400	C	.....	Plug (Clamp)	1.40	1.09	.90	.77
39F1003	31-018	58, 141, 142, 400	C	.....	Plug (Clamp)	1.51	1.18	.97	.83
39F1018	31-202	55, 58, 141, 142, 223, 400	C	.....	Plug (Clamp)	1.24	.96	.79	.68
39F1220	31-301	55, 58, 141, 142, 223, 400	C	.....	Plug (Clamp)	2.46	1.92	1.57	1.35
39F1335	84975	122, 195	C	.....	Plug (Clamp)	2.78	2.17	1.78	1.53
40F6325	69475	174, 179, 187, 188	C	.....	Plug (Clamp)	3.16	2.47	2.02	1.74
39F1447	31-336	59, 62, 140, 210	..	.....	Angle Plug (Crimp)	7.60	5.97	4.86	4.18
39F1439	31-335	58, 141	..	.....	Angle Plug (Crimp)	7.14	5.57	4.57	3.93
39F1040	31-850	59, 62, 71, 140, 210	T	.....	Angle Plug (Crimp)	5.72	4.46	3.66	3.15
39F1020	31-204	55, 58, 141, 142, 223, 400	S	.....	Angle Plug (Clamp)	4.72	3.68	3.02	2.60
40F6326	31-4327	58, 141	..	.....	Cable Jack (Crimp)	5.00	3.90	3.20	2.75
40F6327	31-4328	59, 62, 140, 210	..	.....	Cable Jack (Crimp)	2.88	2.25	1.84	1.58
40F6328	31-4342	58, 141	W	.....	Bulkhead Jack (Crimp)	5.20	4.06	3.33	2.86
39F1449	31-4343	59, 62, 140, 210	W	.....	Bulkhead Jack (Crimp)	4.12	3.21	2.64	2.27
39F064	31-005	58, 141, 142, 400	D	.....	Cable Jack (Crimp)	2.51	1.96	1.61	1.38
39F1021	31-205	55, 58, 141, 142, 223, 400	D	.....	Cable Jack (Clamp)	1.55	1.21	.99	.85
39F066	31-015	59, 62, 71, 140, 210	D	.....	Cable Jack (Clamp)	2.30	1.79	1.47	1.27
39F1028	31-215	59, 62, 71, 140, 210	D	.....	Cable Jack (Clamp)	2.00	1.56	1.28	1.10
39F1022	31-206	58, 141, 142, 400	R	.....	Bulkhead Jack (Clamp)	2.96	2.31	1.89	1.63
39F1023	31-207	59, 62, 71, 140, 210	R	.....	Bulkhead Jack (Clamp)	3.14	2.45	2.01	1.73
39F070	31-001	58, 141, 142, 400	E	.....	Panel Jack (Clamp)	3.56	2.78	2.28	1.96
39F1017	31-201	58, 141, 142, 400	E	.....	Panel Jack (Clamp)	3.31	2.58	2.12	1.82
39F1026	31-211	59, 62, 71, 140, 210	E	.....	Panel Jack (Clamp)	3.28	2.56	2.10	1.80
40F6329	18225	.....	F	.....	Panel Recpt., PC Pins	5.96	4.65	3.81	3.28
39F069	31-003	.....	F	.....	Panel Recpt., 3-56 Tapped Flange	1.80	1.40	1.15	.99
39F1019	31-203	.....	F	.....	Panel Recpt., 3-56 Tapped Flange	1.36	1.06	.87	.75
39F1311	4500	.....	F	.....	Panel Recpt., .136" Dia. Flange	2.50	1.95	1.60	1.37
38F1322	31-010	.....	P	.....	Bulkhead Recpt., isolated	1.98	1.55	1.27	1.09
40F6330	31-3376	.....	P	.....	Bulkhead Recpt., Gold pltd. Cont.	1.29	1.01	.83	.71
39F075	31-221	.....	P	.....	Bulkhead Recpt.	.96	.75	.62	.53
39F3130	31-2221	.....	P	.....	Bulkhead Recpt.	1.16	.91	.75	.64
39F1337	31-236	.....	P	.....	Bulkhead Recpt.	1.02	.80	.65	.56
39F1312	5575	.....	P	.....	Bulkhead Recpt.	1.58	1.23	1.01	.87
39F073	31-102	.....	P	.....	Bulkhead Recpt., Pressurized	1.93	1.50	1.23	1.06
39F1001	31-016	.....	G	.....	Bulkhead Recpt., Rear Mnt, Press.	8.91	6.95	5.70	4.90
39F1339	31-238	.....	P	.....	Bulkhead Recpt., Hermetic	2.94	2.29	1.88	1.62
39F1034	31-222	.....	N	.....	Bulkhead Recpt., Angle	5.40	4.21	3.46	2.97
39F1002	31-017	.....	A	.....	Male Cap, Shorting Contact	2.00	1.56	1.28	1.10
39F1000	31-006	.....	A	.....	Male Cap	1.40	1.09	.90	.77
39F1009	31-026	.....	A	.....	Male Cap	1.25	.98	.80	.69
39F1010	31-027	.....	A	.....	Male Cap	.98	.77	.63	.54
39F1025	31-210	.....	B	.....	Female Cap	2.00	1.56	1.28	1.10
39F1035	31-759	.....	..	.....	Shield Grounding Lug	.35	.27	.22	.19
39F1031	31-218	.....	M	.....	Adapter (Plug-Plug)	3.31	2.58	2.12	1.82
39F1032	31-219	.....	..	.....	Adapter (Jack-Jack)	1.84	1.44	1.18	1.01
39F071	31-009	.....	K	.....	Adapter (Angle) (Jack-Plug)	4.12	3.21	2.64	2.27
39F1071	31-209	.....	K	.....	Adapter (Angle) (Jack-Plug)	4.08	3.18	2.61	2.24
39F1331	47000	.....	V	.....	Adapter (Panel Mnt. Jack-Jack)	3.96	3.09	2.53	2.18
39F1033	31-220	.....	L	.....	Adapter (Blkhd. Mnt. Jack-Jack)	3.88	3.03	2.48	2.13
39F068	31-008	.....	H	.....	Adapter-Tee (Jack-Plug-Jack)	4.22	3.29	2.70	2.32
39F1024	31-208	.....	H	.....	Adapter-Tee (Jack-Plug-Jack)	4.08	3.18	2.61	2.24



TYPE TNC CONNECTORS

Stock No.	Type	RG/U Cable	Description	1-24	25-99	100-499	500-999
40F6331	31-2373	55, 142, 223	Plug (crimp)	1.80	1.40	1.15	.99
40F6332	31-2367	58, 141	Plug (crimp)	2.16	1.68	1.38	1.19

TOOLS & CRIMP DIES

Military No.	Amph. No.
M22520/5-01	227-944
M22520/5-09	227-1221-09
M22520/5-11	227-1221-11
M22520/5-13	227-1221-13
M22520/5-15	227-1221-15
M22520/5-23	227-1221-23
M22520/5-25	227-1221-25
M22520/5-29	227-1221-29
M22520/5-57	227-1221-57
M22520/5-59	227-1221-59

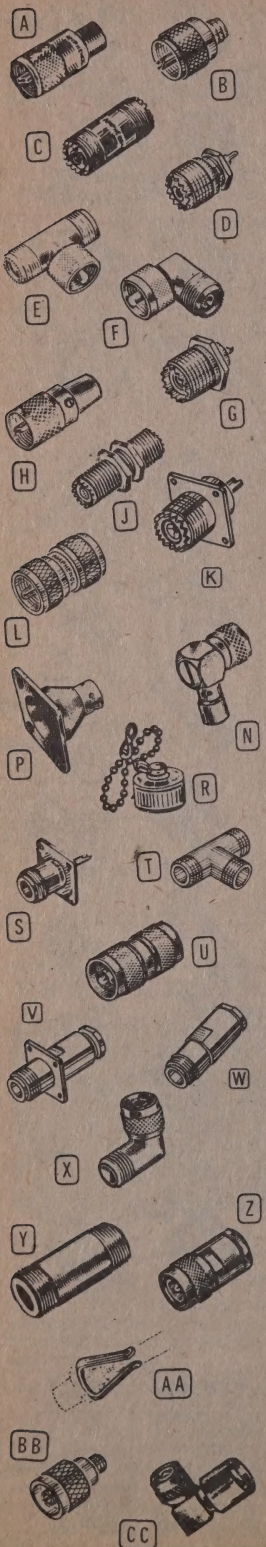
MILITARY CROSS REFERENCE TO AMPHENOL PART NUMBERS

CONNECTORS

Military No.	Amph. No.
M23329/3-01	31-320
M23329/3-02	31-326
M23329/3-05	31-321
M23329/3-07	31-323
M23329/3-08	31-327
M23329/3-12	31-328
M2339/3-15	31-342
M23329/3-16	31-341
M23329/3-19	31-343
M23329/4-01	31-2367
M23329/4-02	31-2372

Military No.	Amph. No.
M39012/01-0005	82-4352
M39012/01-0007	82-340
M39012/01-0008	82-332
M39012/01-0013	82-324
M39012/02-0006	82-4360
M39012/03-0002	82-4364
M39012/04-0001	82-369
M39012/04-0002	82-368

Military No.	Amph. No.
M39012/16-0001	31-3301
M39012/16-0002	31-3302
M39012/16-0013	31-4320
M39012/16-0014	31-4326
M39012/16-0015	31-4321
M39012/17-0013	31-4327
M39012/17-0015	31-4328
M39012/25-0006	31-026
M39012/61-4002	901-117



UHF CONNECTORS

Threaded coupling UHF series are low-cost, general purpose connectors used in applications at lower frequencies where no serious mismatch is introduced. They will operate satisfactorily at frequencies up to 300 MHz and have a peak voltage rating of 500 volts.

Stk. No.	Type	Mil No.	Fig.	Descrip.	RG/U Cable	1-24	25-99	100-499	500-999
39F194	83-8SP	.....	B	Plug	8,11,149,213	1.27	.99	.82	.70
39F188	83-1SP1050	PL-259	A	Plug	8,9,11	.91	.71	.58	.49
39F189	83-58SP	.....	B	Plug	58,141	1.25	.98	.80	.69
39F190	83-59SP	.....	B	Plug	59,62	1.25	.98	.80	.69
39F1075	83-58FCP	.....	...	Plug	58	.96	.75	.65	.62
39F191	83-875 1002	.....	D	Bkd. recpt.	.....	1.69	1.32	1.08	.93
39F192	83-878	.....	G	Bkd. recpt.	.....	1.08	.84	.69	.59
39F193	83-877	.....	L	Adapter	Plug-plug	2.18	1.70	1.40	1.20

Stock No.	Type	Mil. No.	Fig.	Descrip.	For RG/U Cables	1-24	25-99	100-499	500-999
39F034	83-1T	M-358	E	Tee adapter	.....	3.65	2.85	2.35	2.01
39F1060	83-58	M-359A	F	90° adapter	.....	3.80	2.96	2.43	2.09
39F035	83-1J	PL-258	C	St. adapter	.....	1.40	1.09	.89	.77
39F030	83-1SP	PL-259	A	Plug (1)	.....	1.01	.78	.65	.56
39F031	83-1SPN	PL-295A	H	Plug	8-13,63	2.58	2.01	1.65	1.42
39F047	83-22F	PL275	J	Bulk adapter	.....	12.26	9.56	7.85	6.74
39F039	83-1R	SO-239	K	Receptacle	57,130	.81	.63	.52	.44
39F037	83-1H	UG-106/U	P	Hood	.....	1.18	.92	.76	.65
39F1064	83-750	UG-111/U	A	Plug	140,210	1.80	1.40	1.15	.99
39F040	83-185	UG-175/U	...	Reducing adapt.	58,141,142	.28	.21	.18	.15
39F041	83-168	UG-176/U	..	Reducing adapt.	59,62,71,140,210	.30	.23	.19	.16
39F038	83-765	UG-177/U	P	Hood	58,141	.92	.72	.59	.50
39F032	83-776	UG-203/U	H	Plug	58,141	3.92	3.06	2.51	2.16
39F036	83-1F	UG-363/U	J	Bulk adapter	.....	4.07	3.18	2.60	2.24
39F033	83-1AP	UG-646/U	F	90° adapter	.....	2.43	1.89	1.55	1.33
39F042	83-1AC	.....	R	Cap & Chain	.....	1.49	1.16	.95	.82
39F1061	83-59	.....	N	90° Plug	17,18	5.72	4.46	3.66	3.15
38F924	83-5SPA	.....	...	Adapter	.....	2.08	1.62	1.33	1.14
38F925	83-58FCJ	.....	...	In-line Jack	58	1.82	1.42	1.17	1.00
39F049	83-798	SO-239A	K	Panel Receptacle†	.....	1.82	1.42	1.17	1.00
39F1225	83-822	PL259	A	Plug Teflon	.....	1.39	1.08	.89	.77
39F088	83-850	.....	....	Solderless plug	11	10.04	7.83	6.43	5.52
39F089	83-851	.....	....	Solderless plug	8-13,63	5.42	4.23	3.47	2.98

NOTES: 1) Silver plated body (†) Teflon

TYPE N CONNECTORS

Series N connectors are medium size, weather-proof, threaded coupling units with a frequency limit of 11 GHZ. They have a peak voltage rating of 1500 volts and are impedance matched to either 50 or 70 ohm cables.

Stk. No.	Type	Mil. No.	Fig.	Description	For RG/U Cables	1-24	25-99	100-499	500-999
39F1108	82-96	UG-21C/U	Z	Plug	8,9,10	3.28	2.56	2.10	1.80
39F019	82-61	UG-21B/U	Z	Plug	8,9,10	2.91	2.27	1.86	1.60
39F1118	82-202	UG-21D/U	Z	Plug	8,9,10	2.64	2.06	1.69	1.45
39F020	82-62	UG-22B/U*	V	Panel Jack	8,9,10	3.94	3.07	2.52	2.17
39F1122	82-208	UG-22D/U	V	Panel Jack	8,9,10	4.16	3.25	2.66	2.29
39F021	82-63	UG-23B/U	W	Jack	8,9,10	3.49	2.72	2.23	1.92
39F1106	82-94	UG-23C/U	.....	Jack	8,9,10	3.51	2.74	2.25	1.93
39F1123	82-209	UG-23D/U	.....	Jack	8,9,10	2.84	2.22	1.82	1.56
39F076	82-64	UG-27A/U	X	90° Adapter	.....	7.78	6.07	4.98	4.28
39F1109	82-98	UG-27B/U	.....	90° Adapter	.....	7.11	5.54	4.55	3.91
39F1127	82-213	UG-27C/U	CC	90° Adapter	.....	6.14	4.79	3.93	3.38
39F1110	82-99	UG-28A/U	T	Tee Adapter	.....	8.36	6.52	5.35	4.60
39F077	82-65	UG-29A/U	U	St. Adapter	.....	4.08	3.18	2.61	2.24
39F1112	82-101	UG-29B/U	U	St. Adapter	.....	3.98	3.10	2.55	2.19
39F022	82-66	UG-30/U	X	Bulk Adapter	.....	7.36	5.74	4.71	4.05
39F1117	82-201	UG-30C/U	.....	Bulk Adapter	.....	8.42	6.57	5.39	4.63
39F1111	82-100	UG-57B/U	U	St. Adapter	.....	3.82	2.98	2.45	2.10
39F023	82-24	UG-58/U	S	Receptacle	.....	2.11	1.65	1.35	1.16
39F028	82-97	UG-58A/U	S	Receptacle	.....	2.44	1.90	1.56	1.34
39F024	82-84*	UG-94A/U	Z	Plug	11-13	4.29	3.34	2.74	2.36
39F1104	82-89*	UG-95A/U	W	Jack	11-13	4.14	3.23	2.65	2.28
39F018	82-36	UG-107A/U	T	Tee Adapter	.....	10.20	7.96	6.53	5.61
39F078	82-102	UG-107B/U	T	Tee Adapter	.....	8.46	6.60	5.41	4.65
39F1128	82-811	UG-680/U	.....	Bulk. Recpt.	.....	5.69	4.44	3.64	3.13
39F1114	82-106	MX-913/U	R	Cap & chain	.....	1.44	1.12	.92	.79
39F1115	82-112*	.....	S	Receptacle	.....	4.92	3.84	3.15	2.71
39F1129	82-835	.....	.....	Angle Plug	8,9,213,214,225	8.60	6.71	5.50	4.73
39F1340	91100	UG-30D/U	.....	Adpg 2F Ends	.....	7.60	5.93	4.86	4.18
39F1323	34000	UG-536/U	Z	Plug	.....	5.18	4.04	3.32	2.85
39F1074	82-340	01-0007	BB	Plug	8,213	3.18	2.48	2.04	1.75
39F195	82-332	01-0008	BB	Plug	9,214	3.26	2.54	2.09	1.79
39F196	82-4352	01-0005	.....	Plug	8,9,213,214,225	3.40	2.65	2.18	1.87
39F187	82-312	UG-1185/U	BB	Plug	8,9,213,214,225	2.92	2.28	1.87	1.61
39F1188	82-313	UG-1186/U	.....	Jack	8,9,213,214	3.38	2.64	2.16	1.86
39F1076	82-337	02-0008	.....	Jack	8,213	4.34	3.39	2.78	2.39
39F197	82-4360	02-0006	V	Panel Jack	8,9,213,214,225	3.82	2.98	2.45	2.10
39F186	82-369	04-0001	.....	Bkd recpt.	.....	6.96	5.43	4.45	3.83
39F1130	82-1275	.....	AA	Lug	.....	.40	.31	.26	.22

*70 ohm impedance; not intermateable with 50 ohm connectors.

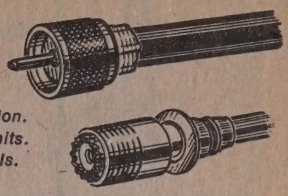
MINIATURE UHF PLUG AND JACK

Mini-UHF connectors are smaller versions of standard UHF series. Made for RG-58/U cable they are useable up to 4 GHz at 350 volts peak. Impedance is 50 ohms; VSWR at 2.5 GHz less than 1.25:1; Thermal limits range from —67° to 300°F (—55 to 149°C). An ideal connector for mobile and portable use.

Stk. No.	Type	Description	1-24	25-99	100-499	500-999
38F926	81-103	Male plug	1.21	.95	.77	.67
38F927	81-104	Female jack	1.50	1.17	.96	.83

SPECIFICATIONS

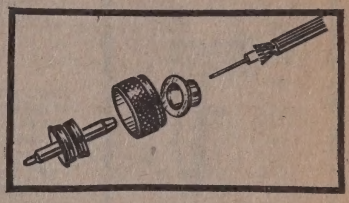
- *50 ohm nominal impedance*
- *4 GHz max. freq. range*
- *350v peak max. voltage*
- *Standard ⅜-24 mating thread.*
- *ASTROplated brass construction.*
- *—55 to 149°C max. thermal limits.*
- *Assembles without special tools.*



QUICK ASSEMBLY RF CONNECTORS

UHF and BNC series quick assembly connectors are designed for 75 ohm RG-59/U and 50 ohm RG-58/U coax. They are useable to 300 MHz at a maximum 500 V peak. Quick assembly connectors are reusable and require no special tools for assembly.

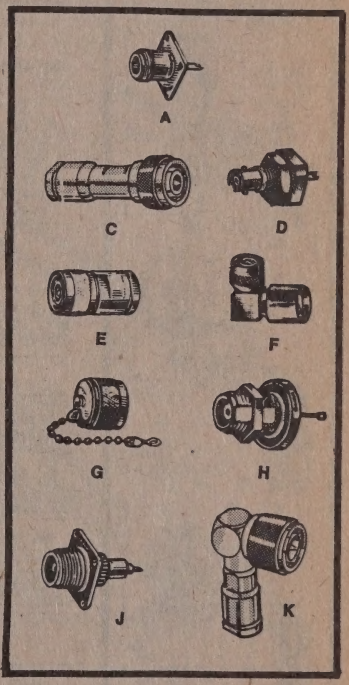
Stk. No.	Type	Description	1-24	25-99	100-499	500-999
39F1075	83-58FCP	50Ω UHF male plug	.96	.75	.65	.62
38F925	83-58FCJ	50Ω UHF female jack	1.82	1.42	1.17	1.00
38F920	31-4700	50Ω BNC male plug	1.53	1.19	.98	.84
38F921	31-4701	50Ω BNC female jack	2.26	1.76	1.45	1.24
38F922	31-4702	75Ω BNC male plug	1.72	1.35	1.11	.95
38F923	31-4703	75Ω BNC female jack	2.51	1.96	1.61	1.38



TYPE C CONNECTORS

Constant 50 Ohm impedance Design matched to 50 ohm cables can also be used with 75 ohm cable, at lower frequencies (below 300 MHz). Peak voltage rating of 1500V and low SWR up to 10 GHz. Thermal limits; —67° to 390°C). Pressurized; compression seal. 2-stud bay net lock. "V" groove split silicone rubber gasket and peaked braid clam. Weatherproof gaskets. Brass male contact; copper female and outer. Meets military specs of MIL-C-3989.

Stk. No.	Type	Jan Type	Fig.	Description	For RG/U Cable	Max. Jkt. Dia.	1-24	25-99	100-499	500-999
39F087	82-530	UG-573A/U	E	Straight Plug	8, 9	.420	5.26	4.10	3.37	2.89
39F1135	82-508	UG-564/U	...	...	...	...	6.06	4.73	3.88	3.33
39F1133	82-504	UG-568/U	A	Panel Receptacle	...	...	4.52	3.53	2.89	2.49
39F1145	82-532	UG-628A/U	E	Straight Plug	8, 9A	.420	7.32	5.71	4.69	4.03
39F1140	82-514	UG-643/U	...	Straight Adapter	...	...	9.40	7.33	6.02	5.17
39F1141	82-515	UG-634/U	D	Bulkhead Recept.	...	...	7.11	5.54	4.55	3.91
39F1147	82-534	UG-709A/U	E	Straight Plug	55, 58	.206	5.06	3.95	3.24	2.78
39F1144	82-531	UG-710A/U	F	Angle Plug	...	...	10.58	8.25	6.77	5.82



TYPE "HN" CONNECTORS

Constant 50 ohm impedance connectors designed for high voltage applications. Frequency range; 0-4GHz. Voltage Rating; 1,500 V peak. Pressurized; compression seal. Thermal limits; —67° to 390°F (—55° to 199°C). Synthetic and silicone rubber weatherproof. Meets military specs of MIL-C-3643. Brass male contacts; copper female and outer. Dielectric withstanding voltage; 5,000V rms. SWR; 1.3. Contacts are fixed within the connector body by front and rear contact insulators.

Have 5 KV peak ratings, when used with Amphenol 307 Silicone compound. Machine brass, 4 oz.

Stk. No.	Type	Jan Type	Fig.	Description	For RG/U Cable	Max. Jkt. Dia.	1-24	25-99	100-499	500-999
39F026	82-804	UG-598/U	C	Straight Plug	8-10	.420	8.49	6.62	5.43	4.67
39F1150	82-38	UG-59A/V	..	Straight Plug	8-10	.420	8.34	6.51	5.34	4.59
39F1158	82-92	UG-496/U	J	Panel Recept.	...	...	5.68	4.43	3.64	3.12
39F027	82-805	UG-560/U	J	Panel Recept.	...	...	7.89	6.16	5.05	4.34
39F1163	82-130	....	G	Cap & Chain	54A	...	2.93	2.29	1.88	1.61
39F1166	82-816	....	C	Straight Plug	8-10	.250	8.38	6.54	5.36	4.61
39F1167	82-833	....	K	Angle Plug	...	.420	13.40	10.45	8.58	7.37
39F1169	82-843	....	H	Bulkhead Recept.	8-10	...	15.66	12.21	10.02	8.62
39F1170	82-856	....	K	Angle Plug	...	.420	14.16	11.04	9.06	7.79

SUBMINAX 27 SERIES CONNECTORS

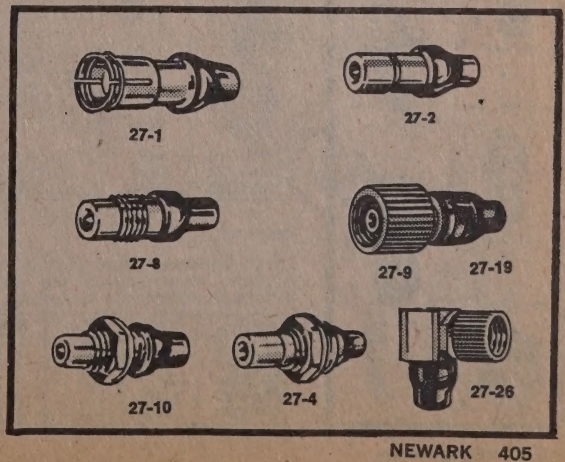
Constant impedance (50 or 75 ohm) types with voltage rating of 500 volts peak and frequency limit of 10 GHz. Two types of coupling mechanisms available-Snap On (push on) for frequent fast mating and limited space; Screw on for vibration type applications. Types do not intermate.

75 OHM

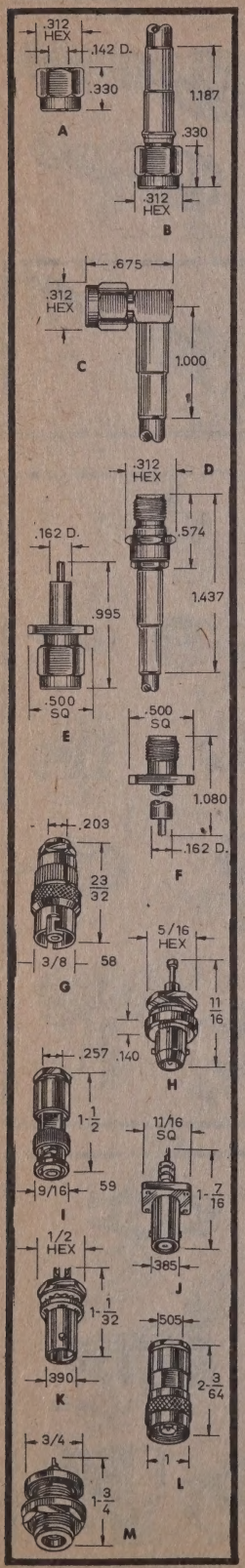
Stock No.	Type No.	Descrip.	RG-C/U Cable	1-24	25-99	100-499	500-999
42F219	27-19	Plug	180, 195	1.98	1.54	1.27	1.09
42F221	27-21	Recep.	180, 195	1.82	1.42	1.16	1.00

50 OHM

Stock No.	Type No.	Descrip.	RG-C/U Cable	1-24	25-99	100-499	500-999
42F201	27-1	Plug	174, 179	1.16	.90	.74	.64
42F202	27-2	Jack	174, 179	1.28	1.00	.82	.70
42F203	27-3	Recep. Blkh.	...	1.24	.98	.79	.68
42F204	27-4	Jack Blkh.	174, 179	2.14	1.67	1.37	1.18
42F207	27-7	Plug	187, 188	1.30	1.10	.83	.71
42F208	27-8	Jack	187, 188	1.48	1.15	.95	.81
42F209	27-9	Receptacle	...	1.24	.97	.80	.68
42F210	27-10	Jack Blkh.	187, 188	1.92	1.50	1.23	1.06
42F212	27-12	Recep. Herm.	...	11.62	9.06	7.44	6.39
42F226	27-26	Angle Plug	187, 188	2.96	2.34	1.89	1.63
39F1217	27-28	Adap. Sub.	...	2.66	2.07	1.70	1.46



AMPHENOL® CONNECTORS



SMA SERIES

50 ohm, semi-precision, subminiature (3mm), high-frequency (0-18 Ghz) connectors with ¼-36 threaded coupling. Meet all MIL-C-39012 requirements for SMA connectors.

Stk. No.	Type	Description	Fig.	1-24	25-99	100-499	500-999
39F3324	901-9183-1	Straight Plug	A	2.18	1.79	1.46	1.29
39F3325	901-9501-3	Straight Plug	B	3.94	3.24	2.65	2.33
39F3326	901-9511-3	Straight Plug	..	5.39	4.44	3.62	3.19
39F3327	901-9601-3	Straight Plug	..	5.32	4.37	3.57	3.15
39F3328	901-9521-3	Angle Plug	C	7.10	5.84	4.77	4.20
39F3329	901-9531-3	Angle Plug	..	7.10	5.84	4.77	4.20
39F3330	901-9602-3	Straight Jack	D	5.45	4.48	3.66	3.22
39F3331	901-9204-CC	Sq. Flange Rec.	F	....	2.94	2.40	2.11
39F3332	901-9215	Sq. Flange Rec.	..	3.29	2.71	2.21	1.95
39F3333	901-9214-CC	Plug	E	3.89	3.20	2.61	2.30

MB COAXIAL CONNECTORS

Excellent electrical and mechanical properties at low cost. Extremely small, use up to 500 mc, 500 volts. 400°F. Bayonet lock. Average weight, 4 oz.

Stock No.	Jan Type	Fig.	Description	For RG-/U Cable	Max. Jkt. Dia.	1-24	25-99	100-499	500-999
39F1326	45000	G	Plug	58	.203	3.84	3.00	2.46	2.11
39F1329	46000	H	Receptacle, nylon	...	...	2.34	1.83	1.50	1.29
39F1334	48850	G	Plug with Jacket Clamp	.180	.158	3.06	2.39	1.96	1.68

MHV COAXIAL CONNECTORS

Miniature high voltage connectors are small bayonet-lock connectors for use up to 50 mc., 5,000 volts, 5 amps. Similar, but do not mate with BNC Connectors. Average Shpg. wt., 4 oz.

Stk. No.	IPC Type	Jan Type	Fig.	For RG-/U Cable	Max. Jkt. Dia.	1-24	25-99	100-499	500-999
39F1321	27000	UG931/U	J	...	...	2.74	2.14	1.75	1.51
39F1322	28000	UG932/U	I	59	.257	3.09	2.41	1.98	1.70
39F1478	27975	UG932A/U	I	59,62,71	.257	3.06	2.39	1.96	1.68
39F3334	29100	...	I	55,58,141,142	.212	4.38	3.42	2.80	2.41
39F3335	27025	...	..	...	...	4.56	3.56	2.92	2.51

TWIN SERIES

Have a nominal impedance of 95 ohms are weather-proof. All are polarized to preserve continuity of the individual conductors. These conductors can normally be used at frequencies up to 200 mc, and in some cases to 500 mc with caution. Maximum peak-operating voltage is 500 volts. Type 309-6275 plug for RG-U 22 cable. Average shpg. wt., 4 ounces.

Stk. No.	IPC Type	Jan Type	Fig.	Description	Max. Jkt. Dia.	1-24	25-99	100-499	500-999
39F1314	6275	UG-421/U	..	Plug Keyed 90°	.437	8.34	6.51	5.34	4.59
39F1468	31-224	UG108A/U	I	Plug BNC Type	...	3.36	2.62	2.15	1.85
39F1470	31-223	...	K	Bulkhead Receptacle BNC Type		6.22	4.85	3.98	3.42

MISCELLANEOUS CONNECTORS AND ADAPTERS

Stk. No.	Type	Jan Type	Fig.	Description	RG-/U Cables	Max. Jkt. Dia.	1-24	25-99	100-499	500-999
39F1187	82-312	UG-1185/U	N	Plug	8,9,87,213,214,225	.444	2.92	2.28	1.87	1.61
39F1188	82-313	UG-1186/U	N	Jack	8,9,87,213,214,225	.444	3.38	2.64	2.16	1.86
39F1190	82-320	UG-1213/U	HN	Plug	8,9,87,213,214,225	.444	9.68	7.55	6.20	5.32

BETWEEN SERIES ADAPTERS

Stk. No.	Type	MIL	Mates With	1-24	25-99	100-499	500-999
39F1038	31-830	UG-201/U	N plug and BNC jack	4.48	3.49	2.87	2.46
39F1029	31-216	UG-201A/U	N plug and BNC jack	2.62	2.04	1.68	1.44
39F074	31-028	UG-273/U	BNC jack and UHF plug	2.29	1.78	1.47	1.26
39F1030	31-217	UG-349A/U	N jack and BNC plug	4.28	3.34	2.74	2.35
39F1135	82-508	UG-564/U	C jack and N plug	6.06	4.73	3.88	3.33
39F1195	82-540	UG-565A/U	C plug and N jack	9.68	7.55	6.20	5.32
39F1217	27-28	...	BNC female to 50 ohm Screw-on subminax male	2.66	2.07	1.70	1.46
39F1310	4400	UG-146/U	UHF jack and N plug	5.38	4.20	3.44	2.96
39F1307	2900	UG-255/U	BNC plug and UHF jack	3.60	2.81	2.30	1.98
39F1320	26700	UG-318/U	N plug and UHF jack	8.22	6.41	5.26	4.52

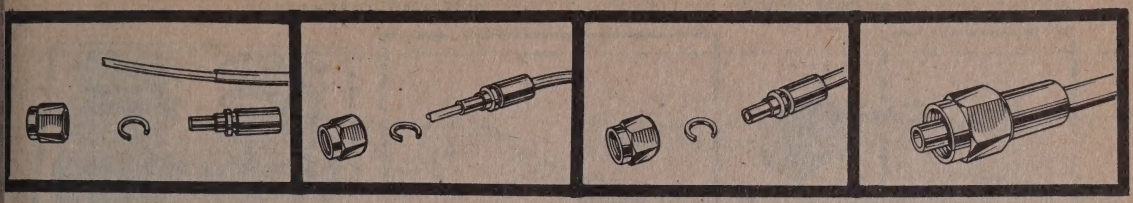
TRIAX SERIES

TRIAX connectors are used in transmission line applications where maximum RF shielding and minimum noise radiation are required. Have an impedance of 50 ohms, but can be used where impedance matching is not critical.

Stk. No.	Type	RG/U	Fig.	Description	1-24	25-99	100-499	500-999
39F3336	53150	58A	L	Plug 1 1/16-24 Thread	17.56	13.70	11.24	9.66
39F3337	53175	11	L	Plug ⅞ -20 Thread	26.10	20.37	16.70	14.36
39F3338	52975	11	..	Jack ⅞ -20 Thread	34.08	26.62	21.83	18.74
39F3339	34475	..	M	Bulkhead Receptacle ⅞ -20	22.34	17.42	14.33	12.29
39F3340	34450	..	M	Bulkhead Receptacle 1 1/16-24	14.29	11.15	9.15	7.86

Fiber–optic Components

AMPHENOL NORTH AMERICA
Bunker Ramo Corporation
BUNKER RAMO



Step 1: Jacket is stripped back to expose the fibers.

Step 2: The body and the fibers are coated with epoxy and pushed through until the jacket bottoms.

Step 3: The excess fibers are trimmed off and the connector nose is **polished.**

Step 4: Coupling nut is affixed to the body with a snap ring and the termination is complete.

- Precision interfaces for accurate, repeatable alignment.
- All metal construction for superior RFI shielding.
- All metal construction for interface stability at environmental extremes.
- Provides termination of multifiber bundles, from 7 fiber bundles to .091″ dia. bundles.
- Provides crimp rear termination of strengthened cables using standard M22520 dies.
- Front hole center-line displacement .0012″ max.

Subminiature fiber optic connectors with ¼″ mating threads (SMA size). Brass construction with ASTROplate finish; cable plug front body is stainless steel. Frequency range and insertion loss depends on cable used; typical insertion loss 3 db. Temperature range: —67° to 390°F (—55°C to 199°C). Meets MIL-STD-202 for shock (Method 202), 50 G acceleration at 7 milliseconds; Method 204 (test cond. D) for vibration; Method 101 (test cond. B) 5% salt solution, for corrosion; and Method 102 (test cond. C) for temperature cycling. Meets MIL-C-39012 SMA environmental standards.

CABLE PLUGS • EPOXY TYPE

Stk. No.	Epoxy Type	Optical Cable	1-24	25-99	100-499
39F3680	905-119-5018	Corning 1300 & 1302, Bundled	36.61	27.86	22.86
39F3681	905-119-5006	Corning 5010	10.32	8.60	6.88
39F3682	905-119-5004	Corning 5013	13.44	11.20	8.96
39F3683	905-119-5005	Corning 5015	9.54	7.95	6.36
39F3681	905-119-5006	Galileo 2000-212T & 2000-212P	10.32	8.60	6.88
39F3684	905-119-5007	Galileo 3000-7T & 3000-7P	9.96	8.30	6.64
39F3685	905-119-5008	Galileo 3000-19T & 3000-19P	9.96	8.30	6.64
39F3686	905-119-5019	Poly Optics 1030, single fiber	25.99	19.78	16.23
39F3687	905-119-5020	Poly Optics 1040, single fiber	13.39	10.19	8.36
39F3688	905-119-5017	Rank 400-1	12.01	9.14	7.50

• Use with P/N 909-2011 Polishing Tool

CABLE PLUGS • CRIMP TYPE

Stk. No.	Crimp Type	Optical Cable	1-24	25-99	100-499
39F3689	*905-119-5022	Dupont PFX-S-120R, single fiber	16.65	12.67	10.39
39F3690	*905-119-5009	Galileo 3000-7S	11.70	9.75	7.80
39F3691	*905-119-5010	Galileo 3000-19S	11.70	9.75	7.80
39F3692	†905-119-5011	Valtec HK-01-PC05-07	10.38	8.65	6.92
39F3693	†905-119-5012	Valtec HK-01-PC05-12	10.38	8.65	6.92
39F3694	†905-119-5013	Valtec HK-01-PC05-19	10.38	8.65	6.92
39F3695	†905-119-5014	Valtec HK-01-PC05-37	10.38	8.65	6.92

• Use with P/N 909-2011 Polishing Tool

* 227-1221-37 Cavity B † 227-1221-09 Cavity A
TOOL DATA: Die Set P/N (Use with tool handle P/N 227-944)

ADAPTER

Stk. No.	Type	Desceiptioh	1-24	25-99	100-499
39F3696	905-120-5000	D-Hole mount or in line Jack-Jack adapter	7.08	5.90	4.22

RECEPTACLES

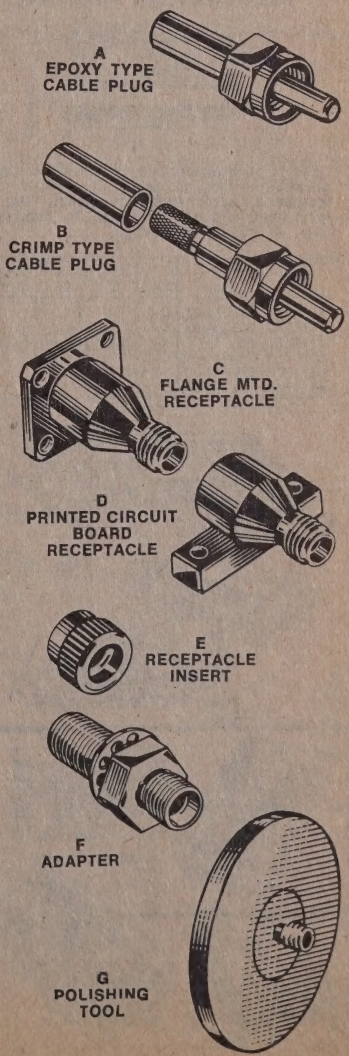
Stk. No.	Type	Description	1-24	25-99	100-499
39F3697	905-117-5000	4-Hole flange mounted receptacle for TO-5 devices	8.64	7.20	5.76
39F3698	905-118-5000	Printed circuit receptacle for TO-5 devices	9.00	7.50	6.00

PRESS FIT INSERTS
FOR RECEPTACLES 905-117-5000 & 905-118-5000

Stk. No.	Type	Description			Each
39F3699	905-5008-1	For TO-46 device			.75
39F3700	905-5008-5	Single pilot hole .040″ (1.016 mm) dia.			.75
39F3701	905-5008-7	Blank			.75

TOOLS

Stk. No.	Type	Description			Each
39F3702	227-909-2011	Polishing tool for cable plugs			50.00
57F3110	227-944	Crimp tool handle (less die set)			106.00
39F3703	227-1221-37	Crimp die set for strengthened cables			45.50
61F1713	222-1221-09	Crimp die set for Valtec cables			45.50



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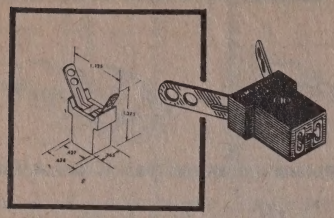
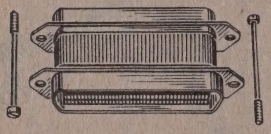
TEST TELEPHONE CONNECTOR



Provides access to any pair of quick-clip contacts in a '66 type" connecting block. TAC pushed into contact pair and test equipment or head phone is attached to the TAC's exposed contacts. Grips contacts firmly to prevent annoying disconnection from line being tested. 1.375"L x 1.437"W x .365"H. Black molded plastic body.

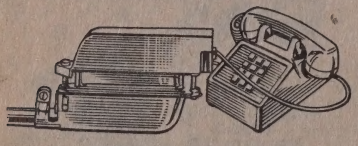
Stock No.	Type No.	1-24	25-99	100-499
61F1714	284-1	.60	.47	.36

DOUBLE-ENDED FEED-THROUGH ADAPTERS

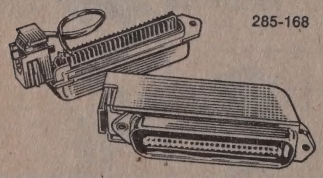


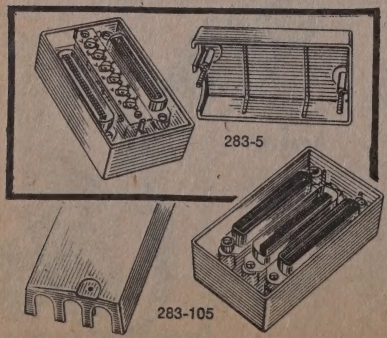
Used to interconnect two plug-ended or two connector-ended cables; or to reverse direction of cable from connection. Since they help alleviate problems in cabling, they are called 'goof plugs'.

Stock No.	Type No.	Kind	1-24	25-99	100-499
61F1734	283-114-02	C-P			
61F1742	283-114-03	P-P			
61F1750	283-114-04	P-P	10.80	9.71	9.45
61F1725	283-114-05	C-C			
61F1738	283-114-07	...			
61F1746	283-114-08	...			



285-168

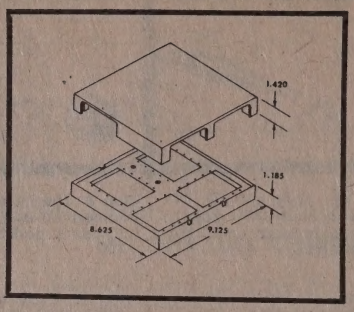


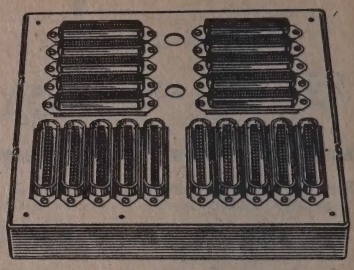


283-5

283-105

100 PAIR CABLE ADAPTERS

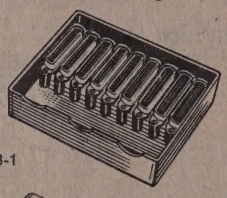




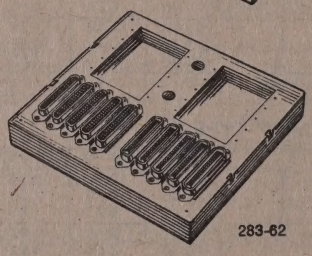
Stock No.	Type No.	Kind	1-24	25-99	100-499
61F1744	283-95	CCCCC-CCCCC-PPPPP-PPPPP	98.80	88.20	86.60

• 4-Way Bridging Adapters for 30-Button Key Telephones
Contains twenty Series 57 Micro-Ribbon connecting devices. Every fifth one interwired to form 4 completely interconnected sets. Access holes for 5-fingered cables provided on sides of case. Outer Case: 9¼"L x 8¾"W x 2½"H.

CROSS-OVER ADAPTERS



283-53-1



283-62

For interconnecting key telephones to cables with different 'odd count-even count' wiring patterns. Series 57 Micro-Ribbon devices interwired to convert one wiring pattern to another. Available in models having 6 interconnecting devices for 18-button key phone and 10 interconnecting devices for 30-button phones. 18-button: 7"L x 5¾"W x 2¾"H. 30-button: 8¾"L x 9¼"W x 2½"H.

62-01. Interconnects 18-button phone with old wiring pattern to 3-fingered cable with new wiring pattern. **62-02.** Interconnects 18-button phone with new wiring pattern to 3-fingered cable with old wiring pattern.

53-1. Mates with 3-finger connector-ended cable incoming from main terminal box or another bridging adapter, extends circuit to two 18-button Call Directors by accepting 3-finger plug-ended cable from each.

Stock No.	Type No.	1-24	25-99	100-499
61F1721	283-62-02-1	41.97	35.98	29.99
38F324	283-53-1	51.48	44.12	36.76

TERMINAL STRIP ADAPTERS

Permit use of screw type terminal to interconnect with plug-ended system. Easy access to desired conductors. Ribbon connector and one plug with all contacts interwired. Dim.: 4¼"L x 2½"W x 2¼"H. Gray plastic outer case. Six terminals.

Stk. No.	Type No.	Contacts	1-24	25-99	100-499
61F1716	283-5-1	50, 25, 49, 24, 48, 23	11.95	10.23	8.51

MODULAR TELEPHONE ADAPTER

50-pin plug wired to a 6 position modular jack. Allows single line, modular telephone sets to be connected without rewiring, to existing 50-pin connectors on running cable. Conversions in minutes.

Stk. No.	Part No.	Application	1-24	25-99	100-499
38F325	285-168	Full Mod.	2.98	2.81	2.48

25 PAIR CABLE ADAPTERS

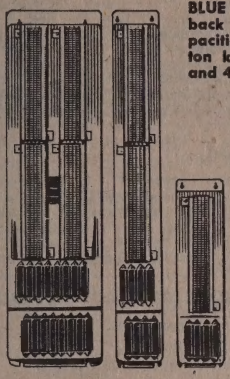
• Comes in two colors
• Contains three interwired connecting devices

Three-way bridging adapters for 6-button telephones. Compact bridging adapter which contains three interwired 57 Series Micro-Ribbon connecting devices in durable plastic housing. Used to connect one or more 6-button type key telephones to 25 pair cables. **C-P-C:** mates with one incoming 25 pair connector-ended cable from main terminals box or another bridging adapter and extends circuit to two 6-button telephones by mating with plug-ended cable from each. **P-C-P:** interconnects one 25 pair connector-ended cable from main terminal box, one outgoing plug-ended cable to 6-button telephone and one outgoing 25 pair connector-ended cable going to another bridging adapter, thereby extending the circuit. 4¼"L x 2½"W x 2¼"H. -1=grey color. -2=beige color.

Stock No.	Type No.	Kind	1-24	25-99	100-499
61F1753	283-105-1	C-P-C			
61F1740	283-106-1	P-C-P	10.69	9.61	9.35
61F1729	283-107-2	C-C-C			

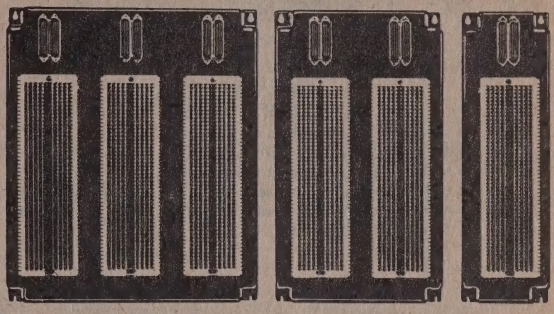
Contact Newark for Other Product Requirements

System 66™ Connectorized Back Panels



BLUE connectorized back panels. 3 capacities for six-button key sets: 16, 8 and 4.

RED connectorized back panels. Three sizes for 1500, 1000 and 500 cross-connecting pushdown clips.



Assemblies consist of 66 blocks, 57 Series connectors and back panel, ready for mounting. Color-coding identifies specific functions.

Connectorized fields on panel use all pushdown clips to hook-up functions to key-sets. For example, four telephones can be cross-connected in same space as a conventional panel; they permit 100% expansion of equipment rooms presently at full capacity with conventional panels.

FACTORY WIRED AND IDENTIFIED

After (25 paired) cables from key-sets are terminated with Amphenol Micro-Pierce® connectors, they are mated with panel-mounted Amphenol 57 connectors at bottom of each connectorized field. Each of these panel-mounted connectors is factory-wired to a vertical row of 50 pushdown clips on a 66 block. Each row of pushdown clips and its panel-mounted Amphenol connector are clearly and permanently identified with equivalent letter designations. Each 66 block has permanent markings on the fanning strip to identify tip and ring color code.

Individual connector hold-downs are provided on each field, to minimize the possibility of an unmated connector.

CONVENTIONAL COLOR-CODING

Amphenol System 66 back panels are available in colors corresponding to conventional color-coding practice. BLUE connectorized back panels are available in three sizes: for 16, 8 and 4 cross-connection pushdown clips. Color coding identifies specific functions. Ordering is simplified because a single part number identifies a cross-connector panel for up to 16 telephones.

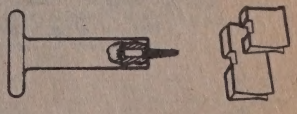
SUMMARY OF ADVANTAGES

1. Reduced on-site key-set installation costs, with no separate blocks to mount and no 25 twisted pair cable to be punched down.
2. Doubling of telephone capacity in existing cross-connecting space.
3. Making station changes without moving or re-installing wires.
4. Creating common station functions with-without punching-down another block.
5. Simplifying system planning through the use of modular panels, each accommodating a specific number of phones.
6. Reducing trouble-shooting time, thanks to permanent panel identification and color-coding.
7. Simplifying ordering and inventory control, with one part number all that is needed to order a complete 16 key-set system.
8. Improved reliability because of factory assembly and testing of cross-connect systems.
9. Potential re-use of the system with refurbishing.

OPTIONAL EQUIPMENT

Distribution Posts. Can be used as mounting screw and/or distribution post. On 410 CRF Series, posts can be located on plywood backboards adjacent to panels. Part No. 410-C143962.
65F270. NET ..... .35

Bridging Clips. Material and plating are identical to pushdown clips. Clips are removable and reusable. Type 410-C149341 (2 position)
65F271. NET ..... .05
Type 410-C149770 (3 position)
65F273. NET ..... .08
Type 410-C149769 (4 position)
65F272. NET ..... .10



SYSTEM 66 CONNECTORIZED BACK PANELS

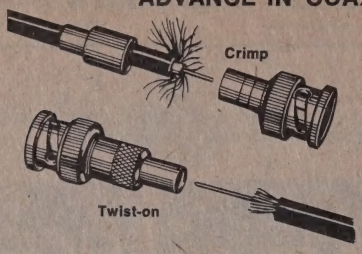
®Registered trademark of Bunker Ramo Corp.

Stock No.	Type	Height	Width	Depth	Phone Cap.	Color	No. Pushdowns	1-24	25-49	50-99
65F274	410-CBF 66/16	31.5	8.5	2.75	16	Blue	400	**204.28**	**188.96**	**175.68**
65F275	410-CBF 66/8	31.5	4.25	2.75	8	Blue	200	**109.22**	**97.08**	**91.60**
65F276	410-CBF 66/4	16.5	4.25	2.75	4	Blue	100	**60.41**	**53.70**	**49.75**
65F277	410-CRF 66/1500	20.0	17.0	1.18	750 TW PRS	Red	1500	**159.16**	**140.21**	**130.36**
65F278	410-CRF 66/1000	20.0	11.5	1.18	500 TW PRS	Red	1000	**106.93**	**94.20**	**87.58**
65F279	410-CRF 66/500	20.0	6.0	1.18	250 TW PRS	Red	500	**60.56**	**53.35**	**49.60**

NOTE: CBF Series back panels, equipped with male connectors, serve as junction points for 25 twisted pair cable from key-sets. CRF Series back panels, equipped with female connectors, serve as junction points for 25 TW PR cables from KSU to CBF panels via cross-connection.

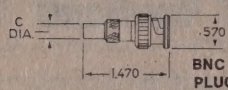
SPC technology FASTFIT® brand Coaxial Connectors

ADVANCE IN COAXIAL CABLE CONNECTOR DESIGN



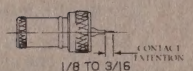
TWIST-ON COAXIAL CABLE CONNECTORS

- **Twist-On cable attachment (pat. pend.)**
- **No solder or special tools required**
- **No loose contact or other parts to handle**
- **Utilizes self-contained, self-energizing contact (pat. pend.)**
- **Material: brass bright nickel plated hardware, high density polyethylene insulator**



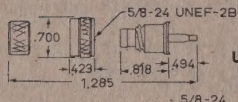
BNC PLUG

Type	Cable Type	C Dia.
CPFI-UG88-1	RG58/U	.250
CPFI-UG88-2	RG59/U	.300
CPFI-UG88-3	Belden 8281	.363
CPFI-UG88-4	CATV/MATV 59/U	.300



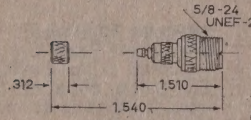
UHF PLUG

Type	Cable Type
CPFI 259-19	RG58/U
CPFI 259-11	RG59/U
CPFI 259-20	RG8/U RG11/U



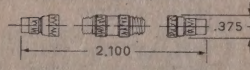
UHF PLUG

Type	Cable Type
CPFI 259-13	RG8/U



UHF JACK

Type	Cable Type
CPFI 249-15	RG58/U



UHF SPLICE

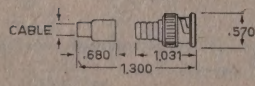
Type	Cable Type
CPFI 5858	RG58/U

QUICK DISCONNECT

Type	Cable Type
CPFI 59QD	RG59/U

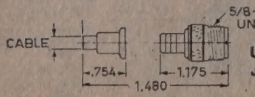
CRIMP TYPE COAXIAL CABLE CONNECTORS

- **One-step temination with strain relief. (No center contact crimp or soldering required).**
- **Two-piece connector construction (no loose contact or other parts to handle).**
- **Utilizes self contained, self energizing contact (pat. pend.).**
- **Hand, bench & power tools available.**
- **Material: brass, bright nickel plated hardware high density polyethylene insulator.**



BNC PLUG

Type	Cable Type	C Dia.
CP88-1	RG58/U	.213
CP88-2	RG59/U	.260
CP88-3	Belden 8281	
CP88-4	CATV-MATV 59/U	.260



UHF JACK

Type	Cable Type	A
CPF 249-10	RG58/U	.213
CPF 249-14	RG59/U	.260

MALE "F" SERIES FITTING

Type	Cable Type
CPF 59-S	59/U
CPF 59-⅛	59/U
CPF 56-⅛	6/U

FASTFIT® FAMILY SELF-ENERGIZING CONNECTORS

Self-energizing center contact, pre-assembled in the body, provide a positive mating of the center conductor and the contact. Cable attachment is achieved by tapered and threaded back-end opening, which makes it easy to twist the unit onto the cable braid and jacket, insuring good grounding and a high integrity termination. Patent pending.

- **Make Termination as Easy as 1-2-3**

When simplicity is important—out in the field, wearing gloves, and in sub-zero weather—one piece is much easier to work with than five; ends fumbling for dropped parts. On assembly line terminations, crimping is just as easy—as one-step operation, with bench or hand tools.

- **Save Time and Money on Assembly**

No contact soldering or contact crimping, no additional parts such as loose clamp nuts, insulators, or sub-assemblies to handle. No wrenches required, and no need for training or dexterity. The SPC Technology Fastfit® series of BNC connectors reduces average installation time by 83% (40 seconds vs. 4 minutes for standard BNCs).

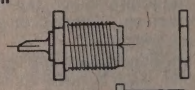
ELECTRICAL CHARACTERISTICS

- **Nominally 50 or 75 Ohm impedance.**
- **Peak voltage rating 500 Volts rms.**
- **Dielectric withstanding voltage 1500 volts rms.**
- **Insertion loss less than .1 db @ 2 gHz.**
- **VSWR 1.05 @ 1 gHz, 1.2 @ 2 gHz.**
- **Bright nickel-plated brass body and ferrule.**
- **High-density polyethylene insulators.**

MISCELLANEOUS FITTINGS

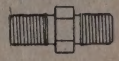
- **Aluminum or brass, contacts and bodies**
- **All brass parts, cadmium plated**
- **All steel parts, zinc plated**
- **High density polyethylene insulation**

Panel mounting UHF receptacle CH 239 series — **CH 239**



F series chassis mounting for thick wall housings. Lock washer and nut included. ½" HEX. — **CPF61-A-S**

F series male splice for use with RG/U type cables. Accepts 18-22 AWG conductors. Lock washers and nuts included. ½" HEX. — **CPF 81-AB**



CRIMP CONNECTOR TOOL RATCHET HAND CRIMP TOOL WITH STEEL DIES

Type	Cable Type
CTR-88-1	RG58/U
CTR-88-2	RG59/U

Stk. No.	Type	EACH 1-9	10-24	25-99	100-499
32N1100	CPFI-UG88-1	2.37	2.17	1.60	1.30
32N1101	CPFI-UG88-2	2.37	2.17	1.60	1.30
32N1123	CPFI-UG88-3	2.37	2.17	1.60	1.30
32N1124	CPFI-UG88-4	2.37	2.17	1.60	1.30
32N1103	CPFI-259-11	1.31	1.17	.88	.72
32N1104	CPFI-259-13	1.90	1.70	1.28	1.04
32N1102	CPFI-259-19	1.31	1.17	.88	.72
32N1125	CPFI-259-20	1 31	1.17	.88	.72
32N1106	CPFI-5858	2.24	2.00	1.51	1.25
32N1107	CPFI-249-15	2.37	2.17	1.60	1.30
32N1108	CP 88-1	1.99	1.78	1.50	1.10
32N1109	CP 88-2	1.99	1.78	1.50	1.10
32N1126	CP 88-3	1.99	1.78	1.50	1.10
32N1127	CP 88-4	1.99	1.78	1.50	1.10
32N1111	CPF 249-10	1.31	1.17	.88	.72
32N1128	CPF 249-14	1.31	1.17	.88	.72
32N1112	CH 239	.87	.78	.59	.48
32N1113	CPF 61-A-S	.74	.66	.50	.41
32N1114	CPF 81-AB	.46	.41	.31	.25
32N1115	CTR-88-1	69.00	62.00	—	—
32N1116	CTR-88-2	69.00	62.00	—	—
Packages of 2		1-9	10-24	25-99	100-499
32N1105	CPFI 59-QD	1.68	1.50	1.14	.92
32N1110	CPF 59-S	1.12	1.00	.76	.62
32N1129	CPF 59-⅛	1.12	1.00	.76	.62
32N1130	CPF 56-⅛	1.12	1.00	.76	.62

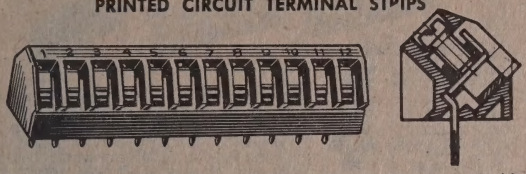
CONTACT NEWARK FOR YOUR FREE FASTFIT® CONNECTOR CATALOG AND FOR PRICE QUOTES ON LARGER QUANTITIES.

11

GENERAL SPECIFICATIONS

Terminal strips have fully enclosed metal parts. Connections are corrosion resistant with screw terminals designed with a nickel plated phosphor bronze wire guard to prevent wire conductor damage. CSA approved/UL recognized E60678.

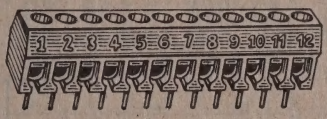
PRINTED CIRCUIT TERMINAL STRIPS



Terminal strips are delivered with markings. Standard marking for 5mm spacing is 1 to 24. Pressure screws are captive and secure against self-loosening. Rated at 300V, 16AWG, max. 8 Amp. Break resistant polyamid insulating body. Continuous service temperature: 100°C.

5MM CONTACT SPACING

Stock No.	Type	Length (mm)	1-999	1000-4999	5000-Up
28F1820	25•135•0253	10	.47	.45	.43
28F1821	25•135•0353	15	.61	.58	.55
28F1822	25•135•0453	20	.76	.72	.68
28F1823	25•135•0553	25	.92	.87	.83
28F1824	25•135•0653	30	1.09	1.04	.99
28F1825	25•135•0853	40	1.43	1.36	1.29
28F1826	25•135•0953	45	1.60	1.52	1.44
28F1827	25•135•1053	50	1.76	1.67	1.59
28F1828	25•135•1253	60	2.10	2.00	1.90
28F1829	25•135•1353	65	2.27	2.16	2.05
28F1830	25•135•1453	70	2.44	2.32	2.20
28F1831	25•135•1553	75	2.62	2.49	2.37
28F1832	25•135•1653	80	2.79	2.65	2.52
28F1833	25•135•1853	90	3.13	2.97	2.82
28F1834	25•135•2053	100	3.47	3.30	3.14
28F1835	25•135•2253	110	3.82	3.63	3.45
28F1836	25•135•2453	120	4.11	3.90	3.71

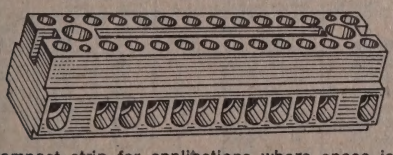


Fully enclosed, compact stirps molded of polyamid for PC board or panel connections. Terminal poles numbered consecutively. Silver plated brass pressure connectors; terminal screws are nickel plated brass; Soldering pins hot tip tinned electrolytic copper. For 5.08 mm (.200") spacing. Available in 5 & 10 mm.

300V NO. 14 AWG MAX. 10 AMP.

Stock No.	Type	Poles	1-999	1000-4999	5000 & Up
31F2400	25•104•0453	4	.59	.56	.53
31F2401	25•104•0653	6	.82	.78	.74
31F2402	25•104•0853	8	1.04	.99	.94
31F2403	25•104•1053	10	1.28	1.22	1.16
31F2404	25•104•1253	12	1.52	1.44	1.37
31F2405	25•104•1653	16	1.99	1.89	1.80
31F2406	25•104•2453	24	2.61	2.48	2.36

COMPACT TERMINAL STRIP



A very compact strip for applications where space is critical. Molded of flame retardant polypropylene with nickel plated brass connectors. Poles are consecutively numbered.

300V NO. 12 AWG MAX. 25 AMP.

Stock No.	Type	Poles	1-999	1000-4999	5000 & Up
31F2437	29•401•0453	4	.72	.68	.65
31F2438	29•401•0653	6	1.00	.95	.90
31F2439	29•401•0853	8	1.30	1.24	1.18
31F2440	29•401•1253	12	1.82	1.73	1.64
31F2441	29•401•1653	16	2.34	2.22	2.11
31F2442	29•401•2053	20	2.86	2.72	2.58

FLEXIBLE TERMINAL STRIP

Polyamid strip. Flexible. Easily cut to any number of poles. Nickel plated brass connectors.

6 EDS 300V NO. 16 AWG MAX. 10 AMP.

Stock No.	Type	Poles	1-999	1000-4999	5000 & Up
31F2407	21•311•0253	2	.15	.14	.13
31F2408	21•311•0353	3	.22	.21	.20
31F2409	21•311•0453	4	.30	.29	.28
31F2410	21•311•0553	5	.37	.35	.33
31F2411	21•311•0653	6	.45	.43	.41
31F2412	21•311•0753	7	.50	.48	.46
31F2413	21•311•0853	8	.58	.55	.52
31F2414	21•311•0953	9	.66	.63	.60
31F2415	21•311•1053	10	.74	.70	.67
31F2416	21•311•1253	12	.83	.79	.75

10 EDS 300V NO. 12 AWG MAX. 16 AMP.

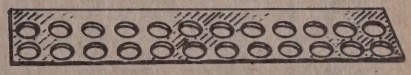
Stock No.	Type	Poles	1-999	1000-4999	5000 & Up
31F2417	21•331•5253	2	.27	.26	.25
31F2418	21•331•5353	3	.40	.38	.36
31F2419	21•331•5453	4	.52	.49	.47
31F2420	21•331•5553	5	.64	.61	.58
31F2421	21•331•5653	6	.76	.72	.68
31F2422	21•331•5753	7	.89	.85	.81
31F2423	21•331•5853	8	1.01	.96	.91
31F2424	21•331•5953	9	1.13	1.07	1.02
31F2425	21•331•6053	10	1.19	1.13	1.07
31F2426	21•331•6253	12	1.49	1.42	1.35

16 EDS 300V NO. 8 AWG MAX. 32 AMP.

Stock No.	Type	Poles	1-999	1000-4999	5000 & Up
31F2427	21•340•5253	2	.40	.38	.36
31F2428	21•340•5353	3	.59	.56	.53
31F2429	21•340•5453	4	.78	.74	.70
31F2430	21•340•5553	5	.96	.91	.86
31F2431	21•340•5653	6	1.14	1.08	1.03
31F2432	21•340•5753	7	1.33	1.26	1.20
31F2433	21•340•5853	8	1.51	1.43	1.36
31F2434	21•340•5953	9	1.70	1.62	1.54
31F2435	21•340•6053	10	1.88	1.79	1.70
31F2436	21•340•6253	12	2.22	2.11	2.00

MARKER STRIPS FOR PLACING OVER/UNDER TERMINAL STRIP - UNMARKED FLEXIBLE

(Can be cut to fit any barrier size)



FOR 6 EDS

Stock No.	Type	Poles	Each
31F2443	04•030•0080	2	.08
31F2444	04•030•0180	3	.09
31F2445	04•030•0280	4	.10
31F2446	04•030•0380	5	.11
31F2447	04•030•0480	6	.11
31F2448	04•030•1080	12	.17

FOR 10 EDS

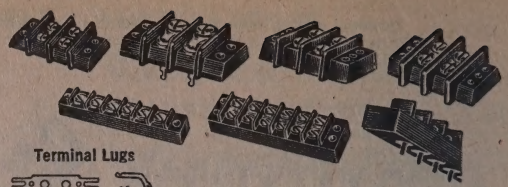
Stock No.	Type	Poles	Each
31F2449	04•070•0280	2	.08
31F2450	04•070•0380	3	.10
31F2451	04•070•0480	4	.11
31F2452	04•070•0580	5	.12
31F2453	04•070•0680	6	.13
31F2454	04•070•1280	12	.21

TRW CINCH CONNECTORS

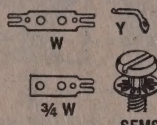
ELECTRICAL SPECIFICATIONS

Series	Max. Volts RMS Without Marker Strip	Max. Volts RMS With Marker Strip	Max. Current In Amps	Max. Watts per Terminal	Wire Size Max. Solid
140	1100	2000	15	3,750	#14
141	1100	2400	20	5,000	#12
142	1600	2600	30	7,500	#12
150	1700	2600	50	12,500	#10
151	1800	3400	70	17,500	#8
152	2100	3800	90	54,000	#6
164	1100	2000	15	3,750	#14
171	1000	*	5	625	#18
172	1000	2000	5	625	#16
173	1000	*	5	625	#16
174	1000	*	5	625	#16

*No marker strip available.



Terminal Lugs



3/4 W terminals are for solder attachment of wires on one side of terminal block, W terminals both sides, and Y terminals underneath. Standard terminal block with binder head or SEMS screws can be used for wire or special terminal attachment. U/L Recognized except 173 Series. Insert an "E" to part number to get SEMS Screws.

Dimensions	Type 140	Type 141	Type 142	Type 150	Type 171	Type 172
Dim. x W x H	⅞" x 13/32"	1⅛" x ½"	1 5/16" x ⅝"	1 13/16" x ¾"	13/32" x 5/16"	⅝" x 5/16"
Terminal Centers	⅜"	7/16"	9/16"	11/16"	¼"	¼"
Mounting Centers	5/16"	27/64"	½"	⅝"	¼"	¼"
Mtg. Hole Dia.	.160"	.180"/.185"	.209"	.160"	.125"	.125"
Screw Size	#5-40	#6-32	#8-32	#10-32	#2-56	#2-56

MATERIALS:
Insulator: molded phenolic.
Eyelets: brass, screws: nickel plated steel.
Terminals: hot solder-dipped brass.

Series 140. Accommodates up to #14 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
28F700	2-140	2	.36	.32	.27	.21
28F701	3-140	3	.40	.35	.31	.25
28F702	4-140	4	.54	.40	.36	.32
28F703	5-140	5	.63	.53	.41	.37
28F704	6-140	6	.74	.60	.53	.40
28F705	7-140	7	.86	.67	.59	.48
28F706	8-140	8	.97	.79	.65	.54
28F707	9-140	9	1.09	.87	.70	.59
28F708	10-140	10	1.17	.96	.82	.63
28F709	11-140	11	1.25	1.02	.87	.67
28F710	12-140	12	1.42	1.13	.94	.74
28F869	13-140	13	1.50	1.19	1.02	.83
28F870	14-140	14	1.61	1.29	1.10	.88
28F871	15-140	15	1.71	1.40	1.15	.93
28F872	16-140	16	1.81	1.46	1.21	.98
28F873	17-140	17	1.94	1.53	1.29	1.07
28F874	18-140	18	2.03	1.63	1.39	1.10
28F875	19-140	19	2.14	1.70	1.44	1.15
28F876	20-140	20	2.24	1.80	1.51	1.19
28F877	21-140	21	2.37	1.91	1.59	1.23
28F1000	22-140	22	2.42	1.95	1.65	1.35
29F1001	23-140	23	2.54	2.04	1.71	1.40
29F1002	24-140	24	2.71	2.16	1.81	1.45
29F1003	25-140	25	2.82	2.27	1.89	1.51

Series 140-Y. Accommodates up to #14 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
29F749	2-140-Y	2	.44	.36	.33	.27
29F750	3-140-Y	3	.56	.44	.37	.35
29F751	4-140-Y	4	.73	.60	.53	.39
29F752	5-140-Y	5	.89	.71	.61	.51
29F753	6-140-Y	6	1.10	.88	.73	.60
29F754	7-140-Y	7	1.19	.97	.83	.63
29F755	8-140-Y	8	1.38	1.10	.93	.73
29F756	9-140-Y	9	1.52	1.20	1.03	.84
29F757	10-140-Y	10	1.67	1.38	1.14	.92
29F758	11-140-Y	11	1.81	1.46	1.21	.98
29F759	12-140-Y	12	1.99	1.59	1.37	1.09
29F760	13-140-Y	13	2.14	1.71	1.45	1.15
29F761	14-140-Y	14	2.30	1.86	1.55	1.22
29F762	15-140-Y	15	2.47	1.98	1.65	1.35
29F763	16-140-Y	16	2.60	2.08	1.74	1.42
29F764	17-140-Y	17	2.76	2.20	1.88	1.50
29F765	18-140-Y	18	2.93	2.36	1.96	1.58
29F766	19-140-Y	19	3.05	2.47	2.05	1.65
29F767	20-140-Y	20	3.22	2.58	2.15	1.71
29F768	21-140-Y	21	3.40	2.72	2.28	1.81
29F1004	22-140-Y	22	3.52	2.83	2.39	1.93
29F1005	23-140-Y	23	3.69	2.97	2.48	1.99
29F1006	24-140-Y	24	3.89	3.14	2.60	2.08
29F1007	25-140-Y	25	4.07	3.25	2.71	2.16

Series 140-¾W. Accommodates up to #14 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
45F750	2-140-¾W	2	.44	.36	.33	.27
45F751	3-140-¾W	3	.56	.44	.37	.35
45F752	4-140-¾W	4	.77	.61	.54	.41
45F753	5-140-¾W	5	.94	.74	.63	.59
45F754	6-140-¾W	6	1.10	.88	.73	.60
45F755	7-140-¾W	7	1.23	1.02	.86	.66
45F756	8-140-¾W	8	1.44	1.15	.97	.79
45F757	9-140-¾W	9	1.59	1.25	1.09	.87
45F758	10-140-¾W	10	1.74	1.42	1.17	.96
45F759	11-140-¾W	11	1.93	1.53	1.29	1.02
45F760	12-140-¾W	12	2.06	1.66	1.42	1.13

Series 141. Accommodates up to #12 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
28F711	2-141	2	.39	.33	.29	.23
28F712	3-141	3	.54	.40	.36	.31
28F713	4-141	4	.67	.57	.48	.38
28F714	5-141	5	.86	.65	.61	.51
28F715	6-141	6	.94	.74	.63	.54
28F716	7-141	7	1.11	.88	.74	.60
28F717	8-141	8	1.21	.98	.84	.66
28F718	9-141	9	1.38	1.10	.93	.73
28F719	10-141	10	1.51	1.20	1.02	.97
28F720	11-141	11	1.63	1.30	1.13	.89
28F721	12-141	12	1.75	1.43	1.17	.96
28F878	13-141	13	1.93	1.52	1.25	1.03
28F879	14-141	14	2.04	1.63	1.39	1.11
28F880	15-141	15	2.16	1.72	1.46	1.16
28F881	16-141	16	2.30	1.86	1.55	1.22
28F882	17-141	17	2.45	1.96	1.65	1.35
28F883	18-141	18	2.58	2.06	1.72	1.40
28F884	19-141	19	2.72	2.17	1.85	1.46
28F885	20-141	20	2.87	2.29	1.94	1.46

Series 141-Y. Accommodates up to #12 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
29F769	2-141-Y	2	.56	.41	.36	.34
29F770	3-141-Y	3	.74	.60	.53	.39
29F771	4-141-Y	4	.97	.79	.65	.54
29F772	5-141-Y	5	1.16	.94	.78	.62
29F773	6-141-Y	6	1.35	1.09	.92	.70
29F774	7-141-Y	7	1.58	1.23	1.08	.86
29F775	8-141-Y	8	1.74	1.42	1.17	.96
29F776	9-141-Y	9	1.95	1.55	1.30	1.07
29F777	10-141-Y	10	2.15	1.71	1.45	1.16
29F778	11-141-Y	11	2.37	1.91	1.59	1.23
29F779	12-141-Y	12	2.55	2.04	1.70	1.39
29F780	13-141-Y	13	2.76	2.20	1.88	1.50
29F781	14-141-Y	14	2.98	2.40	2.01	1.60
29F782	15-141-Y	15	3.17	2.54	2.13	1.70
29F783	16-141-Y	16	3.40	2.72	2.28	1.81
29F784	17-141-Y	17	3.60	2.89	2.42	1.95
29F785	18-141-Y	18	3.81	3.04	2.55	2.04
29F786	19-141-Y	19	4.05	3.23	2.69	2.15
29F787	20-141-Y	20	4.23	3.40	2.83	2.28

Series 141-¾W. Accommodates up to #12 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
28F850	2-141-¾W	2	.56	.41	.36	.34
45F761	3-141-¾W	3	.77	.61	.54	.40
45F762	4-141-¾W	4	.99	.82	.66	.56
45F763	5-141-¾W	5	1.20	.97	.83	.65
45F764	6-141-¾W	6	1.42	1.13	.94	.74
45F765	7-141-¾W	7	1.63	1.28	1.11	.89
45F766	8-141-¾W	8	1.86	1.47	1.22	1.01
45F767	9-141-¾W	9	2.04	1.63	1.39	1.11
45F768	10-141-¾W	10	2.28	1.81	1.52	1.21
45F769	11-141-¾W	11	2.47	1.99	1.66	1.35
45F770	12-141-¾W	12	2.68	2.14	1.80	1.45
45F771	13-141-¾W	13	2.89	2.30	1.95	1.55
45F772	14-141-¾W	14	3.12	2.50	2.06	1.66
45F773	15-141-¾W	15	3.29	2.63	2.20	1.75
45F774	16-141-¾W	16	3.40	2.72	2.51	1.91
45F775	17-141-¾W	17	3.70	2.99	2.50	2.01
45F776	18-141-¾W	18	3.94	3.15	2.63	2.13
45F777	19-141-¾W	19	4.14	3.31	2.79	2.24
45F778	20-141-¾W	20	4.35	3.51	2.93	2.36

SEE PAGE 414 FOR MARKER STRIPS

Cinch "Jones" Barrier Terminal Blocks

TRW

Series 142. Accommodates up to #10 solid wire.

Stock No.	Type No.	Cont.	1-24	25-49	50-99	100-249
28F722	2-142	2	.48	.37	.33	.27
28F723	3-142	3	.62	.51	.40	.35
28F724	4-142	4	.83	.65	.57	.44
28F725	5-142	5	.98	.79	.65	.56
28F726	6-142	6	1.15	.93	.79	.62
28F727	7-142	7	1.35	1.08	.89	.70
28F728	8-142	8	1.50	1.19	1.01	.82
28F729	9-142	9	1.65	1.35	1.11	.89
28F730	10-142	10	1.85	1.47	1.21	.98
28F731	11-142	11	2.01	1.60	1.37	1.08
28F732	12-142	12	2.16	1.72	1.46	1.15
28F886	13-142	13	2.36	1.89	1.58	1.23
28F887	14-142	14	2.51	2.02	1.68	1.38
28F888	15-142	15	2.69	2.15	1.80	1.45
28F889	16-142	16	2.87	2.29	1.94	1.53
28F890	17-142	17	3.02	2.43	2.03	1.63

Series 142-Y. Accommodates up to #10 solid wire.

Stock No.	Type No.	Cont.	1-24	25-49	50-99	100-249
29F788	2-142-Y	2	.63	.54	.41	.37
29F789	3-142-Y	3	.88	.70	.60	.45
29F790	4-142-Y	4	1.16	.94	.79	.62
29F791	5-142-Y	5	1.42	1.13	.96	.77
29F792	6-142-Y	6	1.67	1.37	1.13	.92
29F793	7-142-Y	7	1.94	1.53	1.29	1.07
29F794	8-142-Y	8	2.16	1.72	1.46	1.15
29F795	9-142-Y	9	2.42	1.95	1.61	1.29
29F796	10-142-Y	10	2.69	2.15	1.80	1.45
29F797	11-142-Y	11	2.93	2.37	1.98	1.58
29F798	12-142-Y	12	3.18	2.55	2.14	1.70

Series 164. Accommodates up to #14 solid wire.

Stock No.	Type No.	Contacts	1-24	25-49	50-99	100-249
28F840	2-164	2	.39	.33	.29	.23
28F841	3-164	3	.51	.38	.34	.29
28F842	4-164	4	.62	.53	.41	.35
28F843	5-164	5	.74	.61	.54	.40
28F844	6-164	6	.89	.69	.60	.51
28F845	7-164	7	1.01	.82	.66	.57
28F846	8-164	8	1.13	.92	.77	.61
28F847	9-164	9	1.19	.99	.83	.65
28F848	10-164	10	1.39	1.11	.93	.73
28F849	11-164	11	1.50	1.19	1.01	.82
28F891	12-164	12	1.61	1.29	1.10	.88
28F892	13-164	13	1.72	1.42	1.16	.94
28F893	14-164	14	1.89	1.51	1.23	1.02
28F894	15-164	15	2.02	1.60	1.37	1.09
28F895	16-164	16	2.14	1.70	1.44	1.15
28F896	17-164	17	2.24	1.80	1.51	1.19
28F897	18-164	18	2.39	1.93	1.60	1.25
28F898	19-164	19	2.50	2.01	1.67	1.37
28F899	20-164	20	2.62	2.12	1.75	1.43
28F900	21-164	21	2.75	2.20	1.86	1.47

Series 150. Accommodates up to #10 solid wire.

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
29F731	2-150	2	1.40	1.12	.94	.75
29F732	3-150	3	2.06	1.64	1.37	1.10
29F733	4-150	4	2.60	2.08	1.74	1.39
29F734	5-150	5	3.17	2.54	2.12	1.69
29F735	6-150	6	3.80	3.04	2.54	2.03
29F736	7-150	7	4.37	3.50	2.92	2.33
29F737	8-150	8	5.01	4.01	3.34	2.67
29F739	10-150	10	6.15	4.92	4.10	3.28

Series 171. Accommodates up to 2 each #18 solid wire.

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
28F901	2-171	2	.40	.35	.31	.23
28F902	3-171	3	.54	.40	.36	.31
28F903	4-171	4	.62	.53	.41	.35
28F904	5-171	5	.73	.60	.53	.39
28F905	6-171	6	.86	.66	.58	.48
28F906	7-171	7	.94	.74	.62	.53
28F907	8-171	8	1.02	.84	.67	.57

Series 172. Accommodates up to #16 solid wire.

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
28F909	2-172	2	.74	.60	.53	.40
28F910	3-172	3	.94	.74	.63	.54
28F911	4-172	4	1.14	.93	.77	.61
28F912	5-172	5	1.35	1.08	.89	.70
28F913	6-172	6	1.52	1.20	1.03	.84
28F914	7-172	7	1.71	1.40	1.15	.93
28F915	8-172	8	1.93	1.52	1.25	1.03
28F916	9-172	9	2.08	1.67	1.43	1.14
28F917	10-172	10	2.29	1.86	1.53	1.21
28F919	12-172	12	2.68	2.14	1.80	1.45
28F921	14-172	14	3.05	2.45	2.04	1.65

540, 541, 542 SERIES

Bottoms are closed so that insulating strips are not required. Knockouts are molded into the base so that Y terminals can be accommodated. A top-mounted marker strip can be furnished.

Series	540	541	542
Size W x H	1⅛	1⅜	1⅝
Terminal Centers	⅜	7/16	9/16
Mounting Centers	5/16	27/64	½
Mtg. Hole Dia.	.160	.180	.209
Screw Size	5-40	6-32	8-32

Series 540. Creepage distance: ½". 2300Vrms/15A.

Stk. No.	Type	Terms.	1-24	25-49	50-99	100-249
28F1000	2-540	2	.82	.63	.57	.44
28F1001	3-540	3	1.10	.88	.73	.60
28F1002	4-540	4	1.35	1.08	.89	.71
28F1003	5-540	5	1.40	1.11	.94	.74
28F1004	6-540	6	1.88	1.50	1.25	1.02
28F1005	7-540	7	1.70	1.43	1.17	.96
28F1006	8-540	8	1.96	1.58	1.35	1.08
28F1008	10-540	10	2.36	1.89	1.58	1.23
28F1009	11-540	11	2.54	2.03	1.70	1.39
28F1010	12-540	12	2.72	2.17	1.85	1.46
28F1011	13-540	13	2.93	2.36	1.96	1.58
28F1012	14-540	14	3.12	2.50	2.08	1.67
28F1013	15-540	15	3.29	2.63	2.20	1.75
28F1014	16-540	16	3.50	2.81	2.36	1.89
28F1016	18-540	18	3.88	3.12	2.60	2.06
28F1018	20-540	20	4.26	3.42	2.87	2.29

Series 541. Creepage distance: ⅝". 2800Vrms/20A.

28F1020	2-541	2	.98	.82	.66	.56
28F1021	3-541	3	1.17	.96	.81	.63
28F1022	4-541	4	1.40	1.11	.94	.74
28F1023	5-541	5	1.58	1.23	1.08	.86
28F1024	6-541	6	1.88	1.50	1.25	1.02
28F1025	7-541	7	2.07	1.60	1.37	1.09
28F1026	8-541	8	2.17	1.74	1.46	1.16
28F1028	10-541	10	2.56	2.05	1.71	1.40
28F1029	11-541	11	2.75	2.20	1.86	1.47
28F1030	12-541	12	3.01	2.41	2.01	1.60
28F1031	13-541	13	3.17	2.54	2.13	1.70
28F1032	14-541	14	3.39	2.69	2.26	1.81
28F1033	15-541	15	3.57	2.87	2.40	1.93
28F1034	16-541	16	3.74	3.00	2.51	2.02
28F1036	18-541	18	4.14	3.31	2.79	2.24
28F1038	20-541	20	4.55	3.64	3.04	2.45

Series 542. Creepage distance: ¾". 4000Vrms/30A.

28F1039	2-542	2	1.08	.86	.70	.59
28F1040	3-542	3	1.30	1.08	.89	.69
28F1041	4-542	4	1.58	1.23	1.08	.86
28F1042	5-542	5	1.81	1.46	1.21	.98
28F1043	6-542	6	2.06	1.66	1.42	1.13
28F1044	7-542	7	2.36	1.89	1.58	1.23
28F1045	8-542	8	2.60	2.06	1.72	1.42
28F1046	9-542	9	2.85	2.28	1.93	1.53
28F1047	10-542	10	3.12	2.50	2.06	1.66
28F1048	11-542	11	3.39	2.69	2.26	1.81
28F1049	12-542	12	3.62	2.90	2.42	1.95

Printed Circuit Barrier Terminal Blocks. Terminal blocks have molded-in terminals that cannot break loose when terminal screw (#5/40 Binder Head) is tightened. Designed for flow solder termination to the pc board conductor paths. Single row barrier.

FOR ⅛" P.C. BOARDS

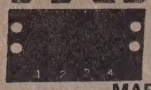
Stock No.	Type	No. of Terminals	1-24	25-49	50-99	100-249
29F1389	2-176-3	2	1.16	.93	.78	.63
29F1390	3-176-3	3	1.32	1.07	.88	.71
29F1391	4-176-3	4	1.47	1.19	1.01	.81
29F1392	5-176-3	5	1.61	1.29	1.09	.87
29F1393	6-176-3	6	1.77	1.43	1.20	.97
29F1394	7-176-3	7	1.92	1.53	1.28	1.03
29F1395	8-176-3	8	2.06	1.66	1.40	1.13
29F1396	9-176-3	9	2.25	1.80	1.51	1.21
29F1397	10-176-3	10	2.42	1.95	1.63	1.30

FOR 1/16" P.C. BOARDS

Stock No.	Type	No. of Terminals	1-24	25-49	50-99	100-249
29F1380	2-176-2	2	1.16	.93	.78	.63
29F1381	3-176-2	3	1.32	1.07	.88	.71
29F1382	4-176-2	4	1.47	1.19	1.01	.81
29F1383	5-176-2	5	1.61	1.29	1.09	.87
29F1384	6-176-2	6	1.77	1.43	1.20	.97
29F1385	7-176-2	7	1.92	1.53	1.28	1.03
29F1386	8-176-2	8	2.06	1.66	1.40	1.13
29F1387	9-176-2	9	2.25	1.80	1.51	1.21
29F1388	10-176-2	10	2.42	1.95	1.63	1.30

See Page 414 For Marker Strips And Accessories.

TRW CINCH CONNECTORS



Strips are of 1/32" black phenolic and have same mounting holes as barrier blocks. Shpg. wt., 2 oz.

MARKER STRIPS FOR SERIES 140

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
29F804	MS- 2-140	2	.20	.15	.14	.12
29F805	MS- 3-140	3				
29F806	MS- 4-140	4				
29F807	MS- 5-140	5				
29F808	MS- 6-140	6				
29F809	MS- 7-140	7	.23	.18	.15	.14
29F810	MS- 8-140	8				
29F811	MS- 9-140	9				
29F812	MS-10-140	10	.26	.20	.17	.15
29F813	MS-11-140	11				
29F814	MS-12-140	12				
29F815	MS-13-140	13	.28	.23	.20	.17
29F816	MS-14-140	14				
29F817	MS-15-140	15				
29F818	MS-16-140	16	.32	.26	.21	.18
29F819	MS-17-140	17				
29F820	MS-18-140	18				
29F821	MS-19-140	19	.34	.28	.24	.20
29F822	MS-20-140	20				
29F823	MS-21-140	21				

MARKER STRIPS FOR SERIES 141

29F824	MS- 2-141	2	.20	.15	.14	.12
29F825	MS- 3-141	3				
29F826	MS- 4-141	4				
29F827	MS- 5-141	5	.23	.18	.15	.14
29F828	MS- 6-141	6				
29F829	MS- 7-141	7				
29F830	MS- 8-141	8	.26	.20	.17	.15
29F831	MS- 9-141	9				
29F832	MS-10-141	10				
29F833	MS-11-141	11	.28	.23	20	.17
29F834	MS-12-141	12	.28	.23	.20	.17
29F835	MS-13-141	13	.32	.26	.21	.18
29F836	MS-14-141	14	.32	.26	.21	.18
29F837	MS-15-141	15	.34	.28	.24	.20
29F838	MS-16-141	16	.34	.28	.24	.20
29F839	MS-17-141	17	.39	.30	.26	.21
29F840	MS-18-141	18	.39	.30	.26	.21
29F842	MS-20-141	20	.40	.33	.27	.23

MARKER STRIPS FOR SERIES 150

45F881	MS- 2-150	2	.26	.20	.17	.15
45F882	MS- 3-150	3	.26	.20	.17	.15
45F883	MS- 4-150	4	.28	.23	.20	.17
45F884	MS- 5-150	5	.28	.23	.20	.17
45F885	MS- 6-150	6	.28	.23	.20	.17
45F886	MS- 7-150	7	.32	.26	.21	.18
45F887	MS- 8-150	8	.32	.26	.21	.18
45F888	MS- 9-150	9	.34	.28	.24	.20
45F889	MS-10-150	10	.39	.30	.26	.21

SERIES 160 FANNING STRIPS

Fits 140 Series Barrier strips. Brass, cadmium plated .032" terminals are mounted on 3/32" phenolic. 1/2" wide and on 3/8" centers. Wt., 3 oz. Mounting hole on left.

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
28F750	2-160-L	2	.51	.42	.37	.32
28F751	3-160-L	3	.62	.51	.43	.37
28F752	4-160-L	4	.76	.62	.52	.43
28F753	5-160-L	5	.87	.74	.62	.49
28F754	6-160-L	6	1.02	.82	.69	.52
28F755	7-160-L	7	1.15	.93	.76	.62
28F756	8-160-L	8	1.25	1.02	.84	.70
28F757	9-160-L	9	1.46	1.15	.99	.76
28F758	10-160-L	10	1.59	1.30	1.08	.84
28F759	11-160-L	11	1.76	1.37	1.19	.95
28F760	12-160-L	12	1.95	1.53	1.32	1.07
29F1250	20-160-L	20	2.97	2.38	2.01	1.59

Mounting hole on right.

28F800	2-160-R	2	.51	.42	.37	.32
28F801	3-160-R	3	.62	.51	.43	.37
28F802	4-160-R	4	.76	.62	.52	.43
28F803	5-160-R	5	.87	.74	.62	.49
28F804	6-160-R	6	1.02	.82	.69	.52
28F805	7-160-R	7	1.15	.93	.76	.62
28F806	8-160-R	8	1.25	1.02	.84	.70
28F807	9-160-R	9	1.46	1.15	.99	.76
28F808	10-160-R	10	1.59	1.30	1.08	.84
28F809	11-160-R	11	1.76	1.37	1.19	.95
28F810	12-160-R	12	1.95	1.53	1.32	1.07
29F1270	20-160-R	20	2.97	2.38	2.01	1.59

MARKER STRIPS FOR SERIES 140-Y

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
29F1251	MS- 2-140-Y	2	.23	.18	.15	.14
29F1252	MS- 3-140-Y	3				
29F1253	MS- 4-140-Y	4				
29F1254	MS- 5-140-Y	5	.26	.20	.17	.15
29F1255	MS- 6-140-Y	6				
29F1256	MS- 7-140-Y	7				
29F1257	MS- 8-140-Y	8				
29F1258	MS- 9-140-Y	9				
29F1259	MS-10-140-Y	10	.28	.23	.20	.17
29F1260	MS-11-140-Y	11				
29F1261	MS-12-140-Y	12				
29F1262	MS-13-140-Y	13	.32	.26	.21	.18
29F1263	MS-14-140-Y	14				
29F1264	MS-15-140-Y	15				
29F1265	MS-16-140-Y	16	.34	.28	.24	.20
29F1266	MS-17-140-Y	17				
29F1267	MS-18-140-Y	18				
29F1268	MS-19-140-Y	19	.39	.30	.26	.21
29F1269	MS-20-140-Y	20				

MARKER STRIPS FOR SERIES 142

29F843	MS- 2-142	2	.20	.15	.14	.12
29F844	MS- 3-142	3	.20	.15	.14	.12
29F845	MS- 4-142	4	.23	.18	.15	.14
29F846	MS- 5-142	5	.23	.18	.15	.14
29F847	MS- 6-142	6	.23	.18	.15	.14
29F848	MS- 7-142	7	.26	.20	.17	.15
29F849	MS- 8-142	8	.26	.20	.17	.15
29F850	MS- 9-142	9	.28	.23	.20	.17
29F851	MS-10-142	10	.32	.26	.21	.18
29F852	MS-11-142	11	.32	.26	.21	.18
29F853	MS-12-142	12	.34	.28	.24	.20
29F854	MS-13-142	13	.34	.28	.24	.20
29F855	MS-14-142	14	.39	.30	.26	.21
29F856	MS-15-142	15	.39	.30	.26	.21
29F857	MS-16-142	16	.43	.34	.30	.24
29F858	MS-17-142	17	.48	.37	.32	.26

MARKER STRIPS FOR SERIES 540

45F890	MSX- 2-540	2	.26	.20	.17	.15
45F891	MSX- 3-540	3				
45F892	MSX- 4-540	4				
45F893	MSX- 5-540	5				
45F894	MSX- 6-540	6				
45F895	MSX- 7-540	7				
45F896	MSX- 8-540	8				
45F897	MSX- 9-540	9				
45F898	MSX-10-540	10				
45F899	MSX-11-540	11	.28	.23	.20	.17
45F900	MSX-12-540	12				
45F901	MSX-14-540	14				
45F902	MSX-16-540	16				
45F903	MSX-18-540	18	.32	.26	.21	.18

SERIES 161 FANNING STRIPS

Series 161. Fit Series 141 Barrier Strips. Brass, cadmium plated .032" terminals are mounted on 3/32" phenolic, 1/2" wide and on 7/16" ctrs. Ave. Shpg. wt. 3 oz. Mounted holes on left.

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
28F761	2-161-L	2	.54	.47	.39	.33
28F762	3-161-L	3	.70	.54	.47	.39
28F763	4-161-L	4	.76	.62	.52	.43
28F764	5-161-L	5	.93	.75	.66	.51
28F765	6-161-L	6	1.07	.84	.74	.54
28F766	7-161-L	7	1.20	.99	.83	.66
28F767	8-161-L	8	1.32	1.07	.87	.75
28F768	9-161-L	9	1.46	1.15	.99	.76
28F769	10-161-L	10	1.61	1.32	1.09	.87
28F770	11-161-L	11	1.83	1.50	1.25	1.02
28F771	12-161-L	12	2.01	1.60	1.36	1.08

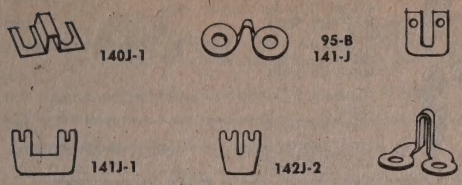
SERIES 162 FANNING STRIPS

Mounting hole on left. Fits 142 Series Barrier Blocks.

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
28F772	2-162-L	2	.62	.51	.43	.37
28F773	3-162-L	3	.74	.61	.49	.42
28F774	4-162-L	4	.87	.74	.62	.49
28F775	5-162-L	5	1.02	.82	.69	.52
28F776	6-162-L	6	1.15	1.02	.84	.70
28F777	7-162-L	7	1.18	1.02	.84	.70
28F778	8-162-L	8	1.46	1.15	.99	.76
28F779	9-162-L	9	1.52	1.21	1.02	.83
28F780	10-162-L	10	1.72	1.36	1.15	.93
28F781	11-162-L	11	1.87	1.51	1.30	1.05
28F782	12-162-L	12	2.12	1.72	1.46	1.15

11

JUMPERS FOR BARRIER BLOCKS



Stk. No.	Type	For Use With	1-24	25-49	50-99	100-249
28F833	140J-1	140	.21	.18	.16	.13
28F790	141-J	141	.21	.18	.16	.13
45F779	141J-1	141	.26	.21	.18	.16
28F789	95B	142	.39	.30	.27	.26
28F742	142J-1	142/542	.26	.21	.18	.16
28F743	142J-2	142/542	.21	.18	.16	.13
28F744	540J	540	.66	.61	.51	.43
28F745	541J	541	.83	.64	.54	.47
28F746	542J	542	.87	.69	.61	.49

QUICK-CLAMP TERMINALS

Simplifies engaging of wires to barrier blocks. Set includes two mating clamps and one screw.

Stk. No.	Type	For Use With	1-24	25-49	50-99	100-249
28F740	QC-1	141/541	.29	.21	.20	.19
28F741	QC-2	142/542	.29	.21	.20	.19

SOLDER TERMINALS FOR BARRIER BLOCKS

Stk. No.	Type	For Use With	1-24	25-49	50-99	100-249
28F791	¾W-140	140/540	.25	.23	.21	.19
28F797	W-140	140/540	.25	.23	.21	.19
28F794	Y-140	140/540	.29	.25	.23	.21
28F792	¾W-141	141/541	.25	.23	.21	.19
28F798	W-141	141/541	.25	.23	.21	.19
28F795	Y-141	141/541	.29	.25	.23	.21
28F793	¾W-142	142/542	.29	.25	.23	.21
28F799	W-142	142/542	.29	.25	.23	.21
28F796	Y-142	142/542	.29	.25	.23	.21
45F780	W-150	150	.46	.39	.32	.29
45F781	W-151	151	.64	.52	.44	.39
45F782	W-152	152	1.18	.94	.76	.60

CABLE CLAMPS

Stk. No.	Type	Inner Dia.	1-24	25-49	50-99	100-249
45F783	CC-161-4	¼"	.59	.47	.38	.36
28F784	CC-161-6	3/8"	.70	.59	.50	.38
45F784	CC-161-8	½"	.86	.68	.59	.50
45F785	CC-161-10	5/8"	.95	.76	.68	.57
45F786	CC-161-12	¾"	1.08	.87	.75	.59
45F787	CC-161-14	7/8"	1.14	.95	.81	.66

LUG TYPE TERMINAL STRIPS

Cadmium Plated steel lugs on ⅜" centers with 140 mfg. holes. Norplex 106 UL FR94V-O 1/16" thick and ⅜" wide. Shpg. wt., 1 oz.

Stk. No.	Type No.	Description	Mtg. Ctr.	1-24	25-49	50-99	100-249
28F650	51	1 Lug	. . .	.18	.15	.12	.10
29F567	51A	2 Lugs; 1 Gnd.	. . .	.18	.15	.12	.10
29F568	51B	1 Lug	. . .	.18	.15	.13	.10
29F569	51C	2 Lugs; 1 Gnd.	. . .	.18	.15	.12	.10
29F570	51F	1 Lug	. . .	.21	.18	.16	.14
28F651	52	2 Lugs	. . .	.20	.17	.14	.11
29F574	52A	3 Lugs; 1 Gnd.	. . .	.21	.18	.14	.11
29F575	52B	2 Lugs	. . .	.20	.17	.14	.11
29F576	52C	3 Lugs; 1 Gnd.	. . .	.21	.18	.14	.11
28F652	53	3 Lugs	1½"	.21	.18	.16	.14
29F582	53E	3 Lugs	. . .	.19	.16	.15	.13
29F583	53F	4 Lugs; 1 Gnd.	. . .	.19	.16	.15	.11
28F653	54	4 Lugs	1⅞"	.24	.21	.19	.14
29F585	54A	6 Lugs; 2 Gnd.	1⅛"	.24	.21	.19	.15
29F586	54B	4 Lugs	. . .	.21	.18	.16	.14
29F587	54C	5 Lugs; 1 Gnd.	. . .	.22	.19	.17	.13
28F654	55	5 Lugs	2¼"	.25	.22	.20	.15
29F588	55A	7 Lugs; 2 Gnd.	2¼"	.25	.22	.20	.15
29F590	55C	7 Lugs; 2 Gnd.	1½"	.25	.22	.20	.15
28F655	56	6 Lugs	2⅝"	.26	.22	.20	.16
29F591	56A	8 Lugs; 2 Gnd.	2⅝"	.26	.23	.21	.16
29F593	56C	8 Lugs; 2 Gnd.	1⅞"	.26	.23	.21	.16

SCREW TYPE TERMINAL STRIPS

Ideal for breadboard layouts. Cadmium-plated brass term. 136" dia. mtg. holes. 1-6 lug strips 1/16" Norplex 106, 7-10 lug strips, 3/32" Norplex 106. Screws are captive to prevent removal. Terminals spaced on 7/16" centers.

Stk. No.	Type	Term.	Mtg. Ctr.	1-24	25-49	50-99	100-249
29F551	17-1	1	7/16"	.20	.18	.16	.14
29F552	17-2	2	15/16"	.22	.20	.18	.16
29F553	17-3	3	1 3/4"	.27	.22	.20	.18
29F554	17-4	4	2 9/16"	.35	.29	.25	.22
29F555	17-5	5	2 5/8"	.41	.32	.28	.26
29F556	17-6	6	3 1/16"	.50	.41	.35	.30
29F557	17-7	7	3 1/2"	.61	.48	.41	.35
29F558	17-8	8	3 15/16"	.68	.57	.47	.38
29F559	17-9	9	4 3/8"	.84	.63	.52	.43
29F560	17-10	10	4 13/16"	.99	.75	.64	.52

JONES SERIES 2000 TERMINALS

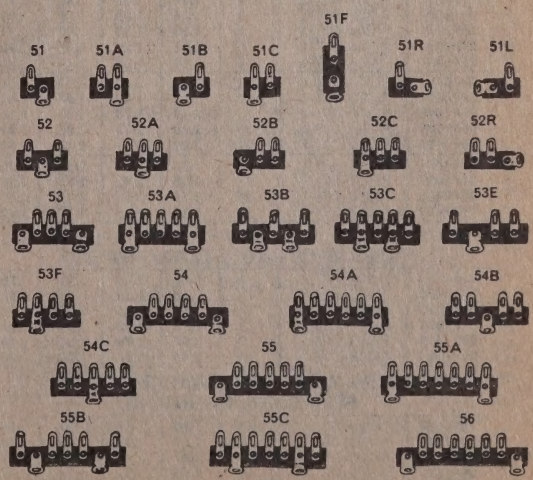
Norplex 106 insulation with cadmium steel brackets. Terminals are made of .019" tinned brass on 5/16" centers. Wt., 3 oz.

Stk. No.	Type	Term.	1-24	25-49	50-99	100-249
28F680	2002	2	.22	.21	.20	.17
28F681	2003	3	.26	.22	.21	.20
28F682	2004	4	.27	.26	.22	.21
28F683	2005	5	.27	.26	.22	.21
28F684	2006	6	.30	.27	.24	.22
28F685	2007	7	.30	.27	.24	.22
28F686	2008	8	.35	.29	.26	.24
28F687	2009	9	.38	.30	.27	.26
28F688	2010	10	.38	.30	.27	.26
28F689	2011	11	.41	.32	.30	.27
28F690	2012	12	.41	.32	.30	.27
28F691	2013	13	.44	.39	.32	.29

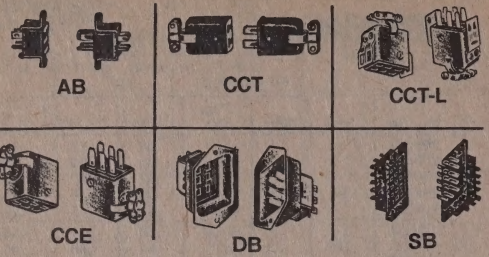
SERIES 170 TERMINAL BLOCKS

.031" brass tin plated Solder Term. Black molded phenolic. Size: ⅝" W. x ¼" H. Mfg. on ⅜" ctrs.

Stk. No.	Type	Contact	1-24	25-49	50-99	100-249
29F740	2-170	2	.51	.43	.39	.35
29F741	3-170	3	.70	.55	.46	.41
29F742	4-170	4	.81	.66	.51	.43
29F743	5-170	5	.88	.74	.62	.47
29F744	6-170	6	1.01	.80	.69	.54
29F745	7-170	7	1.13	.88	.76	.62
29F746	8-170	8	1.15	.95	.80	.68
29F747	9-170	9	1.35	1.10	.88	.74
29F748	10-170	10	1.48	1.15	.98	.81



TRW CINCH CONNECTORS



Small size, good separation between contacts for medium-duty applications. Molded phenolic insulator, cadium-plated phosphor bronze socket. Brass plug contacts, for cap or panel mounting. Polarized so only common sizes will mate. "Knife-switch" type socket contacts engage both sides of flat plug contacts. 730Vrms. Current (2-12 contacts) 7.5 Amps (15-33 contacts) 4.5 Amps.

AUXILIARY LOCKS

Type 63. Spring lock for use with 400 Series panel mounted connectors.
45F788. NET ..... **.80**

Type 63A.† Spring lock for use with 300 Series 15-33 contact panel-mount connectors.
45F789. NET ..... **.64**

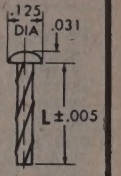
Type 93.† Extension-cable lock for use with 400 Series.
45F790. NET ..... **.63**

(†) Connector shells must be specially adapted for these locks.

REPLACEMENT DRIVE PINS FOR 300 SERIES CAP-TYPE PLUGS AND SOCKETS

Stk. No.	Type	Contacts	L± .005	1-24	25-49	50-99	100-249
29F1195	302-R	2	.687	.21	.18	.16	.13
29F1196	303-R	3	.468	.21	.18	.16	.13
29F1197	304-R	4,6,8,10*	.718	.21	.18	.16	.13
29F1198	312-R	12	.953	.21	.18	.16	.13
29F1199	333-R	15-33*	1.125	.21	.18	.16	.13

*10-contact size and 15 thru 33-contact sizes require 2 pins per unit; all other sizes require only 1.



PLUGS WITH ANGLE BRACKETS

Stock No.	Type No.	Cont.	1-24	25-49	50-99	100-249
39F200	P-302-AB	2	.51	.38	.35	.31
39F201	P-303-AB	3	.56	.41	.37	.33
39F202	P-304-AB	4	.60	.51	.40	.35
39F203	P-306-AB	6	.74	.60	.53	.39
39F204	P-308-AB	8	.86	.67	.58	.50
39F205	P-310-AB	10	.96	.75	.65	.54
39F206	P-312-AB	12	1.08	.87	.70	.58
39F207	P-315-AB	15	1.43	1.14	.96	.75
39F208	P-318-AB	18	1.70	1.38	1.14	.93
39F209	P-321-AB	21	2.12	1.70	1.43	1.14
39F210	P-324-AB	24	2.55	2.04	1.71	1.39
39F211	P-327-AB	27	2.99	2.41	2.01	1.60
39F212	P-330-AB	30	3.43	2.73	2.28	1.85
39F213	P-333-AB	33	3.84	3.06	2.56	2.04

SOCKETS WITH ANGLE BRACKETS

Stock No.	Type No.	Cont.	1-24	25-49	50-99	100-249
39F220	S-302-AB	2	.53	.40	.36	.32
39F221	S-303-AB	3	.58	.50	.38	.34
39F222	S-304-AB	4	.62	.53	.41	.36
39F223	S-306-AB	6	.81	.62	.56	.41
39F224	S-308-AB	8	.96	.76	.65	.54
39F225	S-310-AB	10	1.11	.89	.75	.60
39F226	S-312-AB	12	1.31	1.03	.89	.70
39F227	S-315-AB	15	1.65	1.33	1.11	.89
39F228	S-318-AB	18	1.91	1.51	1.24	1.02
39F229	S-321-AB	21	2.31	1.89	1.54	1.22
39F230	S-324-AB	24	2.75	2.19	1.88	1.47
39F231	S-327-AB	27	3.19	2.55	2.14	1.71
39F232	S-330-AB	30	3.65	2.93	2.45	1.97
39F233	S-333-AB	33	4.08	3.25	2.72	2.17

PLUGS WITH CABLE CLAMP IN TOP

39F280	P-302-CCT	2	.97	.77	.65	.54
39F281	P-303-CCT	3	1.08	.87	.70	.58
39F282	P-304-CCT	4	1.13	.91	.75	.60
39F283	P-306-CCT	6	1.24	1.02	.87	.67
39F284	P-308-CCT	8	1.39	1.11	.94	.74
39F285	P-310-CCT	10	1.51	1.20	1.02	.84
39F286	P-312-CCT	12	1.62	1.31	1.11	.89
39F287	P-315-CCT	15	2.16	1.73	1.47	1.16
39F288	P-318-CCT	18	2.52	2.02	1.70	1.38
39F289	P-321-CCT	21	3.00	2.42	2.02	1.61
39F290	P-324-CCT	24	3.52	2.82	2.38	1.92
39F291	P-327-CCT	27	4.04	3.21	2.69	2.16
39F292	P-330-CCT	30	4.53	3.62	3.02	2.43
39F293	P-333-CCT	33	5.01	4.02	3.35	2.69

SOCKETS WITH CABLE CLAMP IN TOP

39F300	S-302-CCT	2	.99	.82	.67	.56
39F301	S-303-CCT	3	1.10	.88	.71	.59
39F302	S-304-CCT	4	1.15	.94	.77	.61
39F303	S-306-CCT	6	1.33	1.08	.89	.70
39F304	S-308-CCT	8	1.49	1.17	.99	.82
39F305	S-310-CCT	10	1.67	1.36	1.13	.91
39F306	S-312-CCT	12	1.91	1.51	1.23	1.01
39F307	S-315-CCT	15	2.41	1.95	1.61	1.26
39F308	S-318-CCT	18	2.72	2.17	1.82	1.47
39F309	S-321-CCT	21	3.21	2.58	2.16	1.72
39F310	S-324-CCT	24	3.71	2.99	2.49	1.99
39F311	S-327-CCT	27	4.22	3.38	2.83	2.26
39F312	S-330-CCT	30	4.75	3.82	3.19	2.55
39F313	S-333-CCT	33	5.23	4.19	3.52	2.82

PLUGS—CABLE CLAMP IN TOP WITH LATCHES

29F859	P-302-CCT-L	2	1.19	.97	.82	.65
29F860	P-303-CCT-L	3	1.26	1.03	.88	.69
29F861	P-304-CCT-L	4	1.38	1.10	.93	.71
29F862	P-306-CCT-L	6	1.51	1.20	1.01	.82
29F863	P-308-CCT-L	8	1.60	1.26	1.10	.88
29F864	P-310-CCT-L	10	1.73	1.42	1.17	.96
29F865	P-312-CCT-L	12	1.85	1.50	1.23	1.01
29F1028	P-315-CCT-L	15	2.41	1.95	1.61	1.26
29F1029	P-318-CCT-L	18	2.75	2.19	1.88	1.49
29F1030	P-321-CCT-L	21	3.22	2.59	2.17	1.73
29F1031	P-324-CCT-L	24	3.74	3.00	2.52	2.02
29F1032	P-327-CCT-L‡	27	4.25	3.42	2.84	2.28
29F1033	P-330-CCT-L‡	30	4.75	3.82	3.19	2.55
29F1034	P-333-CCT-L‡	33	5.23	4.19	3.52	2.82

(‡) Locks are centered on each side, not on each end as shown.

SOCKETS—CABLE CLAMP IN TOP WITH KEEPERS

29F866	S-302-CCT-K	2	1.21	.99	.86	.66
29F867	S-303-CCT-K	3	1.33	1.08	.89	.70
29F868	S-304-CCT-K	4	1.40	1.13	.94	.74
29F869	S-306-CCT-K	6	1.54	1.22	1.03	.86
29F870	S-308-CCT-K	8	1.71	1.39	1.15	.94
29F871	S-310-CCT-K	10	1.92	1.52	1.24	1.02
29F872	S-312-CCT-K	12	2.12	1.70	1.43	1.14
29F1035	S-315-CCT-K	15	2.62	2.12	1.75	1.43
29F1036	S-318-CCT-K	18	2.97	2.38	1.98	1.59
29F1037	S-321-CCT-K	21	3.45	2.76	2.31	1.88
29F1038	S-324-CCT-K	24	3.94	3.18	2.63	2.12
29F1039	S-327-CCT-K‡	27	4.46	3.56	2.99	2.41
29F1040	S-330-CCT-K‡	30	5.00	4.02	3.34	2.65
29F1041	S-333-CCT-K‡	33	5.48	4.37	3.66	2.94

(‡) Keepers are centered on each side, not on each end as shown.

PLUGS WITH CABLE CLAMP IN END

29F1008	P-306-CCE	6	1.33	1.09	.91	.70
29F1009	P-308-CCE	8	1.44	1.15	.97	.77
29F1010	P-310-CCE	10	1.57	1.23	1.08	.87
29F1011	P-312-CCE	12	1.70	1.38	1.14	.93
29F1012	P-315-CCE	15	2.20	1.76	1.50	1.19
29F1013	P-318-CCE	18	2.58	2.05	1.72	1.40

SOCKET WITH CABLE CLAMP IN END

29F1019	S-306-CCE	6	1.39	1.11	.96	.74
29F1020	S-308-CCE	8	1.53	1.21	1.03	.86
29F1021	S-310-CCE	10	1.72	1.40	1.17	.94
29F1022	S-312-CCE	12	1.95	1.54	1.31	1.03
29F1023	S-315-CCE	15	2.46	1.98	1.65	1.33
29F1024	S-318-CCE	18	2.76	2.20	1.89	1.50

PLUGS WITH DEEP BRACKETS FOR RECESSED MOUNTING

28F1094	P-304-DB	4	1.22	.99	.84	.66
28F1095	P-306-DB	6	1.39	1.10	.93	.74
28F1096	P-308-DB	8	1.47	1.19	.99	.81
28F1097	P-312-DB	12	1.68	1.38	1.14	.91
28F1098	P-315-DB	15	2.04	1.65	1.40	1.11
28F1099	P-318-DB	18	2.45	1.97	1.65	1.35
28F1100	P-321-DB	21	2.93	2.37	1.97	1.57
28F1101	P-324-DB	24	3.43	2.75	2.30	1.85

SOCKETS WITH DEEP BRACKETS FOR RECESSED MOUNTINGS

29F875	S-304-DB	4	1.23	1.01	.87	.67
29F876	S-306-DB	6	1.43	1.14	.97	.75
29F877	S-308-DB	8	1.57	1.23	1.08	.87
29F878	S-312-DB	12	1.95	1.53	1.31	1.03
29F879	S-315-DB	15	2.28	1.85	1.53	1.21
29F880	S-318-DB	18	2.63	2.12	1.75	1.44
29F881	S-321-DB	21	3.15	2.52	2.08	1.68
29F882	S-324-DB	24	3.63	2.92	2.45	1.97

11

TRW CINCH CONNECTORS

Series 300

P-315-EB

S-315-EB

S-304-RP

P-304-RP

PLUGS WITH RECESSED PLATE

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
39F260	P-302-RP	2	.91	.71	.61	.52
39F261	P-303-RP	3	.96	.75	.65	.54
39F262	P-304-RP	4	1.01	.82	.67	.57
39F263	P-306-RP	6	1.16	.94	.74	.61
39F264	P-308-RP	8	1.33	1.08	.89	.70
39F265	P-310-RP	10	1.52	1.17	.99	.82
39F266	P-312-RP	12	1.65	1.33	1.11	.89

SOCKETS WITH RECESSED PLATE

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
39F270	S-302-RP	2	.96	.75	.62	.53
39F271	S-303-RP	3	.98	.81	.66	.54
39F272	S-304-RP	4	1.03	.86	.70	.58
39F273	S-306-RP	6	1.19	.97	.82	.65
39F274	S-308-RP	8	1.43	1.14	.97	.77
39F275	S-310-RP	10	1.65	1.33	1.11	.89
39F276	S-312-RP	12	1.91	1.51	1.24	1.02

PLUGS WITH END BRACKETS

29F1064	P-315-EB	15	1.47	1.16	.98	.81
29F1065	P-318-EB	18	1.73	1.42	1.16	.94
29F1066	P-321-EB	21	2.16	1.72	1.46	1.16
29F1067	P-324-EB	24	2.59	2.07	1.73	1.42
29F1068	P-327-EB	27	3.02	2.43	2.03	1.62
29F1069	P-330-EB	30	3.46	2.76	2.31	1.89
29F1070	P-333-EB	33	3.87	3.11	2.59	2.07

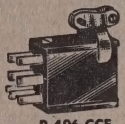
SOCKETS WITH END BRACKETS

29F1071	S-315-EB	15	1.68	1.38	1.13	.91
29F1072	S-318-EB	18	2.69	1.54	1.31	1.03
29F1073	S-321-EB	21	2.38	1.92	1.59	1.24
29F1074	S-324-EB	24	2.78	2.23	1.91	1.51
29F1075	S-327-EB	27	3.22	2.59	2.16	1.73
29F1076	S-330-EB	30	3.69	2.97	2.47	1.99
29F1077	S-333-EB	33	4.12	3.28	2.75	2.19

Series 400

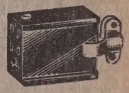
P-406-AB

S-406-AB


P-406-CCE

S-406-CCE

P-406-CCT


S-406-CCT

Rated for duty beyond the range of 300 Series: 1200Vrms at 15 amps. Contact resistance: .001 ohm avg. Polarized and suitable for either cap or panel mounting. Double bellows type socket contacts of cadmium-plated phosphor bronze engage both sides of flat plug contacts. Plug prongs are cadmium-plated brass ¼" wide, 1/16" thick.

PLUGS WITH ANGLE BRACKETS

Stk. No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
39F320	P-402-AB	2	1.16	.94	.78	.62
39F321	P-404-AB	4	1.43	1.15	.96	.75
39F322	P-406-AB	6	1.67	1.33	1.14	.91
39F323	P-408-AB	8	1.93	1.53	1.26	1.02
39F324	P-410-AB	10	2.16	1.73	1.47	1.17
39F325	P-412-AB	12	2.42	1.95	1.61	1.29

SOCKETS WITH ANGLE BRACKETS

Stk. No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
39F330	S-402-AB	2	1.36	1.09	.91	.71
39F331	S-404-AB	4	1.73	1.39	1.16	.94
39F332	S-406-AB	6	2.12	1.70	1.44	1.15
39F333	S-408-AB	8	2.49	1.99	1.67	1.35
39F334	S-410-AB	10	2.85	2.29	1.93	1.53
39F335	S-412-AB	12	3.24	2.59	2.17	1.74

PLUGS WITH CABLE CLAMP ON TOP

39F340	P-402-CCT	2	1.92	1.53	1.26	1.02
39F341	P-404-CCT	4	2.17	1.74	1.47	1.17
39F342	P-406-CCT	6	2.49	1.99	1.68	1.36
39F343	P-408-CCT	8	2.76	2.19	1.85	1.50
39F344	P-410-CCT	10	3.18	2.54	2.14	1.71
39F345	P-412-CCT	12	3.45	2.77	2.30	1.88

SOCKETS WITH CABLE CLAMP ON TOP

39F346	S-402-CCT	2	2.16	1.73	1.46	1.16
39F347	S-404-CCT	4	2.56	2.05	1.73	1.39
39F348	S-406-CCT	6	2.99	2.41	1.99	1.60
39F349	S-408-CCT	8	3.38	2.73	2.28	1.81
39F350	S-410-CCT	10	3.82	3.05	2.56	2.08
39F351	S-412-CCT	12	4.25	3.38	2.83	2.28

PLUGS WITH CABLE CLAMP IN END

29F1060	P-402-CCE	2	1.97	1.59	1.33	1.08
29F1061	P-404-CCE	4	2.23	1.77	1.51	1.20
29F1078	P-406-CCE	6	2.55	2.04	1.71	1.39
29F1079	P-408-CCE	8	2.83	2.26	1.91	1.52
29F1080	P-410-CCE	10	3.22	2.58	2.17	1.74
29F1081	P-412-CCE	12	3.52	2.82	2.37	1.91

SOCKETS WITH DEEP BRACKETS FOR RECESSED MOUNTING

29F1048	S-402-DB	2	1.73	1.39	1.16	.94
29F1049	S-404-DB	4	2.17	1.74	1.47	1.17
29F1050	S-406-DB	6	2.62	2.12	1.76	1.44
29F1051	S-408-DB	8	3.06	2.47	2.05	1.65
29F1052	S-410-DB	10	3.53	2.82	2.37	1.92
29F1053	S-412-DB	12	3.99	3.19	2.65	2.15

PLUGS WITH DEEP BRACKETS FOR RECESSED MOUNTING

29F514	P-402-DB	2	1.53	1.22	1.02	.84
29F515	P-404-DB	4	1.88	1.50	1.23	.99
29F516	P-406-DB	6	2.17	1.74	1.47	1.17
29F517	P-408-DB	8	2.49	1.99	1.68	1.36
29F518	P-410-DB	10	2.82	2.25	1.91	1.52
29F519	P-412-DB	12	3.15	2.52	2.12	1.68

SOCKETS WITH SHALLOW BRACKETS FOR FLUSH MOUNTING

39F380	S-402-SB	2	1.67	1.33	1.14	.91
39F381	S-404-SB	4	2.12	1.70	1.44	1.15
39F382	S-406-SB	6	2.56	2.07	1.73	1.39
39F383	S-408-SB	8	3.01	2.43	2.03	1.61
39F384	S-410-SB	10	2.76	2.31	2.31	1.89
39F385	S-412-SB	12	3.91	3.15	2.62	2.12

PLUGS WITH SHALLOW BRACKETS FOR FLUSH MOUNTING

29F1054	P-402-SB	2	1.49	1.19	.99	.78
29F1055	P-404-SB	4	1.77	1.46	1.20	.97
29F1056	P-406-SB	6	2.12	1.70	1.44	1.15
29F1057	P-408-SB	8	2.45	1.96	1.62	1.30
29F1058	P-410-SB	10	2.76	2.19	1.88	1.50
29F1059	P-412-SB	12	3.06	2.45	2.05	1.65

SOCKETS WITH CABLE CLAMP IN END

29F1088	S-402-CCE	2	2.20	1.76	1.50	1.20
29F1089	S-404-CCE	4	2.62	2.12	1.76	1.43
29F1090	S-406-CCE	6	3.05	2.45	2.04	1.65
29F1091	S-408-CCE	8	3.46	2.77	2.31	1.88
29F1092	S-410-CCE	10	3.87	3.11	2.59	2.08
29F1093	S-412-CCE	12	4.29	3.43	2.87	2.30

Plugs & Sockets

2400 SERIES

P-2406-SB

S-2406-SB

P-2406-DB

S-2406-DB

Designed for excellent electrical and mechanical performance. Rated 1700 Volts, 10 Amps. Fully interchangeable with corresponding units of the 400 Series.

PLUGS WITH CABLE CLAMP ON TOP

Stk. No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
29F523	P-2402-CCT	2	2.12	1.70	1.43	1.15
29F524	P-2404-CCT	4	2.40	1.91	1.61	1.29
29F525	P-2406-CCT	6	2.68	2.15	1.80	1.46
29F526	P-2408-CCT	8	2.97	2.38	2.02	1.60
29F527	P-2410-CCT	10	3.27	2.62	2.18	1.76
29F528	P-2412-CCT	12	3.41	2.73	2.29	1.83

SOCKETS WITH CABLE CLAMP ON TOP

Stk. No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
29F529	S-2402-CCT	2	2.29	1.92	1.57	1.23
29F530	S-2404-CCT	4	2.55	2.05	1.70	1.36
29F531	S-2406-CCT	6	2.85	2.27	1.88	1.55
29F532	S-2408-CCT	8	3.14	2.54	2.09	1.68
29F533	S-2410-CCT	10	3.44	2.73	2.29	1.84
29F534	S-2412-CCT	12	3.73	2.99	2.50	2.02

PLUGS WITH CABLE CLAMPS IN END

29F1112	P-2402-CCE	2	2.16	1.76	1.47	1.19
29F1113	P-2404-CCE	4	2.47	1.99	1.65	1.31
29F1114	P-2406-CCE	6	2.73	2.19	1.84	1.51
29F1115	P-2408-CCE	8	3.02	2.42	2.05	1.62
29F1116	P-2410-CCE	10	3.33	2.68	2.25	1.79
29F1117	P-2412-CCE	12	3.62	2.90	2.41	1.92

SOCKETS WITH CABLE CLAMPS IN END

29F1124	S-2402-CCE	2	2.37	1.88	1.59	1.26
29F1125	S-2404-CCE	4	2.60	2.08	1.76	1.40
29F1126	S-2406-CCE	6	2.90	2.30	1.98	1.58
29F1127	S-2408-CCE	8	3.20	2.58	2.15	1.71
29F1128	S-2410-CCE	10	3.50	2.79	2.35	1.86
29F1129	S-2412-CCE	12	3.81	3.05	2.56	2.05

PLUGS WITH DEEP BRACKETS FOR RECESSED MOUNTING

29F1094	P-2402-DB	2	1.67	1.31	1.14	.92
29F1095	P-2404-DB	4	1.92	1.51	1.29	1.04
29F1096	P-2406-DB	6	2.23	1.77	1.51	1.21
29F1097	P-2408-DB	8	2.49	2.02	1.67	1.31
29F1098	P-2410-DB	10	2.76	2.23	1.84	1.51
29F1099	P-2412-DB	12	3.02	2.42	2.05	1.62

SOCKETS WITH DEEP BRACKETS FOR RECESSED MOUNTING

29F900	S-2402-DB	2	1.79	1.45	1.21	.98
29F901	S-2404-DB	4	2.07	1.67	1.40	1.14
29F902	S-2406-DB	6	2.37	1.88	1.59	1.26
29F903	S-2408-DB	8	2.65	2.12	1.79	1.45
29F904	S-2410-DB	10	2.92	2.35	1.98	1.59
29F905	S-2412-DB	12	3.21	2.59	2.16	1.74

PLUGS WITH SHALLOW BRACKETS FOR FLUSH MOUNTING

29F1106	P-2402-SB	2	1.55	1.23	1.03	.82
29F1107	P-2404-SB	4	1.82	1.46	1.22	.99
29F1108	P-2406-SB	6	2.08	1.67	1.40	1.15
29F1109	P-2408-SB	8	2.37	1.91	1.59	1.26
29F1110	P-2410-SB	10	2.63	2.12	1.77	1.33
29F1111	P-2412-SB	12	2.93	2.31	1.98	1.58

SOCKETS WITH SHALLOW BRACKET FOR FLUSH MOUNTING

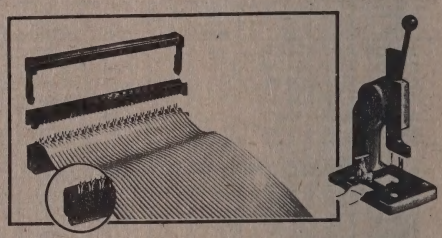
29F535	S-2402-SB	2	1.67	1.31	1.14	.92
29F536	S-2404-SB	4	1.95	1.58	1.30	1.04
29F537	S-2406-SB	6	2.25	1.80	1.52	1.21
29F538	S-2408-SB	8	2.54	2.03	1.70	1.36
29F539	S-2410-SB	10	2.83	2.26	1.86	1.54
29F540	S-2412-SB	12	3.12	2.49	2.08	1.67

11

FLAT CABLE CONNECTOR SYSTEM

Mate with standard .025″ square or round feed-through pins and headers of most manufacturers. All accept flat cable with .050″ spacing. Gold plated bifurcated contacts provide two wire contact points for added reliability. Strain relief is provided through the use of a three-piece assembly. With flat cable connectors the cable is automatically positioned for termination by means of grooves on the cover in addition to the positioning feature built into the terminating tool. Terminating tool fixtures listed are interchangeable wih a customer's existing tools.

- Connectors: locking tabs for retention, two wire contact points, compact design to save board space.
- Cables: 50 terminations in one staking, low profile.
- Terminating Tools: one set of fixtures all sizes, usable on other connectors, install at any point on cable.



SPECIFICATIONS

Series 8000 Flat Cable. Configuration: Conductors on .050″ spacing. Conductor: Soft annealed tinned copper. Insulation: Gray flame retardant PVC (FR-1). Wall Thickness: .009″ average, .006″ minimum. Polarization: Blue color band for #1 position. Temperature: —20°C to +105°C. UL Style: 2651. Voltage Rating: 300V. Standard Put-Up: 100′ spools.

CONNECTORS FOR 28-30 AWG SOLID OR STRANDED WITHOUT STRAIN RELIEF

Stock No.	Type	No. of Contacts	EACH 1-24	25-49	50-99	100-249
13F071	FC-10	10	2.19	1.75	1.46	1.17
13F072	FC-20	20	3.15	2.52	2.10	1.68
13F073	FC-26	26	4.09	3.27	2.73	2.18
13F074	FC-34	34	5.33	4.27	3.56	2.84
13F075	FC-40	40	6.27	5.02	4.18	3.34
13F076	FC-50	50	7.80	6.24	5.20	4.16

FLAT CABLE TOOLS

Stk. No.	Type	Description	EACH
13F101	TS-373	Complete System	387.20
13F102	TA-352	Arbor Press	114.95
13F103	TC-350	Cable Cutter	127.05
13F104	TL-351	Adj. Assembly Fixt.	145.20

28 AWG STRANDED

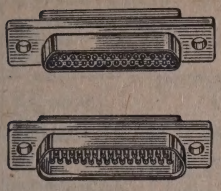
Stk. No.	Type	No. Cond.	EACH 1-4	5-9	10-Up
13F083	8000-10	10	19.30	16.35	13.40
13F084	8000-14	14	27.00	22.80	18.75
13F085	8000-16	16	30.75	26.05	21.40
13F086	8000-20	20	38.40	32.50	26.75
13F087	8000-26	26	49.95	42.40	34.80
13F088	8000-34	34	65.25	55.40	45.50
13F089	8000-36	36	69.10	58.65	48.20
13F090	8000-40	40	76.80	65.20	53.60
135091	8000-50	50	96.00	81.50	67.00
13F092	8000-60	60	115.80	98.40	80.40

WITH STRAIN RELIEF

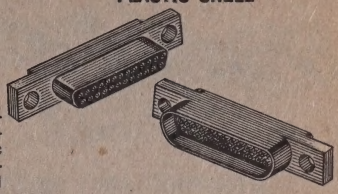
Stock No.	Type	No. of Contacts	EACH 1-24	25-49	50-99	100-249
13F077	FC-10SR	10	2.88	2.30	1.92	1.54
13F078	FC-20SR	20	3.79	3.03	2.53	2.02
13F079	FC-26SR	26	4.75	3.80	3.17	2.53
13F080	FC-34SR	34	5.79	4.63	3.86	3.09
13F081	FC-40SR	40	6.83	5.47	4.56	3.64
13F082	FC-50SR	50	8.33	6.66	5.55	4.44

DURA-CON MICROMINIATURE CONNECTORS

METAL SHELL



PLASTIC SHELL



- Shock and Vibration Resistant
- High Contact Density
- EMI Shielded
- Aluminum Alloy Shell
- Reliable Contacts

Where weight and space must be kept at a minimum with high connector reliability the Metal-Dura-Con-D with EMI shielding is needed. Plastic Shell Dura-Con-D has essentially the same performance as the metal shell version without EMI shielding characteristics.

Made from a precision miniature spring cable with a welded tip. Expanded Cable provides seven spring members peripherally around the pin so that no matter what radial forces are applied, contact is maintained with the mating socket wall. This flexible spring can be bent many times without evidencing any metal fatigue. By protecting this pin in a recessed tolerance cavity, reliable mating is assured.

Miniaturized airborne electronics and data processing equipment where shorter signal paths are needed are typical applications for these connectors, which provide continuity under extremes of shock and vibration. **Performance Data** ELECTRICAL Contact Resistance: 4 mohms typical. Current Rating: 3A max. Max. Voltage Drop: 24mV at 3A. Average Voltage Drop: 12 mV at 3 amps. Dielectric Withstanding Voltage 900VAC at sea level; 300VAC at 70,000′.

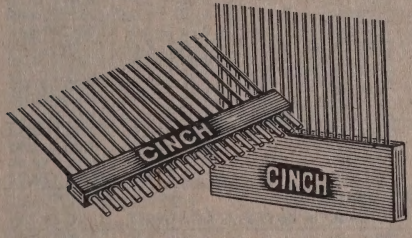
EMI Shielding (metal shell only): 40dB minimum attenuation from DC through 1000MHz. Insulation Resistance: 5000 megohms min. at room temp. MECHANICAL Engaging Force: 6 oz. max. Separating Force: 0.5 oz. min. Mating Force: 6 oz. times the number of contacts. Unmating Force: 0.5 oz. times the number of contacts. ENVIRONMENTAL Temp. Range: −65° to +275°F. Durability: No mechanical or electrical defects for 500 cycles at a rate of 600 cycles per hour. MATERIALS Contacts: copper alloy. Insulator: metal shell — glass-filled Valox; plastic shell — glass-filled polyester SE-O. FEATURES 7 Sizes: 9, 15, 21, 25, 31, 37 and 51. Coupling: Friction/jackscrews. Polarization: Keystone-shaped shells. Contact Spacing Centers: 0.050″. Shell Styles: Plug and receptacle.

Stk. No.	Type	Desc.	1-9	10-49	50-99	100-249
13F3934	DCDM-9PS	9 Pin	16.93	15.44	13.45	12.25
13F3935	DCDM-9SS	9 Skt.	14.89	13.58	11.83	10.77
13F3936	DCDM-15PS	15 Pin	24.26	22.12	19.26	17.55
13F3937	DCDM-15SS	15 Skt.	19.91	18.15	15.81	14.40
13F3938	DCDM-21PS	21 Pin	31.64	28.85	25.12	22.89
13F3939	DCDM-21SS	21 Skt.	25.16	22.94	19.98	18.20
13F3940	DCDM-25PS	25 Pin	36.74	33.50	29.18	26.58
13F3941	DCDM-25SS	25 Skt.	28.85	26.30	22.91	20.87
13F3942	DCDM-31PS	31 Pin	43.88	40.00	34.84	31.75
13F3943	DCDM-31SS	31 Skt.	38.78	35.36	30.80	28.06
13F3944	DCDM-37PS	37 Pin	51.95	47.37	41.26	37.59
13F3945	DCDM-37SS	37 Skt.	39.59	36.10	31.44	28.65
13F3946	DCDM-51PS	51 Pin	69.60	63.46	55.27	50.36
13F3947	DCDM-51SS	51 Skt.	51.75	47.18	41.09	37.44

Stk. No.	Type	Desc.	1-9	10-49	50-99	100-249
13F3948	DCDA-9PS	9 Pin	12.78	11.66	10.10	9.25
13F3949	DCDA-9SS	9 Skt.	9.32	8.51	7.46	6.74
13F3950	DCDA-15PS	15 Pin	20.14	18.44	16.24	14.80
13F3951	DCDA-15SS	15 Skt.	13.81	12.78	11.41	10.24
13F3952	DCDA-21PS	21 Pin	25.72	23.55	20.67	18.87
13F3953	DCDA-21SS	21 Skt.	18.36	16.82	15.04	13.49
13F3954	DCDA-25PS	25 Pin	30.06	27.50	24.13	22.03
13F3955	DCDA-25SS	25 Skt.	21.35	19.55	17.49	15.68
13F3956	DCDA-37PS	37 Pin	43.52	39.77	34.89	31.86
13F3957	DCDA-37SS	37 Skt.	30.74	28.15	25.16	22.55
13F3958	DCDA-51PS	51 Pin	57.49	52.51	46.05	42.07
13F3959	DCDA-51SS	51 Skt.	55.08	50.22	43.76	39.65

11

DURA-CON STRIP CONNECTORS



For maximum flexibility of application, Cinch Dura-Con contacts are available in strip connector configurations with contacts of 0.050″, .075″ and .100″ centers. Insulation is glass-filled polyester SE-O. By cutting, adding or stacking, a variety of contact arrangements can be achieved. These versatile connector strips are available with up to 60 contact positions. Guide pins that engage prior to the contact in the mating cycle, can be provided to assist in mating and polarization. Contacts: 22 and 24 gauge copper alloy, gold plated. Insulator: Glass-filled polyester SE-O. Strip connectors come with 5, 10, 15, 20, 30, 40, 50 and 60 contact sizes. Strip connectors with .075 and .100 centers have 22 AWG solder clip contacts. Strip connectors with .050 centers have 24 AWG solder clip contacts. Strips on .075 and .100 center configurations are supplied as insulators only — contacts must be ordered separately. Insertions tool is required to complete the assembly.

.050 CENTERS/24 AWG

Stk. No.	Type	Desc.	1-9	10-49
13F3926	CSA1-5PS	5 Pin	7.33	6.68
13F3927	CSA1-10PS	10 Pin	12.26	11.18
13F3928	CSA1-15PS	15 Pin	18.49	16.87
13F3929	CSA1-20PS	20 Pin	24.14	22.03
13F3930	CSA1-5SS	5 Skt.	7.09	6.66
13F3931	CSA1-10SS	10 Skt.	10.78	9.03
13F3932	CSA1-15SS	15 Skt.	15.66	14.57
13F3933	CSA1-20SS	20 Skt.	18.41	16.99

.075 CENTERS/22 AWG INSULATOR ONLY

13F3914	CSC3-5P	Plug/5 pos.	.30	.28
13F3915	CSC3-10P	Plug/10 pos.	.36	.33
13F3916	CSC3-20P	Plug/20 pos.	.54	.50

.075 CENTERS (Cont.)/ 22 AWG INSULATOR ONLY

Stk. No.	Type	Desc.	1-9	10-49
13F3917	CSC3-30P	Plug/30 pos.	.67	.61
13F3918	CSC3-40P	Plug/40 pos.	.85	.77
13F3919	CSC3-53P	Plug/53 pos.	1.00	.91
13F3920	CSC3-5S	Skt./5 pos.	.30	.27
13F3921	CSC3-10S	Skt./10 pos.	.36	.32
13F3922	CSC3-20S	Skt./20 pos.	.53	.48
13F3923	CSC3-30S	Skt./30 pos.	.67	.61
13F3924	CSC3-40S	Skt./40 pos.	.82	.74
13F3925	CSC3-53S	Skt./53 pos.	1.00	.91

.100 CENTERS/22 AWG INSULATOR ONLY

13F3900	CSD3-5P	Plug/5 pos.	.31	.28
13F3901	CSD3-10P	Plug/10 pos.	.37	.34

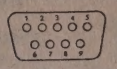
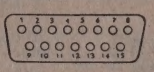
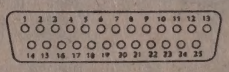
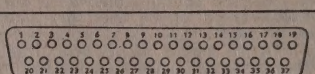
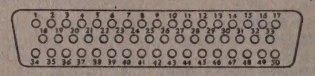
.100 CENTERS (Cont.)/ 22 AWG INSULATOR ONLY

Stk. No.	Type	Desc.	1-9	10-49
13F3902	CSD3-20P	Plug/20 pos.	.57	.52
13F3903	CSD3-30P	Plug/30 pos.	.70	.64
13F3904	CSD3-40P	Plug/40 pos.	.82	.75
13F3905	CSD3-50P	Plug/50 pos.	.93	.85
13F3906	CSD3-60P	Plug/60 pos.	1.04	.95
13F3907	CSD3-5S	Skt./5 pos.	.31	.29
13F3908	CSD3-10S	Skt./10 pos.	.36	.33
13F3909	CSD3-20S	Skt./20 pos.	.54	.49
13F3910	CSD3-30S	Skt./30 pos.	.67	.61
13F3911	CSD3-40S	Skt./40 pos.	.84	.77
13F3912	CSD3-50S	Skt./50 pos.	.95	.87
13F3913	CSD3-60S	Skt./60 pos.	1.04	.95
13F3961	22-F	Skt. Contact	.09	.09
13F3960	22-M	Plug Contact	.17	.17
13F3962	CIET-22	Insert. Tool	78.60	...

TRW Cinch D-Subminiature Connectors

DATA

Voltage rating: 1250 VAC test, 1700 flashover. Current rating: 5 amperes. Insulation resistance: greater than 5,000 megohms. Contact voltage drop: (#20 contacts) 2.67 millivolts max. amp. Shells: Steel cadmium-plated. Insulators: See insulator type below. Pin contacts: D*C cadmium copper with gold over nickel at contacting area, gold flash overall. Stamped: gold over nickel. Machined: copper alloy with gold over nickel. D* and D*M-Brass gold-plated over nickel; D*MA-Leaded copper, gold-plated over nickel; Dataphone-Brass. gold-plated over copper. Socket contacts: D*-Phosphor bronze, gold-plated nickel, D*M-Brass gold-plated over nickel, D*MA-Leaded copper, gold-plated over nickel, copper alloy, gold plate over nickel plate with stainless steel sleeves. Dataphone-Phosphor bronze, gold-plated over copper.

BASIC LAYOUT CONNECTORS (#20 contacts only)	LAYOUT	SHELL SIZE
	9 Contact Plug Socket	E
	15 Contact Plug Socket	A
	25 Contact Plug Socket	B
	37 Contact Plug Socket	C
	50 Contact Plug Socket	D

Add suffix "F" for shell with float mounts, as DEF, DEMF, etc.

TYPE	DESCRIPTION	COMMON NAME	INSULATOR TYPE	CONTACT TERMINATION
D*C	D connectors for commercial applications where economy is an important factor. Rear-release crimp snap-in contacts, that are readily inserted and removed.	Burgun-D	Two-piece glass filled nylon (per Fed. Spec. L-P-395B)	Crimp snap-in inserted and removed with small hand tool
D*MA	D connectors for the most critical applications. Monobloc insulators and "Little Caesar" contact assemblies Military version meets MIL-C-24308.	Mark III ROYAL D	Monobloc diallyl, phthalate, GD-1-30F	Crimp insert by hand, remove with small tool
D*M	D connectors with monobloc insulator for more critical application requirements.	Golden D, Mark I	Monobloc, diallyl phthalate, SDG-F	Solder pot or right angle P.C. Plug only
		Golden D, Mark I Combination	Monobloc, diallyl phthalate, SDG-F	Solder pot with coaxial and/or HV
D*	Original D connectors with two-piece insulators.	Original D	Two-piece, nylon	Solder pot
		Original D	Two-piece, nylon	.025"Sq.,0.375"longwire-wrap
DATA PHONE	Same as D*	—	Diallyl phthalate, GDI-30	Solder pot

Manufactured under license agreement with ITT Cannon Electric, Inc.

*Insert No. of contacts.

ORIGINAL "D"

SOLDER POT — Fig. A

Stock No.	Type	No. of Contacts	1-9	10-49	50-99	100-249
43F200	DE-9P	9	1.57	1.41	1.20	.94
43F201	DE-9S	9	2.26	2.02	1.68	1.34
43F202	DA-15P	15	2.22	2.00	1.67	1.33
43F203	DA-15S	15	3.26	2.94	2.45	1.97
43F205	DB-25P	25	3.21	2.99	2.45	1.92
43F206	DB-25S	25	5.01	4.51	3.75	3.01
43F208	DC-37P	37	4.35	3.92	3.25	2.62
43F209	DC-37S	37	7.09	6.39	5.33	4.26
43F210	DD-50P	50	5.67	5.10	4.24	3.42
43F211	DD-50S	50	9.36	8.42	7.03	5.59

WIRE WRAP — Fig. D

29F1350	DE-9P-F179	9	2.55	2.06	1.80	1.58
29F1362	DE-9S-F179	9	4.61	3.68	3.07	2.45
29F1351	DA-15P-F179	15	3.30	2.62	2.31	2.06
29F1363	DA-15S-F179	15	6.33	5.03	4.19	3.35
29F1352	DB-25P-F179	25	5.18	4.13	3.59	2.99
29F1364	DB-25S-F179	25	7.34	5.91	5.17	4.61
29F1353	DC-37P-F179	37	7.06	5.59	4.96	4.28
29F1365	DC-37S-F179	37	9.78	7.84	7.47	7.08
29F1354	DD-50P-F179	50	8.38	6.68	5.88	5.30
29F1366	DD-50S-F179	50	12.89	10.29	9.79	9.22

P.C. CONTACTS — Fig. C

45F817	DE-9PV	9	2.38	2.02	1.77	1.55
45F818	DE-9SV	9	3.33	2.83	2.51	2.14
29F2661	DA-15PV	15	3.30	2.98	2.68	2.36
29F2660	DA-15SV	15	4.76	4.29	3.80	3.30
45F819	DB-25PV	25	7.38	6.65	5.55	4.45
45F820	DB-25SV	25	10.57	9.51	7.96	6.36
45F821	DC-37PV	37	7.53	6.39	5.76	5.10
45F822	DC-37SV	37	11.44	9.70	8.65	7.59
45F823	DD-50PV	50	9.97	8.45	7.61	6.75
45F824	DD-50SV	50	15.21	12.90	11.46	10.06

DATAPHONE — Fig. A

43F249	DA-19603-403	15	3.53	3.31	2.99	2.67
43F246	DA-19603-404	15	7.66	7.03	6.44	5.75
43F250	DB-19604-432	25	4.88	4.56	4.09	3.62
43F247	DB-19604-433	25	12.48	11.42	10.38	9.36

For Detailed Test Data And Technical Information Ask For Cinch Catalog C-46.

GOLDEN "D", MARK I

SOLDER POT — Fig. B

Stock No.	Type	No. of Contacts	1-9	10-49	50-99	100-249
43F233	DEM-9P	9	3.11	2.80	2.34	1.86
43F234	DEM-9S	9	4.28	3.85	3.22	2.59
43F235	DAM-15P	15	4.47	4.03	3.34	2.68
43F236	DAM-15S	15	6.35	5.71	4.76	3.80
43F238	DBM-25P	25	6.59	5.92	4.96	3.95
43F239	DBM-25S	25	9.76	8.77	7.33	5.84
43F241	DCM-37P	37	9.00	7.77	6.49	5.50
43F242	DCM-37S	37	13.93	12.52	10.42	8.33
43F243	DDM-50P	50	11.88	10.71	8.92	7.16
43F244	DDM-50S	50	18.21	16.38	13.69	10.95

RIGHT ANGLE — Fig. E

29F1360	DEM-9PA	9	9.12	8.96	8.16	7.34
29F1361	DAM-15PA	15	12.94	11.76	9.80	8.92
29F1372	DBM-25PA	25	19.37	17.61	16.01	14.40
29F1373	DCM-37PA	37	21.32	19.36	18.10	16.78

ROYAL "D", MARK III

CRIMP/REMOVABLE CONTACTS

45F825	DEMA-9P	9	7.56	6.81	5.69	4.53
45F826	DEMA-9S	9	7.80	7.02	5.83	4.69
45F827	DAMA-15P	15	9.63	8.67	7.21	5.79
45F828	DAMA-15S	15	10.84	9.76	8.12	6.51
45F829	DBMA-25P	25	12.93	11.65	9.71	7.76
45F830	DBMA-25S	25	15.77	14.18	11.83	9.45
45F831	DCMA-37P	37	16.89	15.20	12.66	10.15
45F832	DCMA-37S	37	21.61	19.46	16.23	12.97
45F833	DDMA-50P	50	21.12	19.00	15.83	12.66
45F834	DDMA-50S	50	27.91	25.10	20.93	16.75

CRIMP/REMOVABLE CONTACTS, MIL VERSION

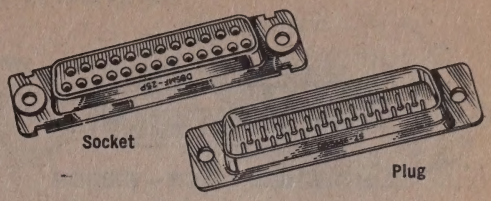
Stock No.	Type	Desc.	No. of Contacts	1-9	10-49	50-99
45F844	M24308/4-1	Plug	9	7.92	7.07	5.95
45F995	M24308/2-1	Socket	9	8.27	7.25	6.07
45F996	M24308/4-2	Plug	15	10.06	9.00	7.56
45F997	M24308/2-2	Socket	15	11.41	10.16	8.52
45F998	M24308/4-3	Plug	25	13.49	12.12	10.18
45F999	M24308/2-3	Socket	25	16.48	14.84	12.48
45F1001	M24308/4-4	Plug	37	17.91	15.99	13.44
45F1002	M24308/2-4	Socket	37	22.94	20.43	17.18
45F1003	M24308/4-5	Plug	50	22.31	19.97	16.78
45F1004	M24308/2-5	Socket	50	29.39	26.41	22.24

TRW Cinch D-Subminiature Connectors

BURGUN-D CONNECTORS

Utilize two piece insulator have rear release contact assembly where contacts are inserted by hand and extracted at the rear of the connector with a simple plastic tool. For commercial applications where economy is an important factor.

UL Approved



CONNECTOR WITH MACHINED CONTACTS

Stk. No.	Type	No of Cont.	1-9	10-49	50-99	100-249
57F3218	DEC-9P	9	1.56	1.39	1.11	.88
57F3219	DEC-9S	9	2.12	1.91	1.51	1.23
57F3220	DAC-15P	15	2.09	1.87	1.49	1.20
57F3221	DAC-15S	15	3.00	2.69	2.13	1.71
57F3222	DBC-25P	25	2.94	2.62	2.10	1.67
57F3223	DBC-25S	25	4.36	3.90	3.14	2.54
57F3224	DCC-37P	37	4.05	3.62	2.93	2.36
57F3225	DCC-37S	37	6.23	5.60	4.56	3.64
57F3226	DDC-50P	50	5.08	4.57	3.68	2.96
57F3227	DDC-50S	50	7.94	7.11	5.81	4.67

CONNECTORS LESS CONTACTS

Stk. No.	Type	No. of Cont.	1-9	10-49	50-99	100-249
57F3208	DEC-9PFO	9	.85	.76	.61	.51
57F3209	DEC-9SFO	9	.85	.76	.61	.51
57F3210	DAC-15PFO	15	.93	.83	.67	.54
57F3211	DAC-15SFO	15	.93	.83	.67	.54
57F3212	DBC-25PFO	25	1.03	.89	.78	.59
57F3213	DBC-25SFO	25	.96	.84	.71	.55
57F3214	DCC-37PFO	37	1.24	1.08	.89	.72
57F3215	DCC-37SFO	37	1.19	1.04	.88	.69
57F3216	DDC-50PFO	50	1.33	1.19	.94	.76
57F3217	DDC-50SFO	50	1.21	1.07	.92	.71

MACHINED CONTACTS

Stk. No.	Type	Description	100-4999	5000-24,999
45F974	030-1952-000	Pin	.06	.05
45F975	030-1953-000	Socket	.10	.08

STAMPED CONTACTS

SOLD IN MULTIPLES OF 100 PIECES ONLY

Stk. No.	Type	Desc.	100-4900	4900-24,900
45F980	030-1960-005	Pin	.06	.05
45F981	030-1957-005	Socket	.07	.05

TOOLS

TYPE CET-20-11. Mark III Commercial Extraction Tool.
45F976. NET ..... .26

TYPE CIET-20-HDB Burgun-D Insertion-Extraction Tool.
45F977. NET 1.24

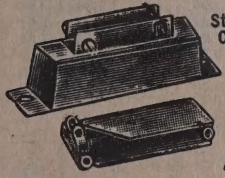
TYPE BT-20-HC. Burgun-D loose stamped contacts Hand Crimp Tool.
45F978. NET 143.00

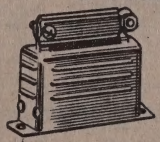
TYPE CIET-20-HD. Military Insertion-Extraction Tool.
45F979. NET 1.73

ON REELS

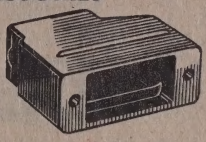
Right Hand Feed		Left Hand Feed			100-	5000-
Stk. No.	Type	Stk. No.	Type	Desc.	4999	24,999
45F982	BRC-1960-20P	45F984	D110238-034	Pin	.06	.04
45F983	BRC-1957-20S	45F985	D110238-035	Socket	.06	.05

D-SUBMINIATURE ACCESSORIES

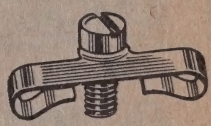



Deep Straight Clamp

Dataphone Hood


Plastic Straight Clamp

Female


Male

Shell Size	Right Angle Clamp Stk. No.	Type	1-9	10-49	Straight Clamp Stk. No.	Type	1-9	10-49
9	43F220	DE-19977-5	2.28	2.05	45F986	DE-24657	2.55	2.35
15	43F216	DA-19977-1	1.79	1.60	29F2662	DA-24658	2.51	2.33
25	43F217	DB-19977-2	1.97	1.77	45F987	DB-24659	2.02	1.84
37	43F218	DC-19977-3	2.07	1.86	45F988	DC-24660	2.10	1.92
50	43F219	DD-19977-4	2.26	2.02	45F989	DD-24661	2.37	2.23

Straight Clamp Stk. No.	Type	Shell Size	1-9	10-49	50-99
43F212	DA-19678-1	15	1.36	1.24	1.04
43F213	DB-19678-2	25	1.62	1.46	1.23
43F214	DC-19678-3*	37	1.94	1.75	1.46
43F215	DD-19678-4*	50	2.12	1.96	1.58

2 Cable Locking Screws required except (*) 3

Screw Lock Assemblies Stk. No.	Type	Shell Size	1-9	10-49	50-99
43F231	D-20419	9, 15, 25 & 37	.34	.31	.27
45F992	D-20419-16	9, 15, 25 & 37	.52	.45	.38
43F232	D-20420	50	.50	.47	.38
45F993	D-20420-12	9, 15, 25, 37 & 50	.70	.59	.50
43F230	D-20418-2*	9, 15, 25, 37 & 50	.53	.49	.44

Male except (*) Female

Shell Size	Dataphone Hoods Stk. No.	Type	1-9	10-49	Plastic Straight Stk. No.	Type	1-9	10-49
9	.....				45F990	DE-51218-1	1.44	1.22
15	43F252	DA-51225-1	1.79	1.60	45F991	DA-51210-1	1.44	1.22
25	43F253	DB-51226-1	1.98	1.66	29F2663	DB-51212-1	1.43	1.21

ALPHA WIRE FIT-BOOTS

FIT-BOOTS — For D-Subminiature Connectors — Shrinks Tight Over Connector Shells. Designed specifically for subminiature rectangular connectors manufactured by Cinch. Replaces metal molds and plotting forms used on molded harnesses. Provide a strain relief, a convenient handle, and seal out contaminants. Molded of a heat shrinkable, modified polyolefin compound with excellent physical and electrical properties. Any heat gun may be used to shrink boots.

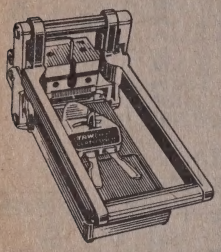
Top Entry A Stk. No.	Alpha No.	Fits Cinch	Each	End Entry B Stk. No.	Alpha No.	Fits Cinch	Each	Side Entry C Stk. No.	Alpha No.	Fits Cinch	Each
37F1094	FIT-BOOT-1	DE-9	7.50	37F1099	FIT-BOOT-6	DE-9	7.50	37F1104	FIT-BOOT-11	DE-9	9.00
37F1095	FIT-BOOT-2	DA-15	8.01	37F1100	FIT-BOOT-7	DA-15	8.26	37F1105	FIT-BOOT-12	DA-15	9.27
37F1096	FIT-BOOT-3	DB-25	9.51	37F1101	FIT-BOOT-8	DB-25	9.51	37F1106	FIT-BOOT-13	DB-25	11.26
37F1097	FIT-BOOT-4	DC-37	11.50	37F1102	FIT-BOOT-9	DC-37	11.76	37F1109	FIT-BOOT-14	DC-32	13.50
37F1098	FIT-BOOT-5	DD-50	13.77	37F1103	FIT-BOOT-10	DD-50	14.01	37F1110	FIT-BOOT-15	DD-50	16.00

TRW CINCH CONNECTORS

FOR 24 AND 26 GAUGE SOLID CONDUCTORS ONLY

SOLDERLESS CINCH — RIBBON

Has all the features of the solder type Cinch Ribbon Connectors, are intermateable and utilize all the same hardware. Can be terminated with automatic, semi-automatic, or field hand tools. Each contact provides four gas-tight connections for solid wire. Built-in strain relief in each contact prevents any inadvertent removal of wires; contacts can be reused without physical damage or electrical degradation.



TOOLS

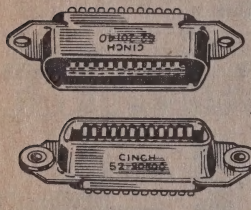
Certi-Cinch. Terminates 14, 24, 36, and 50 contact connectors in less than 4 minutes. Readily portable and requires no set-up time. Semi-automatic.

43F197. SCT-334. Solid Wire Only. **405.00**

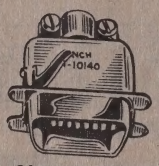
43F196. SRT-358. Repair Pliers. **15.00**

43F199. MCK-309. Hand-held. **150.00**

CINCH RIBBON



RACK & PANEL

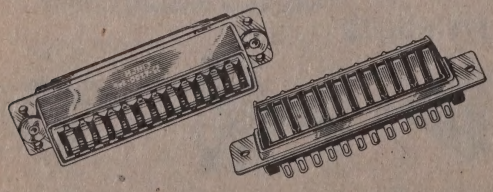


CABLE-TO-CHASSIS

CABLE-TO-CABLE

ELECTRICAL SPECIFICATIONS
Voltage Ratings: (a) At Sea Level 500 VRMS, 700 VDC, (b) At 70,000 feet 125 VRMS, 200 VDC. Contact Current Rating: 5 Amperes. Contact Resistance: .003 Ohms Average. Insulation Resistance (As Received). 5000 Megohms Min.

MECHANICAL SPECIFICATIONS
Contacts: Cadmium bronze. Finish: .00003 Gold, over copper flash. Housings: Brass alloy with .0002 to .0004 zinc. Plus clear chromate. Temperature Range: −55°C to 105°C. High Barrier Connectors contain additional insulation material between opposite rows of contacts. Supplied assembled with polyethylene dust covers.



ELECTRICAL SPECIFICATIONS—Voltage Ratings: (a) At sea level 800 VDC, (b) At 70,000 feet 300 VDC. Contact Current Rating: 5 Amperes. Contact Resistance: .003 Ohms maximum. Insulation Resistance (As Received): 100,000 Megohms minimum.

RACK & PANEL— RECEPTACLE

Stk. No.	Type	Cont.	1-9	10-49	50-99	100-249
43F156	77-22140	14	2.38	2.01	1.61	1.49
43F157	77-22240	24	3.18	2.67	2.19	1.95
43F158	77-22360	36	3.64	3.06	2.49	2.25
43F159	77-22500	50	4.73	4.00	3.25	2.91

RACK & PANEL— PLUG

43F160	77-12140	14	2.32	1.95	1.58	1.46
43F161	77-12240	24	3.11	2.62	2.26	1.91
43F162	77-12360	36	3.56	3.00	2.44	2.19
43F163	77-12500	50	4.69	3.96	3.20	2.86

CABLE TO CHASSIS— RECEPTACLE

43F172	77-42140	14	3.18	2.48	2.01	1.81
43F173	77-42240	24	3.49	2.93	2.38	2.15
43F174	77-42360	36	3.77	3.18	2.57	2.30
43F175	77-42500	50	4.93	4.15	3.35	3.01

CABLE-TO-CHASSIS— PLUG

43F180	77-32140	14	4.46	3.86	3.04	2.73
43F181	77-32240	24	4.91	4.11	3.33	3.00
43F182	77-32360	36	5.99	5.05	4.08	3.65
43F183	77-32500	50	6.57	5.53	4.50	4.02

CABLE-TO-CABLE— RECEPTACLE

43F188	77-82500	50	4.60	3.87	3.15	2.81

CABLE-TO-CABLE— PLUG

43F192	77-72500	50	4.60	3.87	3.15	2.81

CINCH RIBBON SOLDER CONTACTS—RACK & PANEL

Stk. No.	Type	Description/ No. of Contacts	1-9	10-49	50-99	100-249
45F960	57-20140	Recept/14	2.51	2.12	1.69	1.57
45F961	57-10140	Plug/14	2.45	2.05	1.66	1.54
45F962	57-20240	Recept/24	3.34	2.81	2.30	2.05
45F963	57-10240	Plug/24	3.27	2.76	2.37	2.01
45F964	57-20360	Recept/36	3.83	3.22	2.62	2.36
45F965	57-10360	Plug/36	3.74	3.16	2.56	2.30
45F966	57-20500	Recept/50	4.97	4.21	3.41	3.06
45F967	57-10500	Plug/50	4.93	4.17	3.36	3.00

HIGH BARRIER—CABLE TO CABLE

Stk. No.	Type	Description	1-9	10-49	50-99	100-249
45F969	57-10500-7	Plug	5.60	4.74	3.84	3.38
45F971	57-20500-7	Recept	5.89	5.00	4.04	3.59

SOLDER CONTACTS—CABLE TO CHASSIS

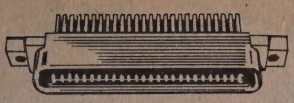
Stk. No.	Type	Description/ No. of Contacts	1-9	10-49	50-99	100-249
45F952	57-40140	Recept/14	3.33	2.60	2.12	1.90
45F953	57-30140	Plug/14	4.69	4.05	3.20	2.88
45F954	57-40240	Recept/24	3.66	3.08	2.51	2.26
45F955	57-30240	Plug/24	5.15	4.32	3.51	3.16
45F956	57-40360	Recept/36	3.97	3.34	2.70	2.43
45F957	57-30360	Plug/36	6.30	5.31	4.29	3.84
45F958	57-40500	Recept/50	5.18	4.36	3.53	3.17
45F959	57-30500	Plug/50	6.90	5.80	4.72	4.23

BLUE-RIBBON

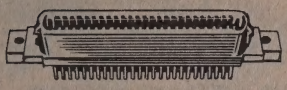
Stk. No.	Type	No. of Contacts	1-9	10-49	50-99	100-249
45F936	26-4100-8P	8	1.44	1.23	1.00	.91
45F937	26-4100-16P	16	2.71	2.28	1.86	1.68
45F938	26-4100-24P	24	3.28	2.76	2.24	2.01
45F939	26-4100-32P	32	3.82	3.21	2.59	2.36
45F940	26-4200-8S	8	2.39	2.01	1.65	1.46
45F941	26-4200-16S	16	3.47	2.93	2.38	2.14
45F942	26-4200-24S	24	4.10	3.45	2.80	2.51
45F943	26-4200-32S	32	4.89	4.11	3.34	3.00

MECHANICAL SPECIFICATIONS—Contacts: Plug, Copper, ASTM-B-152, Type ETP, Socket, Phosphor bronze, ASTM-B-103, MIL-B-892, Grade A. Finish: .00002 Gold per MIL-G-45204, Type II over copper flash. Mounting Plate: Passivated stainless steel. Temperature Range: −67°C to 130°C.

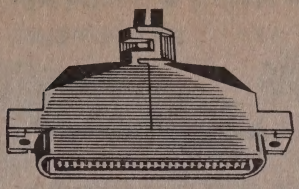
SUPERIBBON CONNECTOR SYSTEM



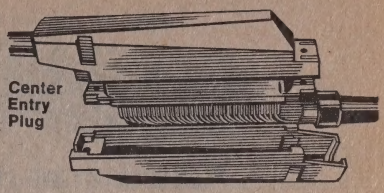
Plug



Receptacle



Mated Plug



Center Entry Plug

- **Universal intermateable connectors**
- **Strain-reliefs incorporated in connectors**
- **For solid 24-27 AWG**
- **Panel mounting clips permit fast chassis mounting**

Plug and Receptacle mount into chassis cutout from either side with metal clips. No nuts, bolts, or tapped holes required. Metal clips mount to panel providing secure snap-mount for connectors. **Center entry plug** two piece hood assembly incorporates specially designed closing latches and built-in cable clamp using attached spacers for adjustment to broad range of cable sizes. **Mated plug** has wire restraints for each individual wire at point of termination. Fast mounting panel clips eliminate nuts, bolts, tapped holes, and special tools. Two piece hoods, with built-in spacers for four cable sizes, allow assembly after termination. All connectors have dimensions that permit intermating with or replacement of all ribbon connectors now in use.

CONNECTORS WITH THREADED INSERTS 50 CONTACTS

Stock No.	Model No.	Description	1-9	10-49	50-99	100-249
65F230	97-12500-01	Plug with insert for rack and panel mounting	2.82	2.37	1.93	1.72
65F231	97-22500-01	Socket with insert for rack and panel mounting	2.99	2.51	2.04	1.82
65F232	97-12500-91	Plug w/insert and w/C clamp and 90° hood	3.74	3.14	2.55	2.28
65F233	97-22500-91	Socket w/insert and w/C clamp and 90° hood	9.94	3.31	2.69	2.40
65F234	97-12500-181	Plug, same as above except: 180° hood	4.15	3.49	2.83	2.53
65F235	97-22500-181	Socket, same as above except: 180° hood	4.32	3.63	2.95	2.64

ACCESSORIES

Stock No.	Model No.	Description	1-9	10-49	50-99	100-249
65F236	97-50-90	Color hoods (90°), buff gold, for 50 contact	.79	.66	.54	.48
65F237	97-50-180	Color hoods (180°), buff gold, 2 pc. ass. 50 cont.	.78	.66	.54	.48
65F238	97-WR-P50	Wire restraints, plug, two required	.11	.10	.08	.07
65F239	97-WR-S50	Wire restraints, socket, two required	.11	.10	.08	.07
65F240	97-MC-062	Chassis mounting clip, .062", two required	.08	.07	.05	.05
65F241	97-MC-093	Chassis mounting clip, .093", two required	.08	.07	.05	.05
65F242	97-MC-125	Chassis mounting clip, .125", two required	.08	.07	.05	.05
65F243	4-40-UNC-2AX-17/32	4-40 x 17/32" locking screw, .062" chassis	.09	.07	.06	.06
65F244	4-40-UNC-2AX-5/8	4-40 x 5/8" locking screw, .093" chassis	.04	.03	.03	.03

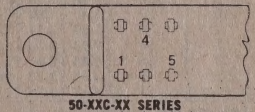
11

VERSA-CLINCH MULTIFUNCTION TERMINATION TOOLS. SEE LISTING ON FACING PAGE.
SOLDERLESS RIBBON SECTION FOR ALL OTHER TERMINATION TOOLS FOR THE SUPER RIBBON SERIES

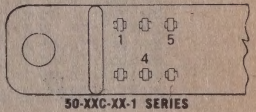
PRECISION PRINTED CIRCUIT EDGE CONNECTORS FOR 1/16" BOARDS

100 CONTACT CENTERS — U.L. RECOGNIZED

Molded of diallyl phthalate type SDG-F. Barriers accept polarization keys. Terminals on .100 centers. Handle 1/16" thick single or double sided boards. Gold plated. 3 amps. 600 VDC. U.L. recognized. A (—1) suffix means these connectors are alternately polarized by pin location number. See illustration for example.



50-XXC-XX SERIES

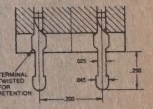


50-XXC-XX-1 SERIES

WIRE WRAP BOTTOM VIEW

CONVENTIONAL SOLDER

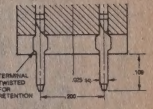
Stock No.	Type	Stock No.	Type	No. Cont.	1-24	25-49	50-99	100-249
65F245	50-30C-10-1	29F1323	50-30C-10	15/30	4.20	3.35	2.81	2.23
65F246	50-44C-10-1	29F1324	50-44C-10	22/44	4.95	3.95	3.30	2.64
65F247	50-72C-10-1	29F1325	50-72C-10	36/72	6.43	5.15	4.30	3.45
65F248	50-80C-10-1	29F1326	50-80C-10	40/80	6.80	5.44	4.53	3.61
65F249	50-86C-10-1	29F1327	50-86C-10	43/86	7.23	5.76	4.82	3.84
65F250	50-100C-10-1	65F263	50-100C-10	50/100	7.94	6.34	5.27	4.23



SOLDER TAB

DIP SOLDER

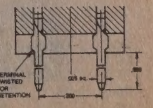
65F251	50-30C-20-1	29F1328	50-30C-20	15/30	4.20	3.35	2.81	2.23
65F252	50-44C-20-1	29F1329	50-44C-20	22/44	4.95	3.95	3.30	2.64
65F253	50-72C-20-1	29F1330	50-72C-20	36/72	6.43	5.15	4.30	3.45
65F254	50-80C-20-1	29F1331	50-80C-20	40/80	6.80	5.44	4.53	3.61
65F255	50-86C-20-1	29F1332	50-86C-20	43/86	7.23	5.76	4.82	3.84
65F256	50-100C-20-1	65F264	50-100C-20	50/100	7.94	6.34	5.27	4.23



DIP SOLDER

WIRE WRAP

65F257	50-30C-30-1	29F1333	50-30C-30	15/30	4.26	3.42	2.88	2.31
65F258	50-44C-30-1	29F1334	50-44C-30	22/44	5.01	4.01	3.35	2.70
65F259	50-72C-30-1	29F1335	50-72C-30	36/72	6.49	5.22	4.36	3.52
65F260	50-80C-30-1	29F1336	50-80C-30	40/80	6.85	5.51	4.59	3.70
65F261	50-86C-30-1	29F1337	50-86C-30	43/86	7.28	5.82	4.88	3.92
65F262	50-100C-30-1	65F265	50-100C-30	50/100	8.07	6.44	5.39	4.31



WIRE WRAP

TRW Cinch Printed Circuit Edge Connectors

WIRE WRAP

SOLDER EYELET

DIP SOLDER

PRECISION MILITARY AND COMMERCIAL PRINTED CIRCUIT BOARD EDGE CONNECTORS—FEATURING .156 LEAD SPACING, 1/16" BOARDS

Designed for minimum printed circuit card wear, low insertion force, and positive contact with the printed circuit board. Insulation is glass-filled diallyl phthalate, Type 3DG-F per MIL-M-14. Commercial: contacts are phosphor bronze with a minimum of 30 microinches gold plate. Military: contracts are beryllium copper with 50 microinches of gold finish. All utilize bifurcated contacts permitting two flexing surfaces instead of one for positive contact. Bifurcated contacts are especially recommended for added contact reliability where vibration or printed circuit board irregularities would otherwise cause trouble. U/L Recognized.

ELECTRICAL SPECIFICATIONS—Voltage Rating (AC RMS, adj. terminals): 830 (Sea Level); 300 (3.4 Hg, 50,000 feet); 200 (1.3 Hg, 70,000 feet). Current: 5.0 Amps. Contact Resistance: .005 Ohms at Rated Current. Insulation Resistance: 5000 Megohms.

ENVIRONMENTAL SPECIFICATIONS—Per MIL-C-21097 and MIL-STD-202. Shock: 3 blows of 50G. Temperature Cycling: 5 continuous cycles, Test Condition B; Beryllium copper, −65°C to 125°C; Phosphor bronze, −65°C to 105°C. Salt Spray; 48 hrs., Condition B, Vibration: Condition B. Humidity: Condition B.

SINGLE READOUT WITH .128 MOUNTING HOLE

SOLDER EYELET

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
29F952	50- 6A-20	6	1.66	1.33	1.14
29F953	50-10A-20	10	2.22	1.80	1.48
29F954	50-12A-20	12	2.52	2.11	1.67
29F955	50-15A-20	15	2.94	2.34	1.97
29F956	50-18A-20	18	3.35	2.68	2.23
29F957	50-22A-20	22	3.93	3.15	2.62
29F978	50-25A-20	25	4.69	3.74	3.13

5/32" DIP SOLDER

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
28F1151	50- 6B-10	6	1.66	1.33	1.16
28F1152	50-10B-10	10	2.22	1.80	1.48
28F1153	50-15B-10	15	2.94	2.34	1.97
28F1154	50-18B-10	18	3.35	2.68	2.23
28F1155	50-22B-10	22	3.93	3.15	2.62
28F1156	50-25B-10	25	4.69	3.74	3.13

15/64" EXTENDED DIP

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
29F1420	50- 6S-10	6	1.66	1.33	1.16
29F1421	50-10S-10	10	2.22	1.80	1.48
29F1422	50-12S-10	12	2.52	2.11	1.67
29F1423	50-15S-10	15	2.94	2.34	1.97
29F1424	50-18S-10	18	3.35	2.68	2.23
29F1425	50-22S-10	22	3.93	3.15	2.62
29F1426	50-25S-10	25	4.69	3.74	3.13

DOUBLE READOUT WITH .128 MOUNTING HOLE & .200 SPACING BETWEEN ROWS

SOLDER EYELET

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
29F958	50-12A-30	6	1.66	1.33	1.14
29F959	50-20A-30	10	2.22	1.80	1.48
29F960	50-24A-30	12	2.52	2.11	1.67
29F961	50-30A-30	15	2.94	2.34	1.97
29F962	50-36A-30	18	3.35	2.68	2.23
29F963	50-44A-30	22	3.93	3.15	2.62
29F979	50-50A-30	25	4.67	3.74	3.13

5/32" DIP SOLDER

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
29F964	50-12B-10	6	1.66	1.33	1.14
29F965	50-20B-10	10	2.22	1.80	1.48
29F966	50-24B-10	12	2.52	2.11	1.67
29F967	50-30B-10	15	2.94	2.34	1.97
29F968	50-36B-10	18	3.35	2.68	2.23
29F969	50-44B-10	22	3.93	3.15	2.62
45F915	50-50B-10	25	4.67	3.74	3.13

15/64" EXTENDED DIP

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
29F1427	50-12S-20	6	1.66	1.33	1.14
29F1428	50-20S-20	10	2.22	1.80	1.48
29F1429	50-24S-20	12	2.52	2.11	1.67
29F1430	50-30S-20	15	2.94	2.34	1.97
29F1431	50-36S-20	18	3.35	2.68	2.23
29F1432	50-44S-20	22	3.93	3.15	2.62
29F1433	50-50S-20	25	5.49	4.40	3.68

DIP SOLDER WITH .140" BETWEEN ROWS

PLAIN MOUNTING HOLES

Stock No.	Type	Contact Positions	Contacts	1-24	25-49	50-99	100-249
29F1338	50-12S-30-2	6	12	1.66	1.33	1.14	.90
29F1339	50-20S-30-2	10	20	2.22	1.80	1.48	1.21
29F1340	50-24S-30-2	12	24	2.52	2.11	1.67	1.34
29F1341	50-30S-30-2	15	30	2.94	2.34	1.97	1.59
29F1342	50-36S-30-2	18	36	3.35	2.68	2.23	1.80
29F1343	50-44S-30-2	22	44	3.93	3.15	2.62	2.09
29F1344	50-50S-30-2	25	50	4.67	3.74	3.13	2.51

WITHOUT MOUNTING EARS

Stock No.	Type	Contact Positions	Contacts	1-24	25-49	50-99	100-249
29F1345	50-12S-30-1	6	12	1.66	1.33	1.14	.90
29F1346	50-20S-30-1	10	20	2.22	1.80	1.48	1.21
29F1300	50-24S-30-1	12	24	2.52	2.11	1.67	1.34
29F1301	50-30S-30-1	15	30	2.94	2.34	1.97	1.59
29F1302	50-36S-30-1	18	36	3.35	2.68	2.23	1.80
29F1303	50-44S-30-1	22	44	3.93	3.15	2.62	2.09
29F1304	50-50S-30-1	25	50	4.67	3.74	3.13	2.51

MILITARY TYPE PER MIL-C-21097 WITH SOLDER EYELET CONTACTS SINGLE READOUT

PLAIN MOUNTING HOLE

Stk. No.	Type	Military No.	Each
28F1112	50- 6A-20M	M21097/1-101	2.13
28F1113	50-10A-20M	M21097/1-037	2.98
28F1114	50-15A-20M	M21097/1-073	4.02
28F1115	50-18A-20M	M21097/1-009	4.69
28F1116	50-22A-20M	M21097/1-145	5.53

MOLDED-IN BUSHINGS

Stk. No.	Type	Military No.	Each
45F916	50- 6A-20MB	M21097/1-004	4.73
45F917	50-10A-20MB	M21097/1-040	5.49
45F918	50-15A-20MB	M21097/1-076	6.46
45F919	50-18A-20MB	M21097/1-112	7.02
45F920	50-22A-20MB	M21097/1-148	7.78

FLOATING BUSHINGS

Stk. No.	Type	Military No.	Each
45F921	50- 6A-20MFB	M21097/1-007	2.81
45F922	50-10A-20MFB	M21097/1-043	3.64
45F923	50-15A-20MFB	M21097/1-079	4.71
45F924	50-18A-20MFB	M21097/1-115	5.35
45F925	50-22A-20MFB	M21097/1-151	6.17

DOUBLE READOUT .200 SPACING BETWEEN ROWS

PLAIN MOUNTING HOLE

Stk. No.	Type	Military No.	Each
28F1117	50-12A-30M	M21097/1-019	2.13
28F1118	50-20A-30M	M21097/1-055	2.98
28F1119	50-30A-30M	M21097/1-091	4.02
28F1120	50-36A-30M	M21097/1-127	4.69
28F1121	50-44A-30M	M21097/1-163	5.53

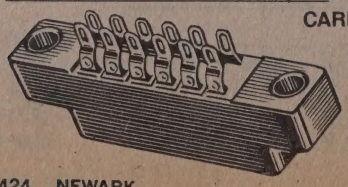
MOLDED-IN BUSHING

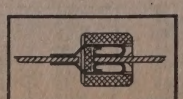
Stk. No.	Type	Military No.	Each
45F926	50-12A-30MB	M21097/1-022	4.73
45F927	50-20A-30MB	M21097/1-058	5.48
45F928	50-30A-30MB	M21097/1-094	6.46
45F929	50-36A-30MB	M21097/1-130	7.02
45F930	50-44A-30MB	M21097/1-166	7.78

FLOATING BUSHINGS

Stk. No.	Type	Military No.	Each
45F931	50-12A-30MFB	M21097/1-025	2.81
45F932	50-20A-30MFB	M21097/1-061	3.64
45F933	50-30A-30MFB	M21097/1-097	4.71
45F934	50-36A-30MFB	M21097/1-133	5.35
45F935	50-44A-30MFB	M21097/1-169	6.17

CARD EXTENDER WITH .050" BETWEEN ROWS

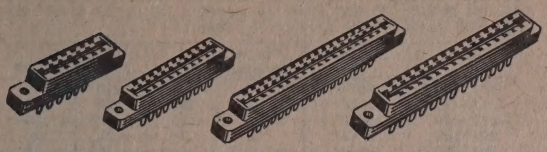




Stock No.	Type	Contact Positions	1-24	25-49	50-99	100-249
29F1413	50-12S-30	6	2.11	1.69	1.39	1.16
29F1414	50-20S-30	10	2.50	2.06	1.76	1.61
29F1415	50-24S-30	12	2.93	2.34	1.95	1.59
29F1416	50-30S-30	15	3.64	2.93	2.45	1.94
29F1417	50-36S-30	18	4.03	3.27	2.73	2.21
29F1418	50-44S-30	22	4.76	3.83	3.22	2.58
29F1419	50-50S-30	25	5.61	4.51	3.80	3.06

TRW Cinch Printed Circuit Edge Connectors—Series 90 Econo-Line

Low Cost **High Performance**



Most of the performance features of TRW/Cinch Connectors standard printed circuit edge connectors are found in this low-cost version for commercial applications. Except for the reduced amount of gold-plating, Series 90 Econo-Line connectors meet all the latest requirements of MIL-C-21097, Std. 202. Series 90 incorporates high tensile brass, Alcoloy™ 688, in its bifurcated bellow contacts. The contact area is selectively plated with 20 microinches of gold over 30 microinches of nickel that provides a non-migrating base. A green, glass-filled thermoplastic polyester replaces the more expensive diallyl phthalate used in the standard connector insulator.

.156 CONTACT CENTERS FOR 1/16" BOARDS DIP SOLDER

Single Readout

Stk. No.	Type	Contact Positions	1-24	25-49	50-99	100-249
57F3240	50- 6EE-10	6	1.25	1.14	1.02	.80
57F3241	50-10EE-10	10	1.77	1.59	1.30	1.14
57F3242	50-12EE-10	12	2.04	1.77	1.50	1.27
57F3243	50-15EE-10	15	2.26	2.13	1.87	1.54
57F3244	50-18EE-10	18	2.54	2.37	2.10	1.67
57F3245	50-22EE-10	22	2.77	2.71	2.26	1.82
57F3246	50-25EE-10	25	3.73	2.98	2.49	2.00

Double Readout (.200 Row Spacing)

57F3247	50-12EE-40	6	1.25	1.14	1.02	.80
57F3248	50-20EE-40	10	1.77	1.59	1.30	1.14
57F3249	50-24EE-40	12	2.04	1.77	1.50	1.27
57F3250	50-30EE-40	15	2.26	2.13	1.87	1.54
57F3251	50-36EE-40	18	2.54	2.37	2.10	1.67
57F3252	50-44EE-40	22	2.77	2.71	2.26	1.82
57F3253	50-50EE-40	25	3.73	2.98	2.49	2.00

SOLDER EYELET

Single Readout

Stk. No.	Type	Contact Positions	1-24	25-49	50-99	100-249
57F3261	50- 6EE-20	6	1.25	1.14	1.02	.80
57F3262	50-10EE-20	10	1.77	1.59	1.30	1.14
57F3263	50-12EE-20	12	2.04	1.77	1.50	1.27
57F3264	50-15EE-20	15	2.26	2.13	1.87	1.54
57F3265	50-18EE-20	18	2.54	2.37	2.10	1.67
57F3266	50-22EE-20	22	2.77	2.71	2.26	1.82
57F3267	50-25EE-20	25	3.73	2.98	2.49	2.00

Double Readout (.200 Row Spacing)

57F3268	50-12EE-30	6	1.25	1.14	1.02	.80
57F3269	50-20EE-30	10	1.77	1.59	1.30	1.14
57F3270	50-24EE-30	12	2.04	1.77	1.50	1.27
57F3271	50-30EE-30	15	2.26	2.13	1.87	1.54
57F3272	50-36EE-30	18	2.54	2.37	2.10	1.67
57F3273	50-44EE-30	22	2.77	2.71	2.26	1.82
57F3274	50-50EE-30	25	3.73	2.98	2.49	2.00

.045" SQUARE TAIL CONTACTS ON .156" CENTERS FOR 1/16" BOARDS

Features and Specifications: Combines contact reliability of a flexing bifurcated contact with stability of a rigid .045" square tail. Tail section contains inner core of copper with outer cover of flexible contact material formed into .045" square shape.

Termination: .045" square tails for automatic and/or semi-automatic wire wrapping.

Mounting Style: Plain .128" diameter holes for standard mounting.

Stock No.	Type	Description	1-24	25-49	50-99	100-249
45F904	50-30W-10	15-Position Connector	6.64	5.31	4.43	3.55
28F1158	50-PK-2	Polarizing Key	.09	.08	.08	.06

EDGE CONNECTOR ACCESSORIES

Card Guide
TYPE 50-GP-1
29F1398. NET 44

POLARIZING KEYS

Stock No.	Type	Description	1-24	25-49	50-99	100-249
29F986	50-PK	Tykon	.27	.21	.20	.18
28F1157	50-PK-1	In-Contact Type .156 ctr.	.11	.09	.08	.06
28F1158	50-PK-2	Between-Contact Type .156 ctr.	.09	.08	.08	.06
57F3275	50-PK-3	.100 Ctr. Series	.11	.09	.08	.06
45F906	50-PK-2M	Between-Contact MIL Type	.09	.08	.08	.06

Note: Polarizing keys are not furnished with connectors.

PERFORMANCE DATA

MECHANICAL—Contact Insertion Force: 16 oz. max. per contact position. Individual Separation Force: 1 oz. min. using .054-in. thick blade. Durability: 100 cycles with steel blade .070-in. thick. Contact resistance and individual contact separation force requirements met after test.

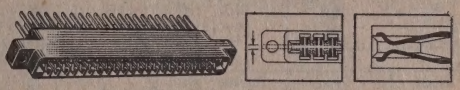
ELECTRICAL—Voltage Rating (AC RMS, adjacent terminals): 830V (sea level); 300V (3.4" Hg, 50,000 feet); 450V (1.3" Hg, 70,000 feet). Test Voltage (AC RMS, adjacent terminals): 1870V (sea level); 675V (3.4" Hg, 50,000 feet); 450V (1.3" Hg, 70,000 feet). Current Rating: 5 Amperes. (Based upon all contacts carrying specified current and a temperature rise of 30°C above ambient.) Contact Resistance (at rated current): .005 ohms. Insulation Resistance: 5000 Megohms.

DIP SOLDER TAILS

Double Readout, .140 Row Spacing

Stock No.	Type	Contact Positions	1-24	25-49	50-99	100-249
57F3254	50-12EE-140	6	1.25	1.14	1.02	.80
57F3255	50-20EE-140	10	1.77	1.59	1.30	1.14
57F3256	50-24EE-140	12	2.04	1.77	1.50	1.27
57F3257	50-30EE-140	15	2.26	2.13	1.87	1.54
57F3258	50-36EE-140	18	2.54	2.37	2.10	1.67
57F3259	50-44EE-140	22	2.77	2.71	2.26	1.82
57F3260	50-50EE-140	25	3.73	2.98	2.49	2.00

WIRE WRAP PC CONNECTORS



Bifurcated cantilever contact construction. Accepts 1/16" thick single or double sided boards. Withdrawal shorting protection. 3 amps. 900 VAC RMS, 1200 VDC.

.031 x .062, .156 CENTERS

.550" Tail Length

Stock No.	Type No.	No. of Contacts	1-24	25-49	50-99	100-249
29F1305	50-20E10-1	10/20	3.63	2.91	2.44	1.94
29F1308	50-30E10-1	15/30	3.80	3.03	2.54	2.04
29F1311	50-36E10-1	18/36	4.23	3.37	2.85	2.28
29F1314	50-44E10-1	22/44	5.06	4.07	3.37	2.70
29F1317	50-50E10-1	25/50	5.29	4.23	3.55	2.85
29F1320	50-60E10-1	30/60	5.80	4.64	3.87	3.11

.755" Tail Length

29F1306	50-20F10-1	10/20	3.63	2.91	2.44	1.94
29F1309	50-30F10-1	15/30	3.80	3.03	2.54	2.04
29F1312	50-36F10-1	18/36	4.23	3.37	2.85	2.28
29F1315	50-44F10-1	22/44	5.06	4.07	3.37	2.70
29F1318	50-50F10-1	25/50	5.29	4.23	3.55	2.85
29F1321	50-60F10-1	30/60	5.80	4.64	3.87	3.11

1.051" Tail Length

29F1307	50-20G10-1	10/20	3.63	2.91	2.44	1.94
29F1310	50-30G10-1	15/30	3.80	3.03	2.54	2.04
29F1313	50-36G10-1	18/36	4.23	3.37	2.85	2.28
29F1316	50-44G10-1	22/44	5.06	4.07	3.37	2.70
29F1319	50-50G10-1	25/50	5.25	4.23	3.55	2.85
29F1322	50-60G10-1	30/60	5.80	4.64	3.87	3.11

For More Technical Data Ask For Cinch Catalog C-24.

TRW CINCH CONNECTORS

TO-5, OR TO-18*, LOW PROFILE TRANSISTOR SOCKETS

Mount directly to PC board with snug fit to prevent bleeding of solder and flux to opposite board surface. Chamfered socket holes minimize lead bending during insertion. Contact ends are formed and water-tight, so that solder and fluxes cannot enter the barrelled contact to obstruct lead entry.

*Directly accept TO-5; accept TO-18 with full length or formed leads

Materials Insulator: 20% glass-filled nylon. Contacts: beryllium copper with gold plate. **Electrical Specifications:** Voltage Ratings: at sea level (adj. terminals) 1500 AC RMS, 2000 VDC; at 50,000 feet (adj. terminals) — 500 AC RMS, 700 VDC. Current Rating: 2.5 amperes. Contact Resistance: 0.005 ohms. Insulation Resistance: 100,000 megohms.

Stk. No.	Type	Color	1-24	25-49	50-99	100-249
45F907	3-LPS-B	Black	.36	.29	.24	.19
45F908	3-LPS-N	Natural				
45F909	3-LPS-G	Green				

TRANSISTOR SOCKET

2TS-1

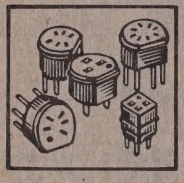
2TS-2

2TS-4

Laminated. Vacuum wax impregnated. Mount. holes; .136″ dia. 2TS-2: same as 2TS-1 exc. integral eyelets for chassis mount.

Stk. No.	Type	Description	1-24	25-49	50-99	100-249
38F684	2TS-1	6-20 Threaded Mtg. Holes	.19	.16	.15	.13
38F685	2TS-2	Unthreaded	.19	.16	.15	.13
38F687	2TS-4	. . .	.25	.21	.18	.16

TO-5 AND TO-18 SEMICONDUCTOR SOCKETS



- LOW PROFILE .250″
- DIP SOLDER TERMINATIONS

1 amp. 750 VAC. 1020 VAC for SDG material. Contact Material: Beryllium copper except Type No. 3&4, phosphor bronze. Contact Plating: chromate .0003″ cadmium, Type No. 3&4; .003″ tin over .0001″ copper, 6&8 MSS; .00003″ gold over copper, ICS. Insulator Material: Mica filled phenolic except 6-MSS-1, Flourocarbon resin; ICS, Diallyl phthalate. (SDG).

Stock No.	Type No.	Socket Size	Contacts	1-24	25-49	50-99	100-249
29F1406	3-MSS	TO-5	3	.29	.24	.20	.16
29F1407	4-MSS	TO-5	4	.60	.48	.40	.32
29F1408	6-MSS	TO-5	6	.83	.66	.55	.44
29F1409	6-MSS-1	TO-5	6	1.72	1.37	1.15	.92
29F1410	8-MSS	TO-5	8	.99	.79	.66	.53
29F541	*6-ICS	TO-5	6	.85	.69	.60	.52
29F542	*8-ICS	TO-5	8	1.03	.83	.70	.58
29F521	*10-ICS	TO-5	10	1.14	.90	.77	.63
29F1411	3-MSS-2	TO-18	3	.42	.34	.28	.23
29F1412	4-MSS-2	TO-18	4	.57	.46	.38	.31

*Gold Plated Contacts

8SM

2H3

MICA-FILLED SUB-MINIATURE SOCKETS

Molded mica-filled low-loss Phenolic; silver-plated beryllium contacts. Mounting ring included.

Stk. No.	Type	Prongs	1-24	25-49	50-99	100-249
38F639	2H3	3	.59	.51	.45	.36
38F629	8SM	8	1.30	1.07	.89	.74

POWER TRANSISTOR INSULATOR WAFERS

Hard anodized aluminum. High dielectric resistance.

Stk. No.	Type	Description	Each
29F654	2W1	For Mot 2N-179, 2N-176, 2N-554	1.28

110-250 VOLT 2 PRONG SOCKET

15 amps 110V, 10 amps 250V high dielectric black bakelite. $2^{5}/_{64} \times 2^{5}/_{32}$″ hole. .144 diam. mtg. holes on 1⅛″ centers. Shpg. wt. 4 oz.

Stock No.	Type	Mfr. No.	1-24	25-49	50-99	100-249
39F394	2R2	54A12844	.41	.35	.32	.29

NOTE: For Detailed Test Data And Technical Information Ask For Cinch Catalog C-2.

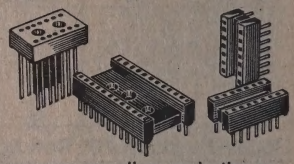
LOW PROFILE SOCKETS WITH PC BOARD TERMINALS

Low profile DIP sockets are extremely economical. Unique design permits substantial reduction in assembly costs. Produced in 8, 14, 16, and 24 contact sizes as standard items. 22 & 40 sizes also std. items for low profile DIP sockets.

Stock No.	Type	No. of Contacts	1-24	25-49	50-99
57F3232	8E-DIP	8	.24	.20	.16
57F3233	14E-DIP	14	.32	.26	.21
57F3234	16E-DIP	16	.33	.27	.22
29F1189	18E-DIP	18	.34	.28	.24
29F1190	22E-DIP	22	.44	.35	.29
57F3235	24E-DIP	24	.47	.38	.31
29F1191	40E-DIP	40	.67	.54	.45
57F3236	*8E-DIP-4	8	.33	.26	.22
57F3237	*14E-DIP-4	14	.47	.38	.31
57F3238	*16E-DIP-4	16	.51	.41	.34
57F3239	*24E-DIP-4	24	.74	.59	.49

*Gold Plated Contacts

INTEGRATED CIRCUIT SOCKETS



- DIP SOCKETS
- 1 AMP RATING
- LOW CAPACITANCE

Ideal for testing and prototype purposes as well as production applications. Protect leads and hermetic seals. Positive electrical contact. Low contact resistance. Resistive to corrosive atmosphere and extremes in temperature and humidity. Withstanding Voltage: 1800 VRMS, dip solder tails; 1000 VAC RMS, wire wrap tails. Temp. Range: -65°C to 150°C. Insulations: 1-GP Black Phenolic. 2-Diallyl Phthalate. 3-Black Glass Nylon. 4-White Glass Nylon. Lead Plating: 5-Electro Tin. 6-Gold.

DIP SOLDER TERMINALS .017″ x .033″ x .170″ Long THROAT

Stock No.	Type No.	Contacts	Plating	1-24	25-49	50-99	100-249
29F545	14-DIP	14	1,5	1.07	.86	.72	.58
29F546	14-DIP-1	14	2,6	1.42	1.12	.93	.75
29F547	16-DIP	16	1,5	1.19	.95	.79	.64
29F548	16-DIP-1	16	2,6	1.53	1.23	1.02	.82
29F650	24-DIP	24	1,5	1.78	1.43	1.20	.97
29F651	24-DIP-1	24	2,6	2.10	1.68	1.41	1.14

DIP SOLDER TERMINALS .017″ x .017″ x .110″ Long THROAT

29F1400	14-N-DIP	14	1,5	1.07	.86	.72	.58
29F1401	14-N-DIP-1	14	2,6	1.42	1.12	.93	.75
29F1402	16-N-DIP	16	1,5	1.19	.95	.79	.64
29F1403	16-N-DIP-1	16	2,6	1.53	1.23	1.02	.82
29F1404	24-N-DIP	24	1,5	1.78	1.43	1.20	.97
29F1405	24-N-DIP-1	24	2,6	2.10	1.68	1.41	1.14

WIRE WRAP TERMINALS

28F1159	14-W-DIP	14	3,5	1.07	.87	.73	.58
28F1160	14-W-DIP-1	14	4,5	1.07	.87	.73	.58
28F1161	14-W-DIP-2	14	3,6	1.39	1.10	.93	.74
28F1162	14-W-DIP-3	14	4,6	1.39	1.10	.93	.74
28F1163	16-W-DIP	16	3,5	1.31	1.04	.88	.71
28F1164	16-W-DIP-1	16	4,5	1.31	1.04	.88	.71
28F1165	16-W-DIP-2	16	3,6	1.61	1.31	1.09	.88
28F1166	16-W-DIP-3	16	4,6	1.61	1.31	1.09	.88

PRINTED CIRCUIT TEST JACK

Designed for permanent, soldered assembly to printed circuit boards. Gold over silverplated contacts. Contacts provide low resistance for insertions of .080 Dia. probes. Nylon bodies. 5 amps max. 3000 volts peak for test voltage.

Stk. No.	Type	Color	1-24	25-49	50-99	100-249
99F1725	119437-A	White	.42	.38	.33	.31
99F1726	119437-B	Red				
99F1727	119437-C	Black				
99F1728	119437-D	Brown				
99F1729	119437-E	Green				
99F1730	119437-F	Orange				
99F1731	119437-G	Blue				

VIDICON SOCKETS

Type 8VT 8 contact socket for RCA Vidicon Tube Nos. 6198 and 7038. Casting material is mica. Contacts are silver-plated phosphor bronze. JETEC No. E8-11.

Stk. No.	Type	1-24	25-49	50-99	100-249
29F999	8VT	4.22	3.35	2.83	2.27

11

ROUND RELAY

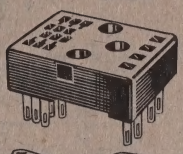
Beryllium copper, silver-plated contacts with hot tinned tails. Steel saddle. 1 15/16" mtg. centers. Casting of mica insulation.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
29F710	14RS	14	1.41	1.15	.98	.76
29F988	20RS-1	20	3.52	2.84	2.36	1.91

RECTANGULAR RELAY SOCKETS

Molded of high dielectric black phenolic. Mate with Automatic Electric EIN and C.P. Clare "J" type relays.

16RS-2



Stock No.	Type	No. of Contacts	1-24	25-49	50-99
45F910	16RS-2	16	1.65	1.34	1.10
45F911	16RS-3	16	2.00	1.60	1.35
45F912	28RS	28	2.48	1.98	1.65
45F913	28RS-1	28	3.04	2.41	2.03
45F914	8RS	8	.85	.69	.60

CRYSTAL SOCKETS

Molded from high dielectric black bakelite or mica-filled low loss phenolic. 2 silver-plated beryllium copper contacts on 3 1/64" centers. .120" dia. recessed mounting hole. Socket body is 25/32" long, 5/16" thick, and 35/64" high. For use with FT243 type crystal.

2KB 2KM

Stock No.	Type	1-24	25-49	50-99
29F705	2KB	.35	.29	.26
29F706	2KM	.37	.31	.29

81B

81A

13A

PHONO JACKS AND PLUGS

81A. Single prong phono jack, 1 1/16" mounting centers. **81B.** Two phono jacks. 1/16" bakelite panel. 13/16" mtg. centers. Spaced on 7/16" centers. Panel Size: 1½"x1". **13A.** Plug for 81A and 81B jacks. Shpg. wt. 3 oz.

Stock No.	Type	1-24	25-49	50-99	100-249
39F797	81A	.30	.24	.21	.20
39F795	81B	.39	.32	.28	.24
39F796	13A	.19	.17	.15	.13

AUDIO CONNECTORS

Metal parts are brass with bright nickel finish. Insulation is molded phenolic. Phosphor bronze "knife switch" type socket contacts engage both sides of flat brass plug contacts. Formed fibre linings in caps. Knurled nut has ¾"-27 thread. P-202-CCT makes ideal microphone cable connector.

P-202-CCT

S-202-B

Stock No.	Type	Description	1-24	25-49	50-99
29F507	P-202-CCT	Plug with Cable Clamps	1.71	1.36	1.16
29F513	S-202-B	Socket with Mounting Base	2.05	1.67	1.39

MOLDED CONNECTOR PLUGS AND SOCKETS

8PB 11RB 11PB

Stock No.	Type	Mfr. No.	Contacts	1-24	25-49	50-99	100-249
29F701	8PB	54B16021	8 plugs	.51	.43	.37	.33
29F702	11PB	54B13795	11 plugs	.67	.48	.43	.37
29F703	11RB	54A13783	11 sockets	.67	.53	.45	.38

MILITARY TYPE TUBE SOCKETS

Max. Volt: 500 VAC RMS. Current: 1 A. Oper. Temp: 100°C. Chassis Opening: ⅝" dia., 7-pin, ¾" 9-pin. Insl. Res: 1000 megs min. Withstand Volt: 2000 VAC min. Mica Filled Phenolic Mil-M-14F, Type MFE; Steatite Ceramic Mil-1-10, Grade 14. Contacts: Phosphor Bronze-QQP-330, Beryllium Copper-QQ-G-523. Saddles, bases, strap nuts, center shields Brass-QQ-B-626 or QQ-B-613. Finishes: Cadmium-QQ-P-416a, Silver-QQ-S-365, Nickel-QQ-N-290. Passivation-Mil-STD-171.

Stock No.	Type	MIL-S-12888A	CAST'L MAT'L	1-24	25-49	50-99	100-249
29F660	7JM-2	TS102P01	MFE S	1.12	.89	.75	.60
29F1184	9JM-3	TS103P03	MFE B	1.10	.88	.73	.58

MINIATURE SOCKETS

7EB

7JM-3

Stock No.	Type	Description	1-24	25-49	50-99	100-249
7 PIN MOLDED SADDLE TYPE BOTTOM MOUNT						
38F636	7EB	Black	.26	.22	.20	.17
38F637	7EM	Mica-Filled	.30	.24	.22	.20
9 PIN MOLDED SADDLE TYPE TOP MOUNT						
38F677	9AB	Black	.29	.23	.21	.19
38F678	9AM	Mica-Filled	.39	.30	.28	.27
9 PIN MOLDED SADDLE TYPE BOTTOM MOUNT						
38F679	9EB	Black	.29	.23	.21	.19
38F680	9EM	Mica-Filled	.39	.30	.28	.27
7 PIN—SHIELD BASE TYPE						
38F674	7XB1	Black	.39	.29	.25	.23
38F675	7XM1	Mica-Filled	.44	.37	.31	.27
9 PIN MINIATURE SOCKETS—SHIELD BASE TYPE						
38F681	9XB	Black	.61	.55	.43	.38
38F682	9XM	Mica	.61	.55	.43	.38

MOLDED TUBE SOCKETS

Brass solder coated contacts. *Black, †Mica.

Stock No.	Type	Mtg. Hole	1-24	25-49	50-99	100-249
8AB MOLDED OCTAL 1 5/16" MOUNTING CENTERS						
38F670*	8AB	.136 D.	.29	.23	.21	.19
38F671†	8AM	.136 D.	.39	.30	.28	.27
MOLDED OCTAL 1½" MOUNTING CENTERS						
38F672*	8EB	.143 D.	.29	.23	.21	.19
38F673†	8EM	.140 D.	.39	.30	.28	.27

CONVENTIONAL STAND-OFF TYPE PRINTED CIRCUIT SOCKETS

7PC-B

7PC-B1

9PC-B

9PC-B1

Stand-off sockets resting on shoulder of contact tail providing air gap for cooling and eliminating moisture. Designed for 1/16" printed circuit boards having bottom circuitry. Center shield and tabs * or none.**

Stock No.	Type	1-24	25-49	50-99	100-249
29F604	7 PC-B*	.25	.22	.20	.18
29F605	7 PC-B1**	.22	.20	.18	.16
29F607	9 PC-B*	.29	.23	.21	.19
29F608	9 PC-B1**	.29	.23	.21	.19

PRINTED CIRCUIT SOCKETS WITH SHIELD BASES

Attached bayonet-type shield base ground tab. Use with 1/16" printed circuit boards. Castings low loss mica-filled phenolic (MFE). Contacts phosphor bronze, hot-tinned finish. Center shield, ground tabs are brass, hot-tinned. Base is brass, nickel-plated.

Stock No.	Type	Description	1-24	25-49	50-99	100-249
29F602	7PC-M2	7-pin Min.	2.01	1.60	1.37	1.09
29F603	9PC-M2	9-pin Min.	2.20	1.74	1.51	1.18

CAPACITOR SOCKETS

Type 2C5 for Mallory and Magnavox 1" FP type capacitors. 4 hot-solder-coated ground lugs, 3 recessed center contacts for extended prongs of capacitor, and two outer contacts flush with surface for short prongs of capacitor. 1½" mounting centers. **Type 2C7** same as 2C5 except for Mallory and Magnavox 1⅜" FP type capacitors. 1 27/32" mounting centers.

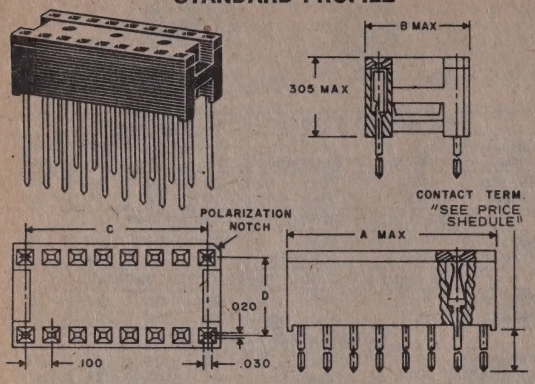
2C5

Stk. No.	Type	Description	1-24	25-49	50-99	100-249
29F549	2C5	For 1" Type FP	1.70	1.36	1.13	.90
29F550	2C7	For 1⅜" Type FP	1.83	1.46	1.22	.98

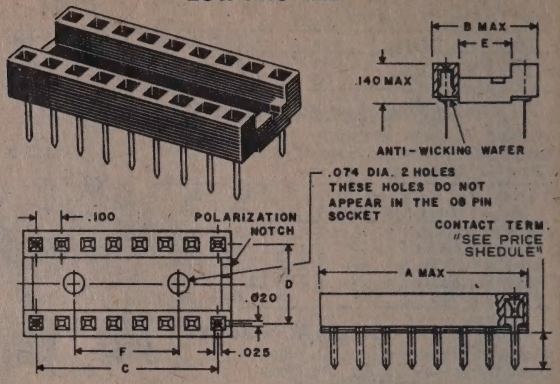
11

SPC technology Integrated Circuit Sockets

STANDARD PROFILE



LOW PROFILE



STANDARD PROFILE FEATURES

- Edge wipe twin beam contacts provide optimum performance and insure years of trouble free service.
- Contact damage associated with testing and use is virtually eliminated by the closed entry insulator design.
- Sockets employ a snap-on cap which allow the user to replace contacts damaged during board assembly.
- Selected sockets are supplied with mounting holes which permit users to fasten them to the circuit board.
- Contact tails for solderless wrapping are available in three different lengths. The longest will accept up to three levels of #30 AWG wire.

STANDARD PROFILE

Number of Contacts	Dimensions			
	A Max	B Max	C	D
14	.745	.395	.600	.300
16	.845	.395	.700	.300
18	.945	.395	.800	.300
24	1.245	.695	1.100	.600
28	1.445	.695	1.300	.600
36	1.845	.695	1.700	.600
40	2.045	.695	1.900	.600

LOW PROFILE

Number of Contacts	Dimensions					
	A Max	B Max	C	D	E	F
14	.700	.400	.600	.300	.200	.300
16	.800	.400	.700	.300	.200	.400
18	.900	.400	.800	.300	.200	.500

LOW PROFILE FEATURES

- Sockets are end and side stackable for economy of board space and are visually polarized by a notch at one end.
- Miniature twin beam edge wipe contacts for maximum reliability and extended service.
- The low profile of this socket allows closer board spacing or increased air flow in equipment for more efficient operation.
- Sockets are supplied with anti-wicking wafers which protect the spring element of contacts from solder entrapment.
- Closed entry insulator design to minimize contact damage during testing and use.

11

PERFORMANCE SPECIFICATIONS

Series	ELECTRICAL				MECHANICAL				MATERIAL		
	Contact Rating	Contact Resistance	Withstanding Voltage	Insulation Resistance	Temp. Range	Insertion Force	Withdrawal Force	Contact Push Out	Insulator	Wafer	Contact
Standard Profile Socket	1 Ampere	15 Milliohms Max.	1000 Vac RMS Sea Level	5000 Megohms	−65°C to +125°C	300 Grams Max per Contact	25 Grams Min. per Contact	7.5 Lbs. Min. Solderless Wrap 1.0 Lbs. Min. Solder Tail	Thermo-Plastic Polyester Per MIL-M-24519 Rated 94 V-O		Phosphor Bronze Per QQ-B-750
Low Profile Socket	1 Ampere	15 Milliohms Max.	1000 Vac RMS Sea Level	5000 Megohms	−65°C to +125°C	250 Grams Max. per Contact	15 Grams Min. per Contact	1.0 Lbs. Min.	Thermo-Plastic Polyester per MIL-M-24519 Rated 94 V-O	Polyester Film	Copper Alloy Per ASTM B-592

* P.C. Tail .005 x .024 x .145 lg.
** P.C. Tail .008 x .025 x .125 lg.
† Solderless Wrap .025 sq. x .630 lg.

For SPC Technology Catalogs of Tubing, Terminals and Connectors and for Price Quotes on Larger Quantities Contact Newark, the One Stop Source for All Your Electronic Needs.

STANDARD PROFILE

Stock Number	Type	No. of Contacts	Termination	Contact Plating	1-9	10-99	100-499	500-999
31N2916	SP-14-5G†	14	Solderless Wrap	Gold	1.32	1.05	.88	.75
31N2917	SP-14-5T†	14	Solderless Wrap	Tin	1.26	1.01	.84	.72
31N2918	SP-14-2G**	14	Solder	Gold	1.02	.82	.68	.58
31N2919	SP-14-2T**	14	Solder	Tin	.96	.77	.64	.55
31N2920	SP-16-5G†	16	Solderless Wrap	Gold	1.44	1.15	.96	.82
31N2921	SP-16-5T†	16	Solderless Wrap	Tin	1.20	.96	.80	.68
31N2922	SP-16-2G**	16	Solder	Gold	1.14	.91	.76	.65
31N2923	SP-16-2T**	16	Solder	Tin	1.08	.86	.72	.61
31N2924	SP-18-5G†	18	Solderless Wrap	Gold	1.68	1.34	1.12	.97
31N2925	SP-18-2T**	18	Solder	Tin	1.38	1.10	.92	.79
31N2926	SP-24-5G†	24	Solderless Wrap	Gold	2.46	1.97	1.64	1.40
31N2927	SP-24-2T**	24	Solder	Tin	1.56	1.25	1.04	.89
31N2928	SP-28-5G†	28	Solderless Wrap	Gold	3.72	2.98	2.48	2.12
31N2929	SP-28-2T**	28	Solder	Tin	2.04	1.63	1.36	1.16
31N2930	SP-36-2T**	36	Solder	Tin	2.64	2.11	1.76	1.50
31N2931	SP-40-5G†	40	Solderless Wrap	Gold	4.56	3.65	3.04	2.60
31N2932	SP-40-2T**	40	Solder	Tin	3.12	2.50	2.08	1.78

LOW PROFILE

31N2913	LP-14-1G*	14	Solder	Gold	.48	.42	.37	.33
31N2914	LP-16-1G*	16	Solder	Gold	.57	.50	.44	.40
31N2915	LP-18-1G*	18	Solder	Gold	.79	.69	.61	.55

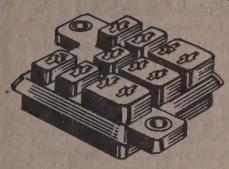
VOLTREX brand Relay Sockets

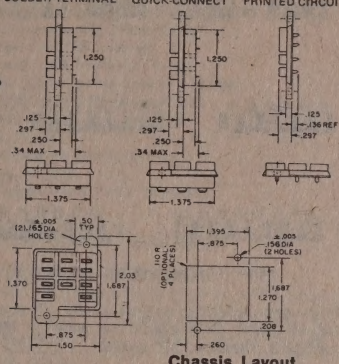
SPC technology

- High quality sockets for maximum relay retention and electrical conductivity.
- Nickel-plated screw type terminals on break-resistant barrier-type terminal block for fast, easy connection.

3PDT CHASSIS MOUNT

CMS-11-SLD SOLDER TERMINAL **CMS-11-QDC** QUICK-CONNECT **CMS-11-PCB** PRINTED CIRCUIT



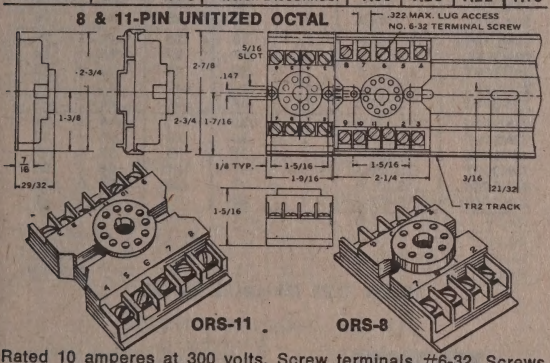


Chassis Layout

Rated 10 amperes; molded of UL grade nylon. For use with all Magnecraft class 388 relays. CMS-11-PCB: P.C. Board terminals. CMS-11-SLD: solder terminals, solder plate 60/40. CMS-11-QDC: quick disconnect terminals.

Stk. No.	Type	Terminal	1-9	10-24	25-49	50-99
23N3608	CMS-11-PCB	P.C. Board	1.05	1.00	.95	.89
23N3606	CMS-11-SLD	Solder	.90	.86	.81	.77
23N3607	CMS-11-QDC	Quick Disconnect	1.35	1.28	1.22	1.15

8 & 11-PIN UNITIZED OCTAL

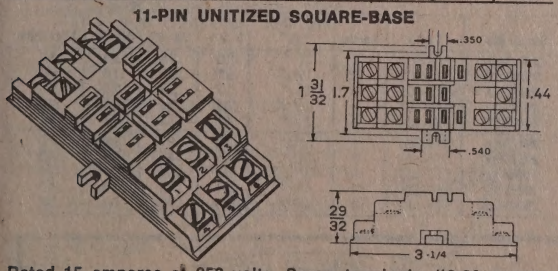


ORS-11 ORS-8

Rated 10 amperes at 300 volts. Screw terminals #6-32. Screws with captivated traveling nut. For use with Potter & Brumfield type KRP, KRP3-H, KAP, KBP, KCP, EBT, EBA relays; CD-21, CD-38, CH, CK and CR time delays; and CS sensor.

Stk. No.	Type	Description	1-24	25-50	51-99	100-249
23N3609	ORS-8	8-pin/2PDT	3.12	2.96	2.81	2.34
23N3610	ORS-11	11-pin/3PDT	4.67	4.44	4.20	3.50

11-PIN UNITIZED SQUARE-BASE

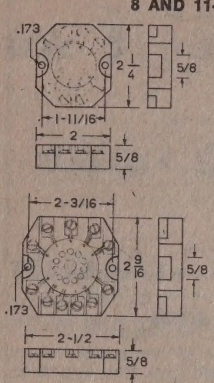


Rated 15 amperes at 250 volts. Screw terminals #6-32 screws, with captivated travelling nut. For use with Potter and Brumfield type CO and CL series relays. RS-11-SQ is an 11-pin socket for 3PDT square-base barrier-type plug-in relays.

Stk. No.	Type	Description	1-24	25-50	51-99	100-249
23N3611	RS-11-SQ	11-pin/3PDT	4.95	4.70	4.46	3.71

- Unitized, thermoplastic sockets with closed-back design which eliminates panel insulation and resists breakage.
- Permanent numbered terminals for easy identification.

8 AND 11-PIN SCREW TERMINAL



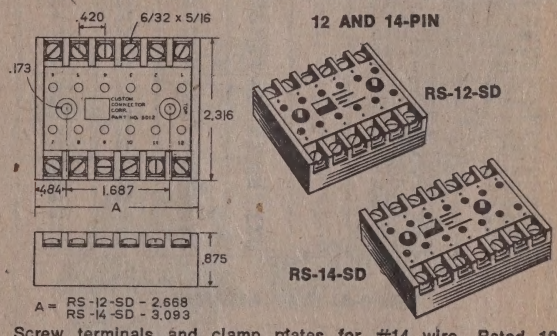
RS-8B

RS-11B

Standard industrial screw terminal sockets rated 10 amperes at 300 volts. For use with Magnecraft 8 and 11-pin industrial relays. RS-8B: 11-pin octal, screw terminal. RS-8B: 8-pin octal, screw terminal.

Stk. No.	Type	Description	1-9	10-24	25-49	50-99
23N3600	RS-8B	8-pin/screw term.	2.85	2.71	2.57	2.42
23N3601	RS-11B	11-pin/screw term.	4.50	4.28	4.05	3.83

12 AND 14-PIN



RS-12-SD

RS-14-SD

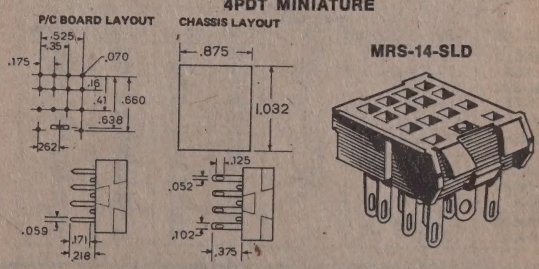
A = RS-12-SD - 2.668
RS-14-SD - 3.093

Screw terminals and clamp plates for #14 wire. Rated 10 amperes at 300 volts. RS-12-SD is designed for use with Struthers and Dunn 12-pin relay types: CX3671, CX672, S.S.96 solid state, RSX1440, A255, 236, 237, 219. RS-14-SD is designed for use with Struther and Dunn 14-pin, 4PDT and 6 pole type 219 relays.

Stk. No.	Type	Description	1-Up
23N3602	RS-12-SD	12-pin	3.49
23N3603	RS-14-SD	14-pin	3.94

4PDT MINIATURE

P/C BOARD LAYOUT CHASSIS LAYOUT



MRS-14-SLD

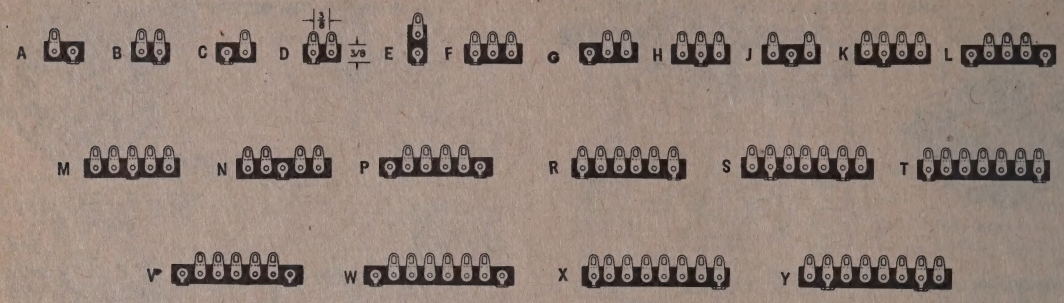
Rated at 5 amperes. Molded UL grade nylon. MRS-14-SLD: Solder terminals. Can be chassis from front or reverse side, this allows pre-wiring of socket prior to installing in chassis or panel. MRS-14-PCB: PC Board terminals. For use with Struthers and Dunn type C281 and 282 relays.

Stk. No.	Type	Terminal	1-24	25-49	50-74	75-99
23N3604	MRS-14-SLD	Solder	.95	.90	.86	.76
23N3605	MRS-14-PCB	PC Board	.95	.90	.86	.76

11

SPC technology — VOLTREX brand Terminal Strips

TIE DOWN TERMINAL STRIPS



STANDARD TERMINAL STRIPS

Lugs are cadmium plated steel spaced on ⅜" centers. Strips are of NEMA grade XP phenolic ⅜" wide by .062" thick. Mounting holes are for No. 6 screws.

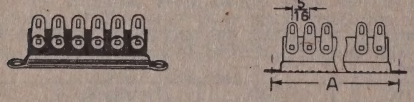
Stock No.	Type	Fig.	1-24	25-49	50-99	100-249
28N650	LTS-102-A	A	.18	.15	.12	.10
29N567	LTS-102-B	B	.18	.15	.12	.10
29N568	LTS-102-C	C	.18	.15	.13	.10
29N569	LTS-102-D	D	.18	.15	.12	.10
29N570	LTS-102-E	E	.21	.18	.16	.14
29N576	LTS-103-D	F	.21	.18	.14	.11
29N575	LTS-103-C	G	.20	.17	.14	.11
29N574	LTS-103-B	H	.21	.18	.14	.11
28N651	LTS-103-A	J	.20	.17	.14	.11
29N583	LTS-104-A	K	.19	.16	.15	.11
28N652	LTS-105-A	L	.21	.18	.16	.14
29N587	LTS-105-C	M	.22	.19	.17	.13
29N586	LTS-105-B	N	.21	.18	.16	.14
28N653	LTS-106-A	P	.24	.21	.19	.14
29N585	LTS-106-B	R	.24	.21	.19	.15
29N590	LTS-107-C	S	.25	.22	.20	.15
29N588	LTS-107-B	T	.25	.22	.20	.15
28N654	LTS-107-A	V	.25	.22	.20	.15
28N655	LTS-108-A	W	.26	.22	.20	.16
29N591	LTS-108-B	X	.26	.23	.21	.16
29N593	LTS-108-C	Y	.26	.23	.21	.16

MINIATURE TERMINAL STRIPS

Lugs are cadmium plated steel, ¼" spaced centers. Strips are NEMA grade XP phenolic 5/16" wide by .062" thick. Mounting holes for No. 3 screws or 7/32" rivets.

Stock No.	Type	Fig.	1-24	25-49	50-99	100-249
23N3979	LTS-502-A	A	.26	.21	.17	.14
23N3980	LTS-502-B	B	.26	.21	.17	.14
23N3981	LTS-502-C	C	.26	.21	.19	.14
23N3982	LTS-502-D	D	.26	.21	.17	.14
23N3983	LTS-502-E	E	.30	.26	.23	.20
23N3984	LTS-503-D	F	.30	.26	.20	.16
23N3985	LTS-503-C	G	.28	.24	.20	.16
23N3986	LTS-503-B	H	.30	.26	.20	.16
23N3987	LTS-503-A	J	.28	.24	.20	.16
23N3988	LTS-504-A	K	.27	.23	.21	.16
23N3989	LTS-505-A	L	.30	.26	.23	.20
23N3990	LTS-505-C	M	.31	.27	.24	.19
23N3991	LTS-505-B	N	.30	.26	.23	.20
23N3992	LTS-506-A	P	.34	.30	.27	.20
23N3993	LTS-506-B	R	.34	.30	.27	.21
23N3994	LTS-507-C	S	.35	.31	.28	.21
23N3995	LTS-507-B	T	.35	.31	.28	.21
23N3996	LTS-507-A	V	.35	.31	.28	.21
23N3997	LTS-508-A	W	.37	.31	.28	.23
23N3998	LTS-508-B	X	.37	.33	.30	.23
23N3999	LTS-508-C	Y	.37	.33	.30	.23

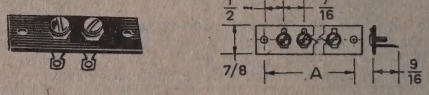
TERMINAL STRIP ASSEMBLY



Steel, cadmium plated lug. Steel, cadmium plated base. XP Phenolic strip. Mounting holes for #6 screws.

Stock No.	Type	Term.	Mtg. Cntr. "A"	1-24	25-49	50-99	100-249
28N680	LTS-202	2	1"	.22	.21	.20	.17
28N681	LTS-203	3	1 5/16"	.26	.22	.21	.20
28N682	LTS-204	4	1 5/8"	.27	.26	.22	.21
28N683	LTS-205	5	1 15/16"	.27	.26	.22	.21
28N684	LTS-206	6	2¼"	.30	.27	.24	.22
28N685	LTS-207	7	2 5/16"	.30	.27	.24	.22
28N686	LTS-208	8	2⅝"	.35	.29	.26	.24
28N687	LTS-209	9	3 5/16"	.38	.30	.27	.26
28N688	LTS-210	10	3½"	.38	.30	.27	.26
28N689	LTS-211	11	3 13/16"	.41	.32	.30	.27
28N690	LTS-212	12	4⅛"	.41	.32	.30	.27
28N691	LTS-213	13	4 7/16"	.44	.39	.32	.29

SCREW TYPE TERMINAL BOARD



Brass, hot tinned lugs on 7/16" cntrs. Steel, cadmium plated, 6-32 x ⅜" screw. XP Phenolic strip 5/8" W.

Stock No.	Type	Term.	Mtg. Cntr. "A"	1-24	25-49	50-99	100-249
29N551	STS-501	1	1"	.20	.18	.16	.14
29N552	STS-502	2	1 7/16"	.22	.20	.18	.16
29N553	STS-503	3	1¾"	.27	.22	.20	.18
29N554	STS-504	4	2 3/16"	.35	.29	.25	.22
29N555	STS-505	5	2⅝"	.41	.32	.28	.26
29N556	STS-506	6	3 1/16"	.50	.41	.35	.30
29N557	STS-507	7	3½"	.61	.48	.41	.35
29N558	STS-508	8	3 15/16"	.68	.57	.47	.38
29N559	STS-509	9	4⅜"	.84	.63	.52	.43
29N560	STS-510	10	4 13/16	.99	.75	.64	.52

Contact Newark For SPC Technology Catalogs On Products and For Price Quotes On Larger Quantities.

"A" Mode* Connectors

SPC technology

*Amperage Module. A unique concept in electronic connectors. This patented design offers these significant features:

- **Meets Current Requirements from 15 through 600 Amps**
- **High Voltage Protection—Rated 600 Volts**
- **Self-Mating—No Separate Male and Female Units**
- **Stackable—Insulation Cases Fit Like Building Blocks With Slide-Lok Action that Permits Multipole Assembly**
- **Mountable—Case Designed for Screw Mounting of Assemblies**
- **Extremely Low Contact Resistance—400 Micro-ohms**
- **Snap Action—Positive Connect and Disconnect**
- **Self Cleaning of Contacts with Each Make and Break**
- **Maximum Conductivity from Silver Plated Copper Contacts**
- **High Reliability Index—15,000 Cycle Mechanical Life**
- **Color Coded Cases—Simplify Wiring**
- **U.L. Recognized and C.S.A. Listed**
- **High Dielectric, Impact Resistant Polycarbonate Case**
- **Non-Pitting Current Carrying Surfaces**
- **Vibration Protected—Full Current Flow under Vibration**

"A" MODE STANDARD PACKAGES

Complete assembly instructions included in each package. Each connector includes silver plated contact and insulation case.

Stock No.	Amps	Color	AWG Wire Size	Std. Pkg.	PRICE PER PACKAGE 1-4	5-9	10-24	25-49
13N1996	15	Red	16-20	100				
13N1997	15	Black	16-20	100				
13N1998	15	White	16-20	100	49.09	43.32	38.59	35.18
13N1999	15	Green	16-20	100				
13N2000	15	Yellow	16-20	100				
13N2001	30	Red	12-18	100				
13N2002	30	Green	12-18	100				
13N2003	30	Black	12-18	100	52.50	46.20	41.48	37.54
13N2004	30	White	12-18	100				
13N2005	60	Blue	6-12	25	38.59	33.87	30.45	27.57
13N2006	60	Red	6-12	25	38.59	33.87	30.45	27.57
13N2007	60	Black	6-12	25	38.59	33.87	30.45	27.57
13N2008	120	Blue	2-6	20	87.68	77.18	69.04	62.48
13N2009	180	Blue	0-4	10	61.43	54.08	48.30	43.84
13N2010	180	Black	0-4	10	61.43	54.08	48.30	43.84
13N2011	180	White	0-4	10	61.43	54.08	48.30	43.84
13N2012	180	Red	0-4	10	61.43	54.08	48.30	43.84
13N2013	600	Blue	600MCM	1	52.50	48.04	44.10	40.69

EXTRA "A" MODE CONTACTS

Stock No.	Amps	AWG	Std. Pkg.	PRICE PER PACKAGE 1-4	5-9	10-24	25-49
13N1990	15	16-20	100	15.75	13.92	12.34	11.29
13N1991	30	12-18	100	15.75	13.92	12.34	11.29
13N1992	60	6-12	25	21.53	18.90	17.07	15.49

ENGINEERING DESIGN TEST KITS

Including instructions for engineering evaluation and prototype testing. *Contains six silver plated contacts and six insulation cases.

Stk. No.	A	Color	Per Kit
13N2014	15	Yellow	2.52
13N2015	30	Red	3.15
13N2016	60	Blue	9.45

TOOLS DESIGNED FOR "A" MODE CONNECTORS

A INSERTION AND REMOVAL TOOL FOR CONTACTS

For use with 15, 30 and 60 amp contacts.
13N2017. NET.....6.57

"A" MODE CRIMPING TOOLS

Designed to operate on the indent principle; results in locking the wire in the barrel of the contact without deforming contact barrel.

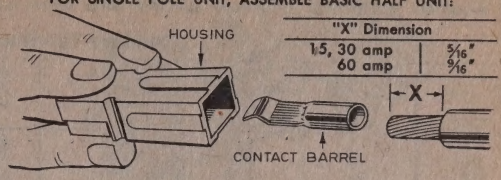
B HAND CRIMP TOOL FOR 15 AND 30 AMP CONTACTS

Quickly and easily crimps contacts.
13N2018.....40.95

C RATCHET TYPE HAND CRIMP TOOLS

Controlled crimp cycle—jaws will not open until full crimp indent has been achieved.
13N2019. For 15 and 30 Amp Contacts. 156.45
13N2020. For 60 Amp Contacts.....156.45

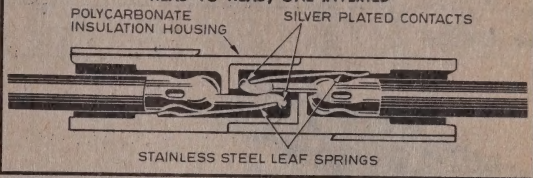
DESIGN & ASSEMBLE "A" MODE TO YOUR OWN CONFIGURATION
FOR SINGLE POLE UNIT, ASSEMBLE BASIC HALF UNIT:



1. Strip wire per chart above.
2. Solder or crimp* wire into contact barrel.
3. Insert† contact into housing until it snaps into place.

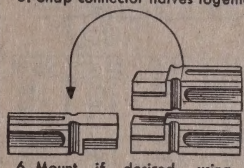
*See "A" Mode Crimp Tools for important requirements.
†Use #13N2017 insertion & removal tool for 15, 30, 60A sizes.

COMPLETE CONNECTION—SNAP TOGETHER 2 HALF UNITS HEAD TO HEAD, ONE INVERTED

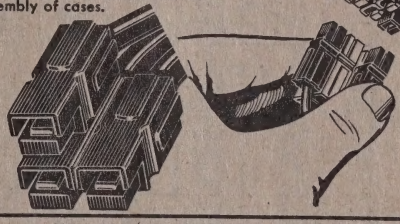


MULTIPOLE CONNECTOR

1. Strip wire for each pole desired.
2. Solder or crimp into contact barrel.
3. Slide together as many cases as desired.
4. Snap crimped contact in place in each insulation case.
5. Snap connector halves together, one inverted.



6. Mount if desired, using mounting holes formed by assembly of cases.

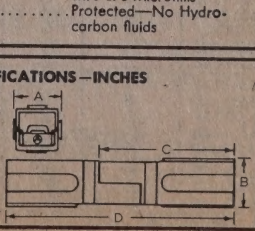


PHYSICAL AND ELECTRICAL CHARACTERISTICS

NOMINAL AMPERAGE:	15
SIZE (inches):	5/16x5/16x3 1/32
HOUSING MATERIAL:	Polycarbonate
STANDARD COLOR:	Yellow
CONTACT MATERIAL:	Copper, Silver Plated
SPRING MATERIAL:	300 Series Stainless Steel
OPERATING TEMPERATURE RANGE:	—20°C to 105°C
CURRENT RATING:	15 Amp on 16 AWG Wire produces 19°C Rise
VOLTAGE RATING:	600
BREAKDOWN VOLTAGE TO MOUNTING:	6000 DC
WIRE SIZE ACCOMMODATION:	16 to 20 AWG
MAX. WIRE INSULATION DIAMETER:	.137"
MATING FORCE: (one pair):	Approx. 2 lbs.
EXTRACTION FORCE (one pair):	Approx. 2 lbs.
CONTACT RETENTION FORCE:	Approx. 25 lbs.
CONTACT INSERTION FORCE:	Approx. 3 lbs.
CONTACT RESISTANCE (AVERAGE):	With 5/8" of 16 AWG wire 875 Microhms
ENVIRONMENTAL RESTRICTIONS:	Protected—No Hydrocarbon fluids

DIMENSIONAL SPECIFICATIONS—INCHES

Rating	A	B	C	D
15 Amp	5/16	5/16	3 1/32	1 5/8
30 Amp	5/16	5/16	3 1/32	1 5/8
60 Amp	3/8	3/8	1 7/8	3 3/4
120 Amp	7/8	7/8	2 3/4	4 5/8
180 Amp	1 1/8	1 1/8	3 1/4	5 1/2
600 Amp	2 3/8	2 3/8	6	9 3/4



11

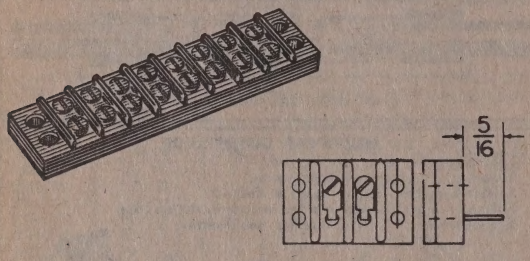
Kulka Standard Terminal Boards

Terminal boards used extensively in production of electronic and electrical equipment. Eliminate splicing, stop leaks and short circuits, and generally simplify wiring work.

Standard Terminal Blocks: Specifications

Type	Current Raring AMPS	Voltage Rating W/ M/S Volts RMS	Voltage Rating w/o M/S Volts RMS	Maximum Wiire Size w/Comm. Lugs	Screw Size	Terminal Spacing C to C (Inches)	Overall Width (Inches)	Overall Height (Inches)
410	5	2000	1000	#20-18GA	2-56	1/4	5/8	5/16
599	15	2500	1100	#22-16GA	5-40	3/8	7/16	13/32
600	15	2500	1100	#22-16GA	5-40	3/8	7/8	13/32
601	20	3000	1100	#16-14GA	6-32	7/16	1 1/8	1/2
602	30	3300	1600	#14-12GA	8-32	9/16	1 5/16	5/8
603	50	3000	1700	#6GA	10-32	1 1/16	1 13/16	3/4
670	15	.....	2500	#22-16GA	5-40	3/8	7/8	29/64
671	20	.....	3000	#16-14GA	6-32	7/16	1 1/8	35/64
672	30	.....	3300	#14-12GA	8-32	9/16	1 5/16	21/32
699	20	3000	1100	#16-14GA	6-32	7/16	1 1/16	1/2

410 SERIES



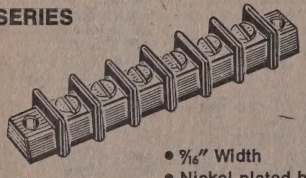
410

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1120	6	1 3/4"	1.71	1.29	1.01	.86
65F1121	8	2 1/4"	2.12	1.63	1.29	1.06
65F1122	10	2 3/4"	2.59	1.95	1.57	1.30
65F1123	12	3 1/4"	3.05	2.27	1.81	1.52
65F1124	14	3 3/4"	3.47	2.61	2.08	1.74
65F1125	16	4 1/4"	3.81	2.86	2.28	1.92
65F1126	18	4 3/4"	4.25	3.19	2.55	2.13
65F1127	20	5 1/4"	4.68	3.51	2.80	2.33
65F1128	22	5 3/4"	5.13	3.84	3.07	2.56

410-Y

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1129	2	3/4"	.93	.71	.56	.46
65F1130	4	1 1/4"	1.50	1.13	.89	.75
65F1131	6	1 3/4"	2.02	1.54	1.23	1.01
65F1132	8	2 1/4"	2.59	1.95	1.57	1.30
65F1133	10	2 3/4"	3.17	2.34	1.88	1.58
65F1134	12	3 1/4"	3.69	2.76	2.21	1.84
65F1135	14	3 3/4"	4.26	3.18	2.55	2.13
65F1136	16	4 1/4"	4.74	3.55	2.83	2.38
65F1137	18	4 3/4"	5.27	3.96	3.17	2.64
65F1138	20	5 1/4"	5.81	4.36	3.49	2.92
65F1139	22	5 3/4"	6.31	4.74	3.78	3.17

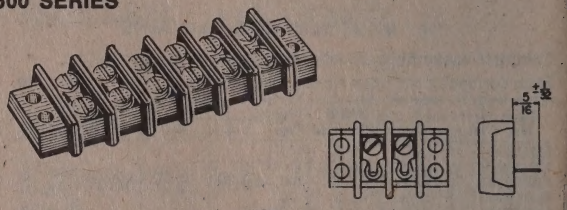
599 SERIES



- 9/16" Width
- Nickel plated brass screws/terminals

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1140	2	1 1/8"	.44	.33	.26	.23
65F1141	3	1 1/2"	.50	.38	.30	.25
65F1142	4	1 7/8"	.64	.49	.38	.32
65F1143	5	2 1/4"	.79	.60	.48	.39
65F1144	6	2 5/8"	.93	.70	.56	.46
65F1145	7	3"	1.06	.80	.63	.54
65F1146	8	3 3/8"	1.19	.89	.71	.60
65F1147	10	4 1/8"	1.48	1.11	.88	.74
65F1148	12	4 7/8"	1.74	1.31	1.05	.87
65F1149	14	5 5/8"	2.00	1.50	1.20	1.00
65F1150	16	6 3/8"	2.27	1.70	1.37	1.14
65F1151	20	7 7/8"	2.80	2.09	1.68	1.40
65F1152	21	8 1/4"	2.94	2.20	1.76	1.48

600 SERIES



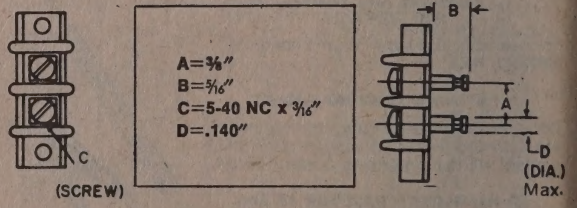
600

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1160	2	1 1/8"	.44	.33	.26	.23
65F1161	3	1 1/2"	.50	.38	.30	.25
65F1162	4	1 7/8"	.64	.49	.38	.32
65F1163	5	2 1/4"	.79	.60	.48	.39
65F1164	6	2 5/8"	.93	.70	.56	.46
65F1165	7	3"	1.06	.80	.63	.54
65F1166	8	3 3/8"	1.19	.89	.71	.60
65F1167	10	4 1/8"	1.48	1.11	.88	.74
65F1168	12	4 7/8"	1.74	1.31	1.05	.87
65F1169	14	5 5/8"	2.00	1.50	1.20	1.00
65F1170	16	6 3/8"	2.27	1.70	1.37	1.14
65F1171	18	7 1/8"	2.55	1.92	1.52	1.27
65F1172	20	7 7/8"	2.80	2.09	1.68	1.40
65F1173	22	8 5/8"	3.09	2.32	1.86	1.55

600-Y

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1174	2	1 1/8"	.55	.42	.33	.27
65F1175	3	1 1/2"	.67	.50	.40	.33
65F1176	4	1 7/8"	.92	.69	.55	.46
65F1177	5	2 1/4"	1.09	.82	.65	.55
65F1178	6	2 5/8"	1.32	.99	.80	.67
65F1179	7	3"	1.50	1.13	.90	.75
65F1180	8	3 3/8"	1.69	1.27	1.01	.84
65F1181	10	4 1/8"	2.07	1.56	1.24	1.04
65F1182	12	4 7/8"	2.50	1.88	1.50	1.25
65F1183	20	7 7/8"	4.01	3.01	2.40	2.01

599-2004 FEED-THRU SOLDER TERMINALS

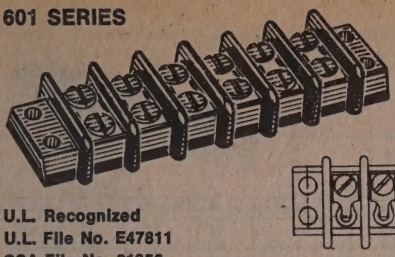


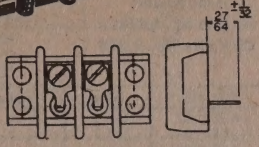
Stk. No.	Term No.	Length	1-9	10-24	25-49	50-99
65F1153	4	1 7/8"	1.74	1.30	1.05	.88
65F1154	6	2 5/8"	2.55	1.92	1.53	1.28
65F1155	8	3 3/8"	3.39	2.54	2.03	1.70
65F1156	10	4 1/8"	4.07	3.06	2.45	2.03
65F1157	12	4 7/8"	5.15	3.86	3.09	2.58
65F1158	16	6 3/8"	6.58	4.93	3.95	3.30
65F1159	20	7 7/8"	8.02	6.01	4.81	4.02

Standard Terminal Boards

Kulka

601 SERIES





U.L. Recognized
U.L. File No. E47811
CSA File No. 21356

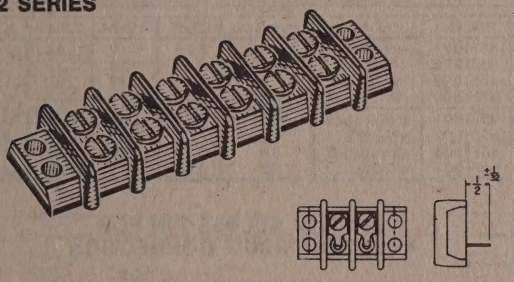
601

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1184	2	1 5/16"	.46	.35	.27	.24
65F1185	3	1 3/4"	.64	.49	.38	.32
65F1186	4	2 3/16"	.84	.63	.51	.43
65F1187	5	2 5/8"	1.01	.76	.61	.51
65F1188	6	3 1/16"	1.18	.88	.70	.60
65F1189	7	3 1/2"	1.34	1.01	.81	.68
65F1190	8	3 15/16"	1.54	1.15	.92	.77
65F1191	10	4 13/16"	1.88	1.42	1.13	.94
65F1192	12	5 11/16"	2.19	1.64	1.31	1.09
65F1193	16	7 7/16"	2.89	2.17	1.74	1.45
65F1194	18	8 5/16"	3.21	2.42	1.93	1.61
65F1195	20	9 3/16"	3.57	2.68	2.14	1.79

601-Y

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1196	2	1 5/16"	.64	.49	.38	.32
65F1197	3	1 3/4"	.92	.69	.55	.46
65F1198	4	2 3/16"	1.19	.89	.71	.60
65F1199	5	2 5/8"	1.43	1.07	.86	.71
65F1200	6	3 1/16"	1.67	1.25	1.00	.83
65F1201	8	3 15/16"	2.18	1.63	1.31	1.09
65F1202	10	4 13/16"	2.70	2.02	1.62	1.36
65F1203	12	5 11/16"	3.18	2.38	1.90	1.59
65F1204	16	7 7/16"	4.26	3.20	2.56	2.13
65F1205	18	8 5/16"	4.77	3.58	2.87	2.39
65F1206	20	9 3/16"	5.31	3.99	3.19	2.65

602 SERIES



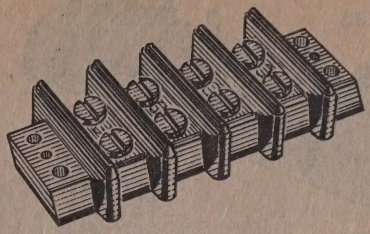
602

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1207	2	1 1/16"	.56	.42	.33	.29
65F1208	4	2 3/16"	1.00	.75	.60	.50
65F1209	6	3 5/16"	1.43	1.07	.86	.71
65F1210	8	5 1/16"	1.83	1.38	1.09	.92
65F1211	10	6 3/16"	2.28	1.71	1.37	1.14
65F1212	12	7 5/16"	2.71	2.03	1.63	1.36
65F1213	14	8 1/16"	3.14	2.36	1.88	1.57
65F1214	16	9 3/16"	3.59	2.70	2.15	1.80
65F1215	18	10 1/16"	4.01	3.01	2.40	2.01
65F1216	20	11 3/16"	4.51	3.38	2.70	2.26

602-Y

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1217	2	1 1/16"	.77	.58	.46	.39
65F1218	4	2 3/16"	1.43	1.07	.86	.71
65F1219	6	3 5/16"	2.06	1.55	1.24	1.04
65F1220	8	5 1/16"	2.71	2.03	1.63	1.36
65F1221	10	6 3/16"	3.34	2.51	2.01	1.68
65F1222	12	7 5/16"	3.99	2.99	2.39	2.00
65F1223	14	8 1/16"	4.64	3.49	2.78	2.32
65F1224	16	9 3/16"	5.30	3.97	3.18	2.65
65F1225	18	10 1/16"	5.91	4.44	3.55	2.96
65F1226	20	11 3/16"	6.81	5.11	4.08	3.40

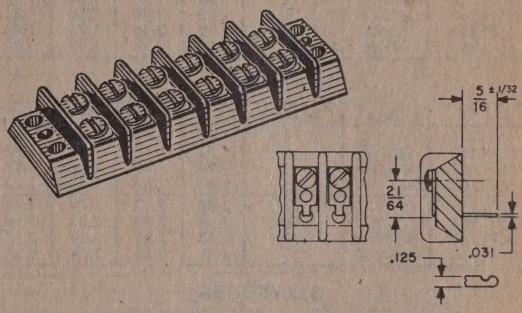
603 SERIES



603

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1227	2	2 1/16"	1.48	1.11	.88	.74
65F1228	4	3 7/16"	2.65	1.99	1.59	1.33
65F1229	6	4 13/16"	3.84	2.88	2.31	1.93
65F1230	8	6 3/16"	5.03	3.77	3.02	2.52
65F1231	10	7 9/16"	6.22	4.66	3.74	3.12

670 SERIES



670

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1232	2	1 1/8"	.40	.31	.24	.20
65F1233	4	1 7/8"	.57	.43	.35	.29
65F1234	6	2 5/8"	.83	.63	.50	.42
65F1235	8	3 3/8"	1.07	.81	.64	.54
65F1236	10	4 1/8"	1.33	1.00	.80	.67
65F1237	12	4 7/8"	1.57	1.18	.94	.79
65F1238	14	5 5/8"	1.81	1.36	1.08	.90
65F1239	16	6 3/8"	2.06	1.55	1.24	1.04
65F1240	18	7 1/8"	2.31	1.74	1.38	1.15
65F1241	20	7 7/8"	2.55	1.92	1.52	1.27
65F1242	22	8 5/8"	2.81	2.11	1.69	1.40

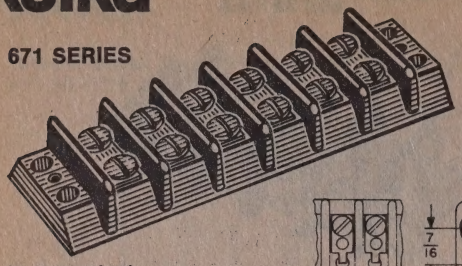
670-Y

Stk. No.	Term. No.	Length	1-9	10-24	25-49	50-99
65F1243	6	2 5/8"	1.20	.90	.73	.61
65F1244	8	3 3/8"	1.54	1.15	.92	.77
65F1245	10	4 1/8"	1.89	1.42	1.13	.95
65F1246	12	4 7/8"	2.27	1.70	1.37	1.14
65F1247	14	5 5/8"	2.63	1.98	1.58	1.32
65F1248	16	6 3/8"	2.95	2.21	1.77	1.48
65F1249	18	8 1/8"	3.32	2.49	1.99	1.67
65F1250	20	7 7/8"	3.65	2.74	2.19	1.83

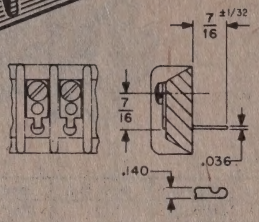
OUR STOCK IS COMPLETE AND UP TO DATE. WRITE FOR ADDITIONAL INFORMATION ON ANY NEW OR UNLISTED ITEMS

Kulka Standard Terminal Boards

671 SERIES



671-Y LUG



UL Recognized
UL File No. E47811
CSA File No. 21356

671

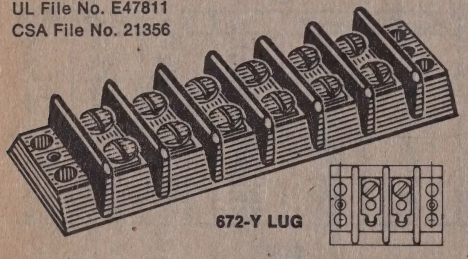
Stk. No.	Type	Terminals	1-9	10-24	25-49	50-99
65F1251	671-2	2	.43	.32	.26	.21
65F1252	671-4	4	.77	.58	.46	.39
65F1253	671-6	6	1.06	.80	.63	.54
65F1254	671-8	8	1.40	1.06	.84	.70
65F1255	671-10	10	1.70	1.27	1.02	.86
65F1256	671-12	12	1.99	1.49	1.19	1.00
65F1257	671-14	14	2.32	1.74	1.39	1.17
65F1258	671-16	16	2.63	1.98	1.58	1.32
65F1259	671-18	18	2.93	2.20	1.76	1.46
65F1260	671-20	20	3.25	2.44	1.95	1.63

671-Y

Stk. No.	Type	Terminals	1-9	10-24	25-49	50-99
65F1261	671-Y-4	4	1.07	.81	.64	.54
65F1262	671-Y-6	6	1.51	1.13	.90	.76
65F1263	671-Y-8	8	1.98	1.49	1.19	.99
65F1264	671-Y-10	10	2.45	1.84	1.48	1.23
65F1265	671-Y-12	12	2.89	2.17	1.74	1.45
65F1266	671-Y-16	16	3.88	2.92	2.33	1.94
65F1267	671-Y-18	18	4.33	3.25	2.59	2.17
65F1268	671-Y-20	20	4.82	3.62	2.89	2.42

672 SERIES

UL Recognized
UL File No. E47811
CSA File No. 21356



672

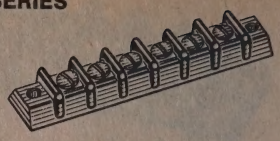
Stk. No.	Type	Terminals	1-9	10-24	25-49	50-99
65F1269	672-2	2	.51	.38	.31	.26
65F1270	672-4	4	.92	.69	.55	.46
65F1271	672-6	6	1.30	.98	.77	.65
65F1272	672-8	8	1.68	1.26	1.01	.84
65F1273	672-10	10	2.07	1.56	1.24	1.04
65F1274	672-12	12	2.46	1.84	1.48	1.24
65F1275	672-14	14	2.84	2.13	1.70	1.43
65F1276	672-16	16	3.27	2.45	1.96	1.64
65F1277	672-18	18	3.65	2.74	2.19	1.83
65F1278	672-20	20	4.09	3.07	2.45	2.05

672-Y

Stk. No.	Type	Terminals	1-9	10-24	25-49	50-99
65F1279	672-Y-4	4	1.30	.98	.77	.65
65F1280	672-Y-6	6	1.88	1.42	1.13	.94
65F1281	672-Y-8	8	2.46	1.84	1.48	1.24
65F1282	672-Y-10	10	3.05	2.28	1.83	1.52
65F1283	672-Y-12	12	3.63	2.73	2.18	1.82
65F1284	672-Y-16	16	4.81	3.61	2.88	2.40
65F1285	672-Y-18	18	5.38	4.03	3.22	2.69
65F1286	672-Y-20	20	6.19	4.64	3.71	3.09

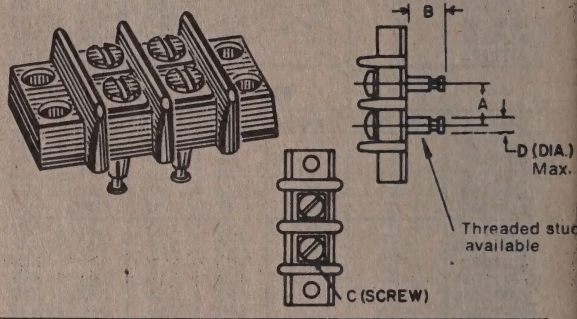
699 SERIES

UL Recognized
UL File No. E47811
CSA File No. 21356



Stk. No.	Type	Terminals	1-9	10-24	25-49	50-99
65F1287	699-2	2	.46	.35	.27	.24
65F1288	699-4	4	.84	.63	.51	.43
65F1289	699-6	6	1.18	.88	.70	.60
65F1290	699-8	8	1.54	1.15	.92	.77
65F1291	699-10	10	1.88	1.42	1.13	.94
65F1292	699-12	12	2.19	1.64	1.31	1.09
65F1293	699-14	14	2.56	1.92	1.54	1.29
65F1294	699-16	16	2.89	2.17	1.74	1.45
65F1295	699-18	18	3.21	2.42	1.93	1.61
65F1296	699-20	20	3.57	2.68	2.14	1.79

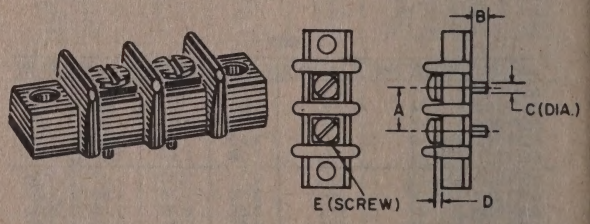
699-2104 FEED-THRU SOLDER TERMINAL



A	B	C	D
7/16"	3/8"	6-32 NCx1/4"	.130"

Stk. No.	Type	Terminals	1-9	10-24	25-49	50-99
65F1297	699-2104-4	4	1.98	1.49	1.18	1.00
65F1298	699-2104-6	6	2.86	2.14	1.72	1.44
65F1299	699-2104-8	8	3.84	2.89	2.30	1.93
65F1300	699-2104-10	10	4.56	3.42	2.74	2.29
65F1301	699-2104-12	12	6.10	4.58	3.66	3.06
65F1302	699-2104-16	16	7.53	5.65	4.52	3.76
65F1303	699-2104-18	18	8.26	6.20	4.96	4.14
65F1304	699-2104-20	20	8.98	6.73	5.39	4.50

699-2120 SOLDER PIN FOR PRINTED CIRCUIT CONNECTION



A	B	C	D	E
7/16"	3/16"	.091"	.040"	6-32 NCx1/4"

Stk. No.	Type	Terminals	1-9	10-24	25-49	50-99
65F1305	699-2120-4	4	2.39	1.80	1.44	1.20
65F1306	699-2120-6	6	3.50	2.62	2.10	1.76
65F1307	699-2120-8	8	4.66	3.50	2.79	2.33
65F1308	699-2120-10	10	5.55	4.17	3.33	2.78
65F1309	699-2120-12	12	7.29	5.47	4.38	3.64
65F1310	699-2120-16	16	9.10	6.82	5.45	4.55
65F1311	699-2120-18	18	10.04	7.53	6.02	5.03
65F1312	699-2120-20	20	10.96	8.22	6.57	5.48

SEE PAGE 432 FOR SPECIFICATIONS

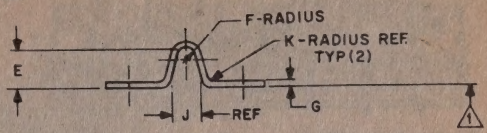
Jumpers & Solder Terminal Lugs

Kulka

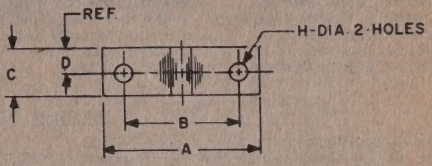
Kulka offers a variety of accessory hardware that simplifies wiring and assures correct, positive connections. This optional hardware fits the majority of Kulka's terminal board line.

J TYPE JUMPERS

Stk. No.	Type	Each Net
65F1313	602J	.03
65F1314	601J	.02
65F1315	600J	.02
65F1316	410J	.02

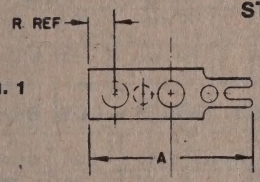


Type	A	B	C	D	E	F	G	H	J	K
602J	.93	.562	.37	.18	.24	.070	.015	.180	.17	.05
601J	.75	.437	.31	.15	.15	.062	.015	.156	.14	.05
600J	.65	.375	.25	.12	.13	.040	.015	.145	.09	.05
410J	.41	.250	.18	.09	.10	.035	.010	.091	.08	.01



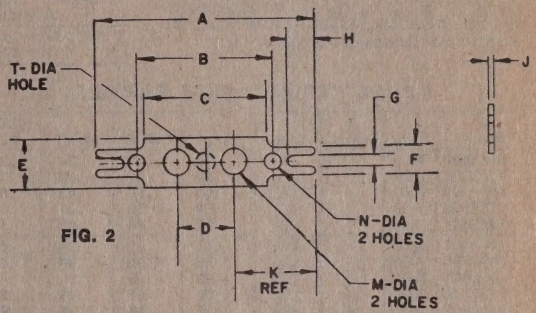
ST & ¾ ST SOLDER TERMINALS

FIG. 1



Stk. No.	Type	Fig.	Each Net
65F1317	600ST	1	.03
65F1318	600-¾ ST	2	.03
65F1319	601ST	1	.06
65F1320	601-¾ ST	2	.06
65F1321	602ST	1	.06
65F1322	602-¾ ST	2	.06

FIG. 2



CATALOG NO.	Fig.	A	B	C	D	E	F	G	H	J	K	M	N	R	T	ALSO USED ON
600ST	1	1.21	.75	.68	.312	.28	.15	.06	.15	.032	.45	.144	.093	—	—	600A, 620A, 670, 670A
600-3/4ST	2	.92	—	—										.15		
601ST	1	1.57	.93	.84	.421	.31	.21	.06	.21	.032	.57	.148	.125	—	—	601RZ, 671
601-3/4ST	2	1.17	—	—										.17		
602ST	1	1.87	1.09	.96										—		
602-3/4ST	2	1.37	—	—	.500	.40	.28	.09	.28	.036	.66	.177	.125	.18	—	622, 672

"Y" SOLDER TERMINAL LUGS

FIG. 3

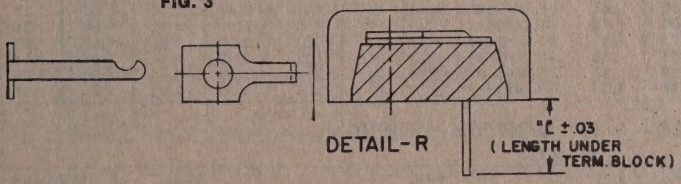
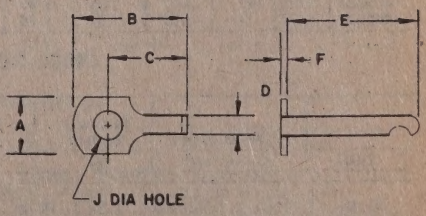


FIG. 4

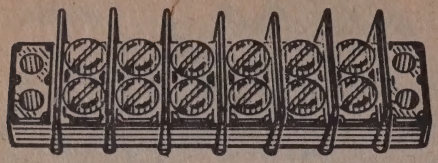


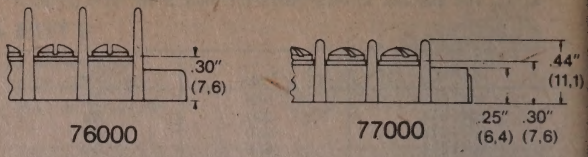
Stk. No.	Type	Fig.	Each Net
65F1323	599Z	4	.02
65F1324	600Y	4	.02
65F1325	699Z	3	.06
65F1326	601Y	3	.06
65F1327	602Y	3	.06

Type	Fig.	A	B	C	D	E	F	J	L (See Detail R)
559Z & 600Y	4	.28	.48	.33	.085	.59	.032	.144	599Z = .31, 600Y = .31
699Z & 601Y	3	.31	.62	.44	.099	.76	.032	.148	699Z = .42, 601Y = .42
602Y	3	.43	.75	.51	.123	.90	.040	.177	.49

BEAU Double Row Barrier Strips from Vernitro

REPLACE OLD STYLE FRAGILE PHENOLICS





Barriers bend without breaking. Resilient glass-filled thermoplastic reduces breakage in flexible barrier terminal strips.

Screw terminals won't pull out. Terminal plates are ultrasonically imbedded into the walls of the terminal blocks.

Solder joint fatigue eliminated. Barrier strips have the terminals welded in, both sides.

Contact tails enclosed for maximum circuit isolation. Because terminals are welded in, hole can be same size as contact tail.

Highest UL flame retardant rating. Self-extinguishing thermoplastic assigned 94V-O rating by U.L.

SERIES 76000 AND 77000 — 3/8" CENTERS

Insulator: Black thermoplastic, glass filled. UL flame retardant rating 94V-0. Recommended wire size: 14 AWG. Terminal screws: No. 6-32 x 1/4" binding head screws; steel, cadmium plated. Terminal Centers: 3/8" (9,5 mm). UL recognized for general industrial use at 150V rms and for commercial equipment at 250V rms.

FEATURES

	Construction	Withstand Voltage	U.L. Current Rating	C.S.A. Certified Rating	Size W x H In. (mm)
76000	High Barrier, Closed Back.	10500V rms	20 amps	300V @ 20A	7/8 x 5/8 (22 x 16)
77000	Low Barrier, Closed Back.	7500V rms	20 amps	150V @ 20A	7/8 x 7/16 (22 x 11.1)

76000 SERIES — HIGH BARRIER

Stk. No.	Type	Terms.	Lgth.	1-24	25-49	50-99	100-249
14F2600	76002	2	1.41"	.36	.29	.24	.20
14F2601	76004	4	2.16"	.48	.39	.32	.26
14F2602	76005	5	2.53"	.63	.50	.42	.34
14F2603	76006	6	2.91"	.73	.59	.49	.40
14F2604	76008	8	3.66"	.92	.74	.62	.50
14F2605	76010	10	4.41"	1.11	.89	.74	.60
14F2606	76012	12	5.16"	1.25	1.00	.84	.68
14F2607	76013	13	5.53"	1.38	1.10	.92	.75
14F2608	76014	14	5.91"	1.48	1.19	.99	.80
14F2609	76016	16	6.66"	1.67	1.34	1.12	.90
14F2610	76018	18	7.41"	1.84	1.47	1.23	1.00
14F2611	76020	20	8.16"	2.07	1.66	1.38	1.12
14F2612	76022	22	8.91"	2.19	1.76	1.47	1.19
14F2613	76024	24	9.66"	2.44	1.96	1.63	1.32
14F2614	76030	30	11.91"	3.02	2.41	2.02	1.63

77000 SERIES — LOW BARRIER

Stk. No.	Type	Terms.	Lgth.	1-24	25-49	50-99	100-249
14F2615	77002	2	1.41"	.36	.29	.24	.20
14F2616	77004	4	2.16"	.48	.39	.32	.26
14F2617	77005	5	2.53"	.63	.50	.42	.34
14F2618	77006	6	2.91"	.73	.59	.49	.40
14F2619	77008	8	3.66"	.92	.74	.62	.50
14F2620	77010	10	4.41"	1.11	.89	.74	.60
14F2621	77012	12	5.16"	1.25	1.00	.84	.68
14F2622	77013	13	5.53"	1.38	1.10	.92	.75
14F2623	77014	14	5.91"	1.48	1.19	.99	.80
14F2624	77016	16	6.66"	1.67	1.34	1.12	.90
14F2625	77018	18	7.41"	1.84	1.47	1.23	1.00
14F2626	77020	20	8.16"	2.07	1.66	1.38	1.12
14F2627	77022	22	8.91"	2.19	1.76	1.47	1.19
14F2628	77024	24	9.66"	2.44	1.96	1.63	1.32
14F2629	77030	30	11.91"	3.02	2.41	2.02	1.63

11

78000 SERIES — 7/16" CENTERS

Closed back construction. UL Current Rating: 20 amps. Insulator: Black thermoplastic, glass filled. UL flame retardant rating 94V-O. Width x Height: 1 1/8" x 35/64" (28.7 x 13.9 mm). Max. recommended wire size: 14 AWG. Terminal screws: No. 6-32 x 1/4" binding head screws; steel, cadmium plated. Terminal Centers: 7/16" (11.1 mm). CSA certified rating: 300V @ 20 amps. Withstand Voltage: 7500V rms.

FEATURES

	Construction	Withstand Voltage	Size (W" x H")	Max. Wire Size
78000	Closed Back	7500V rms	1 1/8 x 35/64	14 AWG

Stk. No.	Type	Terms.	Lgth.	1-24	25-49	50-99	100-249
14F2630	78002	2	1.63"	.38	.30	.25	.21
14F2631	78004	4	2.50"	.67	.54	.45	.36
14F2632	78005	5	2.94"	.75	.60	.50	.41
14F2633	78006	6	3.38"	.88	.70	.59	.48
14F2634	78008	8	4.25"	1.13	.90	.75	.61
14F2635	78010	10	5.13"	1.36	1.09	.91	.73
14F2636	78012	12	6.00"	1.63	1.31	1.09	.88
14F2637	78014	14	6.88"	1.90	1.52	1.27	1.03
14F2638	78015	15	7.31"	2.02	1.62	1.35	1.09
14F2639	78016	16	7.75"	2.10	1.68	1.41	1.14
14F2640	78018	18	9.06"	2.31	1.85	1.55	1.25
14F2641	78020	20	9.50"	2.52	2.02	1.69	1.36
14F2642	78022	22	10.38"	2.81	2.25	1.88	1.52
14F2643	78024	24	11.25"	3.03	2.43	2.03	1.64
14F2644	78026	26	12.13"	3.30	2.64	2.20	1.78
14F2645	78030	30	13.88"	3.65	2.92	2.44	1.97

22000 SERIES — 9/16" CENTERS — PHENOLIC

FEATURES

	Construction	Terminal Centers	U.L. Current Rating	Insulator Material	Wire Size (AWG)	Screw Size	C.S.A. Certified Rating	Withstand Voltage (rms)
22000	Closed Back	9/16"	30 amps	Phenolic	12	8-32	300V @30A	9000V

Stk. No.	Type	Terminals	1-24	25-49	50-99	100-249
14F2310	22002	2	.42	.34	.28	.23
14F2311	22003	3	.63	.50	.42	.34
14F2312	22004	4	.75	.60	.50	.41
14F2313	22005	5	.94	.75	.63	.51
14F2314	22006	6	1.09	.87	.73	.59
14F2315	22007	7	1.19	.95	.80	.64
14F2316	22008	8	1.29	1.04	.87	.70
14F2317	22009	9	1.54	1.23	1.03	.83
14F2318	22010	10	1.67	1.34	1.12	.90
14F2319	22011	11	1.82	1.45	1.21	.98
14F2320	22012	12	2.02	1.62	1.35	1.09
14F2321	22013	13	2.12	1.70	1.42	1.15
14F2322	22014	14	2.25	1.80	1.50	1.22
14F2323	22015	15	2.44	1.95	1.63	1.32
14F2324	22016	16	2.62	2.10	1.75	1.42
14F2325	22017	17	2.77	2.22	1.85	1.50
14F2326	22018	18	2.98	2.39	1.99	1.61

22300: FEED-THRU SOLDER TERMINALS

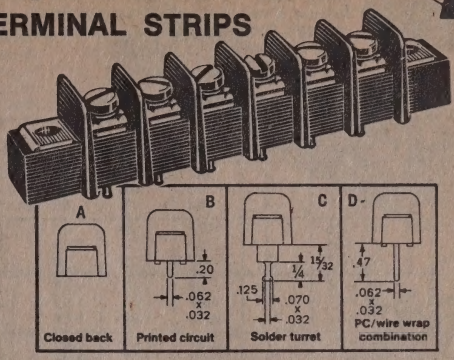
14F2327	22302	2	.65	.52	.44	.35
14F2328	22304	4	1.09	.87	.73	.59
14F2329	22306	6	1.57	1.25	1.05	.85
14F2330	22308	8	2.02	1.62	1.35	1.09
14F2331	22310	10	2.44	1.95	1.63	1.32

BEAU Single-row Terminal Strips from Vernitron

HIGH BARRIER RESILIENT TERMINAL STRIPS

- **Virtually Eliminate Breakage**
- **Single Row; ⅜" Centers**
- **20 Amps, 600 Volts**
- **Feed Thru and Closed Back**

Flexible barrier strips reduce breakage dramatically because they are made of highly resilient glass-filled thermoplastic materials. Because the barriers can actually bend without breaking, production line and in-field damage are virtually eliminated. Terminals are imbedded into the walls of the terminal block on four sides. This provides a pull-out strength over twice as great as competitive versions. It also eliminates solder joint fatigue from twisting the tail while torqueing the screws; resists fatigue under vibration conditions. Enclosed contact tails eliminates entrapment of foreign matter and reduce solder wicking. Base: ⅝" W. x $2\frac{1}{32}$" H. Terminals: high strength copper alloy, tin plated. 6-32 x ¼" binding head screw. Self rising wire clamps or quick connect tabs available by special order. UL recognized, CSA approved.



72100: CLOSED BACK — Fig. A

Stk. No.	Type	Terminals	1-24	25-49	50-99	100-249
14F2000	72102	2	.34	.28	.23	.19
14F2001	72103	3	.44	.35	.29	.24
14F2002	72104	4	.51	.41	.34	.28
14F2003	72105	5	.62	.50	.42	.34
14F2004	72106	6	.70	.56	.47	.38
14F2005	72107	7	.78	.63	.53	.43
14F2006	72108	8	.88	.71	.59	.48
14F2007	72109	9	.97	.78	.65	.53
14F2008	72110	10	1.07	.86	.72	.58
14F2009	72111	11	1.15	.92	.77	.62
14F2010	72112	12	1.24	.99	.83	.67
14F2011	72113	13	1.33	1.06	.89	.72
14F2012	72114	14	1.42	1.14	.95	.77
14F2013	72115	15	1.50	1.20	1.00	.81
14F2014	72116	16	1.60	1.28	1.07	.87
14F2015	72117	17	1.69	1.36	1.13	.92
14F2016	72118	18	1.78	1.43	1.19	.97
14F2028	72119	19	1.87	1.50	1.25	1.01
14F2029	72120	20	1.96	1.57	1.31	1.06
14F2030	72121	21	2.10	1.68	1.40	1.14
14F2031	72122	22	2.18	1.74	1.46	1.18
14F2032	72123	23	2.25	1.80	1.51	1.22
14F2033	72124	24	2.33	1.86	1.56	1.26

72700: PRINTED CIRCUIT/WIRE WRAP — Fig. D

14F2053	72702	2	.41	.33	.27	.20
14F2054	72703	3	.54	.43	.36	.29
14F2055	72704	4	.64	.52	.43	.35
14F2956	72705	5	.78	.63	.53	.43
14F2057	72706	6	.89	.72	.60	.49
14F2058	72707	7	1.01	.81	.68	.55
14F2059	72708	8	1.14	.92	.77	.62
14F2060	72709	9	1.26	1.01	.85	.68
14F2061	72710	10	1.40	1.12	.94	.76

72500: PRINTED CIRCUIT — Fig. B

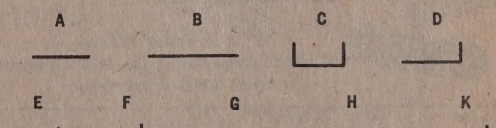
Stk. No.	Type	Terminals	1-24	25-49	50-99	100-249
14F2034	72502	2	.39	.32	.26	.22
14F2035	72503	3	.51	.41	.34	.28
14F2036	72504	4	.61	.49	.41	.33
14F2037	72505	5	.74	.60	.50	.40
14F2038	72506	6	.85	.68	.57	.46
14F2039	72507	7	.95	.76	.64	.52
14F2040	72508	8	1.08	.86	.72	.59
14F2041	72509	9	1.19	.96	.80	.65
14F2042	72510	10	1.32	1.06	.88	.71
14F2043	72511	11	1.42	1.14	.95	.77
14F2044	72512	12	1.53	1.23	1.03	.83
14F2045	72513	13	1.65	1.32	1.10	.89
14F2046	72514	14	1.76	1.41	1.18	.95
14F2047	72515	15	1.88	1.50	1.26	1.02
14F2048	72516	16	2.00	1.60	1.34	1.08
14F2049	72517	17	2.11	1.69	1.41	1.14
14F2050	72518	18	2.23	1.78	1.49	1.21
14F2051	72519	19	2.34	1.88	1.57	1.27
14F2052	72520	20	2.46	1.97	1.64	1.33

72200: INSULATED TURRET — Fig. C

Stk. No.	Type	Terminals	1-24	25-49	50-99	100-249
14F2017	72202	2	.41	.33	.28	.23
14F2018	72203	3	.54	.44	.37	.30
14F2019	72204	4	.65	.52	.44	.36
14F2020	72205	5	.80	.64	.54	.43
14F2021	72206	6	.91	.73	.61	.49
14F2022	72207	7	1.03	.82	.69	.56
14F2023	72208	8	1.16	.93	.78	.63
14F2024	72209	9	1.29	1.03	.86	.70
14F2025	72210	10	1.42	1.14	.95	.77
14F2026	72211	11	1.53	1.23	1.03	.83
14F2027	72212	12	1.66	1.33	1.11	.90

FAST-TAB TERMINALS

Stock No.	Type	Fig.	Description	1-24	25-49	50-99	100-249
14F2332	1210	B	Two-sided .187 Tab Flat	.06	.05	.04	.03
14F2333	1211	G	Two-sided .187 Tab 45°	.06	.05	.04	.03
14F2334	1212	C	Two-sided .187 Tab 90°	.06	.05	.04	.03
14F2335	1213	A	One-sided .187 Tab Flat	.05	.04	03	.03
14F2336	1214	E	One-sided .187 Tab 45°	.05	.04	.03	.03
14F2337	1215	F	One-sided .187 Tab 90°	.05	.04	.03	.03
14F2338	1216	H	Two-sided .187 Tab Flat/45°	.06	.05	.04	.03
14F2339	1217	D	Two-sided .187 Tab Flat/90°	.06	.05	.04	.03
14F2340	1218	K	Two-sided .187 Tab 45°/90°	.06	.05	.04	.03



SERIES 13000 — HIGH IMPACT GLASS-FILLED

UL current rating of 20 amps, CSA certified @ 20 amps. Width x Height: $\frac{47}{64}$" x $\frac{35}{64}$". Max. recommended wire size: 14 AWG. 6-32 x ¼" binding head screws — brass, nickel-plated. Closed back or feed-through construction. Withstand voltage 10500 rms.

13100: CLOSED BACK

Stk. No.	Type	Terminals	1-24	25-49	50-99	100-249
14F2091	13102	2	.52	.42	.35	.28
14F2092	13103	3	.69	.56	.47	.38
14F2093	13104	4	.88	.70	.59	.48
14F2094	13105	5	1.05	.84	.70	.57
14F2095	13106	6	1.23	.98	.82	.67
14F2096	13107	7	1.40	1.12	.94	.76
14F2097	13108	8	1.58	1.27	1.06	.86
14F2098	13109	9	1.76	1.41	1.18	.95
14F2099	13110	10	1.94	1.55	1.29	1.05
14F2100	13111	11	2.11	1.69	1.41	1.14
14F2101	13112	12	2.29	1.83	1.53	1.24

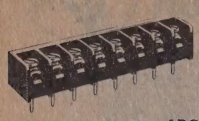
13500: PRINTED CIRCUIT DIRECT SOLDER FEED THRU

Stk. No.	Type	Terminals	1-24	25-49	50-99	100-249
14F2111	13502	2	.74	.59	.50	.40
14F2112	13503	3	1.02	.82	.69	.56
14F2113	13504	4	1.31	1.05	.88	.71
14F2114	13505	5	1.60	1.28	1.07	.86
14F2115	13506	6	1.89	1.51	1.26	1.02
14F2116	13507	7	2.17	1.74	1.45	1.17
14F2117	13508	8	2.46	1.97	1.65	1.33
14F2118	13509	9	2.75	2.20	1.84	1.49
14F2119	13510	10	3.04	2.43	2.03	1.64

Large selection of Feed-Thru, Over-The-Edge, and Angle-Tab variations available . . . also jumpers and straddle plates.

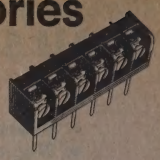
RDI
Reed Devices

Barrier Terminal Blocks & Accessories



High barriers surround each connection on three sides for maximum insulation. Screws feature wire-clamping plates; eliminates crimp-on lugs. Break-resistant U.L. grade polypropylene block.

U.L. and CSA rated 5A., 150V. for #3 series; 15A., 600V. for #6 series; 20A., 600V. for #8 series; 10A., 300V. for #4 series. Front-to-back dim: 0.6" for #4 0.7 for #6 series 0.8" for #8 series. P.C. pins use #50 Drill for #3, #4, #6 and 8 series.



6PCV 3/8" c-c Vertical P.C. pin.

Stock Number	RDI Type	No. Term	1-9	10-24	25-49	50-99
20F6207	6PCV-02	2	.42	.38	.34	.30
29F2608	6PCV-03	3	.63	.57	.51	.45
29F2609	6PCV-04	4	.84	.76	.68	.59
29F2610	6PCV-05	5	1.05	.95	.84	.74
29F2611	6PCV-06	6	1.26	1.14	1.01	.89
57F3901	6PCV-07	7	1.47	1.33	1.18	1.03
29F2612	6PCV-08	8	1.68	1.52	1.35	1.18
29F2613	6PCV-09	9	1.89	1.71	1.52	1.33
29F2614	6PCV-10	10	2.10	1.89	1.68	1.47
57F3902	6PCV-11	11	2.31	2.08	1.85	1.62
29F2615	6PCV-12	12	2.52	2.27	2.02	1.77
57F3903	6PCV-13	13	2.73	2.46	2.19	1.92
29F2616	6PCV-14	14	2.94	2.65	2.36	2.06
57F3904	6PCV-15	15	3.15	2.84	2.52	2.21
29F2617	6PCV-16	16	3.36	3.03	2.69	2.36
57F3905	6PCV-17	17	3.57	3.22	2.86	2.50
29F2618	6PCV-18	18	3.78	3.41	3.03	2.65
57F3906	6PCV-19	19	3.99	3.60	3.20	2.80
57F3907	6PCV-20	20	4.20	3.78	3.36	2.94
57F3908	6PCV-21	21	4.41	3.97	3.53	3.09
29F2619	6PCV-22	22	4.62	4.16	3.70	3.24
57F3909	6PCV-23	23	4.83	4.35	3.87	3.39
29F2620	6PCV-24	24	5.04	4.54	4.04	3.53
57F3910	6PCV-25	25	5.25	4.73	4.20	3.68

6PCR 3/8" c-c Right Angle P.C. pin.

Stock Number	RDI Type	No. Term	1-9	10-24	25-49	50-99
57F3914	6PCR-02	2	.48	.44	.39	.34
29F2621	6PCR-03	3	.72	.65	.58	.51
29F2622	6PCR-04	4	.96	.87	.77	.68
29F2623	6PCR-05	5	1.20	1.08	.96	.84
29F2624	6PCR-06	6	1.44	1.30	1.16	1.01
57F3915	6PCR-07	7	1.68	1.52	1.35	1.18
29F2625	6PCR-08	8	1.92	1.73	1.54	1.35
57F3916	6PCR-09	9	2.16	1.95	1.73	1.52
29F2626	6PCR-10	10	2.40	2.16	1.92	1.68
57F3917	6PCR-11	11	2.64	2.38	2.12	1.85
57F3918	6PCR-12	12	2.88	2.60	2.31	2.02
57F3919	6PCR-13	13	3.12	2.81	2.50	2.19
57F3920	6PCR-14	14	3.36	3.03	2.69	2.36
57F3921	6PCR-15	15	3.60	3.24	2.88	2.52
57F3922	6PCR-16	16	3.84	3.46	3.08	2.69
57F3923	6PCR-17	17	4.08	3.68	3.27	2.86
57F3924	6PCR-18	18	4.32	3.89	3.46	3.03
57F3925	6PCR-19	19	4.56	4.11	3.65	3.20
57F3926	6PCR-20	20	4.80	4.32	3.84	3.36
57F3927	6PCR-21	21	5.04	4.54	4.04	3.53
57F3928	6PCR-22	22	5.28	4.76	4.23	3.70
57F3929	6PCR-23	23	5.52	4.97	4.42	3.87
57F3930	6PCR-24	24	5.76	5.19	4.61	4.04
57F3931	6PCR-25	25	6.00	5.40	4.80	4.20

8PCV 7/16" c-c Vertical P.C. pin.

Stock Number	RDI Type	No. Term	1-9	10-24	25-49	50-99
57F3959	8PCV-02	2	.49	.45	.40	.35
29F2633	8PCV-03	3	.74	.67	.59	.52
29F2634	8PCV-04	4	.98	.89	.79	.69
29F2635	8PCV-05	5	1.23	1.11	.98	.86
29F2636	8PCV-06	6	1.47	1.33	1.18	1.03
57F3960	8PCV-07	7	1.72	1.55	1.38	1.20
57F3961	8PCV-08	8	1.96	1.77	1.57	1.38
57F3962	8PCV-09	9	2.21	1.99	1.77	1.55
57F3963	8PCV-10	10	2.45	2.21	1.96	1.72
57F3964	8PCV-11	11	2.70	2.43	2.16	1.89
57F3965	8PCV-12	12	2.94	2.65	2.36	2.06
57F3966	8PCV-13	13	3.19	2.87	2.55	2.23
57F3967	8PCV-14	14	3.43	3.09	2.75	2.41
57F3968	8PCV-15	15	3.68	3.31	2.94	2.58
57F3969	8PCV-16	16	3.92	3.53	3.14	2.75

8PCR 7/16" c-c Right Angle P.C. pin.

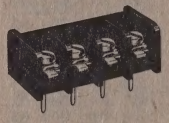
Stock Number	RDI Type	No. Term	1-9	10-24	25-49	50-99
57F3935	8PCR-02	2	.54	.49	.44	.38
57F3936	8PCR-03	3	.81	.73	.65	.57
57F3937	8PCR-04	4	1.08	.98	.87	.76
57F3938	8PCR-05	5	1.35	1.22	1.08	.95
57F3939	8PCR-06	6	1.62	1.46	1.30	1.14
57F3940	8PCR-07	7	1.89	1.71	1.52	1.33
57F3941	8PCR-08	8	2.16	1.95	1.73	1.52
57F3942	8PCR-09	9	2.43	2.19	1.95	1.71
57F3943	8PCR-10	10	2.70	2.43	2.16	1.89
57F3944	8PCR-11	11	2.97	2.68	2.38	2.08
57F3945	8PCR-12	12	3.24	2.92	2.60	2.27
57F3946	8PCR-13	13	3.51	3.16	2.81	2.46
57F3947	8PCR-14	14	3.78	3.41	3.03	2.65
57F3948	8PCR-15	15	4.05	3.65	3.24	2.84
57F3949	8PCR-16	16	4.32	3.89	3.46	3.03

SUBMINIATURE

- ¼" c-c, #3-48 Screws
- 5 Amps 300 Volts 2500V Dielectric
- 18-22 AWG Wire Range

Stock No.	RDI Type	Term. No.	1-9	10-24	25-49	50-99
29F316	3PCV-04	4	1.14	1.03	.92	.80
29F317	3PCV-05	5	1.43	1.29	1.14	1.00
29F318	3PCV-06	6	1.71	1.54	1.37	1.20
29F319	3PCV-07	7	2.00	1.80	1.60	1.40
29F320	3PCV-08	8	2.28	2.06	1.83	1.60
29F321	3PCV-09	9	2.57	2.31	2.06	1.80
29F322	3PCV-10	10	2.85	2.57	2.28	2.00
29F323	3PCV-11	11	3.14	2.83	2.51	2.20

SPACE SAVER SIZE



Same features as above but miniature size P.C. pins on .325" centers; #4-40 screws handle up to 4 each #18 AWG or 2 each #14 AWG wires.

4PCV

Stock Number	RDI Type	No. Term	1-9	10-24	25-49	50-99
29F2600	4PCV-04	4	.96	.87	.77	.68
29F2601	4PCV-05	5	1.20	1.08	.96	.84
29F2602	4PCV-06	6	1.44	1.30	1.16	1.01
57F3900	4PCV-07	7	1.68	1.52	1.35	1.18
29F2603	4PCV-08	8	1.92	1.73	1.54	1.35
29F2604	4PCV-09	9	2.16	1.95	1.73	1.52
29F2605	4PCV-10	10	2.40	2.16	1.92	1.68
29F2606	4PCV-11	11	2.64	2.38	2.12	1.85

OTHER RDI TERMINAL STYLES

Solder Turret

Solderless Wrap

Quick-connect

Surface Mount

JUMPERS, 2-Position

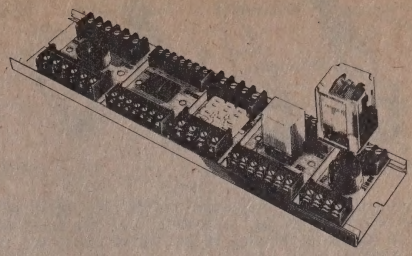
Stk. No.	RDI Type	For Series	10-49	50-99	100-Up
57F3982	J3-2	#3	.20	.18	.16
57F3979	J4-2	#4			
57F3980	J6-2	#6			
57F3981	J8-2	#8			

11

RDI / Reed Devices Inc.

SNAPTRACK™ MOUNTING SYSTEM

The **SNAPTRACK™** mounting system provides a low cost convenient method for installing plug-in relays, timers and tubes in control equipment. Socket assemblies snap into position along continuous sections of SNAPTRACK, an extruded PVC, non-conductive mounting track, 3½₂″ wide and new 2⅞″ wide. The track may be installed with rivets or screws. Socket assemblies consist of a socket mounted to a G-10 epoxy glass P.C. board with choice of specially designed U.L. grade P.P. barrier type screw terminal blocks or ¼″ quick-connect tabs. The assembly is then wave soldered for circuit reliability. Terminal points are clearly numbered with epoxy ink. Screws are in the raised position and feature captive wire clamps which eliminate need for bending of, or attaching hook or ring terminals to wires. Wired-in 6V, 12V, 24V LED or 120V, 240V neon lamp to indicate power at coil terminals available as option. Add -6 for 6V, -12 for 12V, -1 for 120V to Cat. No.



STANDARD SIZE—#8-32 Terminal Screws—For TK2 SNAPTRACK™

Stk. No.	Cat. No.	Fig.	Description	Length (Inch)	Prices, Each 1-9	10-24	25-49	50-99
29F1200	8BR	A	8 pin Octal	2	3.40	3.10	2.75	2.40
29F1201	8BR1	A	8 pin Octal w/Lamp	2	4.65	4.20	3.75	3.30
29F1202	11BR	B	11 pin Round	3	5.10	4.60	4.10	3.60
29F1203	11BR1	B	11 pin Round w/Lamp	3	6.35	5.75	5.10	4.45
29F1204	8BS	C	8 pin KUP style	2	4.80	4.35	3.85	3.40
29F1205	11BS	D	11 pin KUP style	3	5.70	5.15	4.60	4.00
29F1206	11BS1	D	11 pin KUP Type w/Lamp	3	6.95	6.30	5.60	4.90

STANDARD SIZE—DBL ¼″ Quick Connect—For TK2 SNAPTRACK™

29F1209	8QR	E	8 pin Octal	2	3.50	3.15	2.80	2.45
29F1210	11QR	E	11 pin Round	3	5.15	4.65	4.15	3.65
29F268	11QS	D	11 pin KUP style	3	5.70	5.15	4.60	4.00

MINIATURE SIZE—#4-40 Screws—For TK2 SNAPTRACK™

29F1273	208BR	A	8 pin Octal	2	3.60	3.25	2.90	2.55
29F271	208BR1	A	8 pin Octal w/Lamp	2	4.85	4.40	3.90	3.40
29F1274	211BR	F	11 pin Round	2⅛	5.00	4.50	4.00	3.50
29F1275	211BR1	F	11 pin Round w/Lamp	2⅛	6.25	5.65	5.00	4.40
29F1272	218BR	G	8 pin Octal—Slim Width	1.5	3.50	3.15	2.80	2.45
29F272	218BR1	G	8 pin Octal—Slim w/Lamp	1.5	4.75	4.30	3.80	3.35
29F274	204BS	H	Miniature Style—4 PDT	2.5	6.90	6.25	5.55	4.85
29F275	204BS1	H	Miniature Style w/Lamp	2.5	8.15	7.35	6.55	5.75
29F276	206BS	H	Miniature—6 PDT	3¾	10.45	9.45	8.40	7.35
29F1276	211BS	D	11 pin KUP style	2⅛	5.50	4.95	4.40	3.85
29F1277	211BS1	D	11 pin KUP w/Lamp	2⅛	6.75	6.10	5.40	4.75
29F1207	214BS	J	KHP style	2.5	6.10	5.50	4.90	4.30
29F1208	214BS1	J	KHP w/Lamp	2.5	7.35	6.65	5.90	5.15

COMPACT SIZE—#4-40 Terminal Screws—For 2TK2 SNAPTRACK™

29F281	318BR	G	8 pin Round	1.5	3.65	3.30	2.95	2.60
29F282	311BR	F	11 pin Round	2⅛	5.10	4.60	4.10	3.60
29F283	312BS	J	KHP Style 2 N.O. 2 SPDT	2⅛	5.80	5.25	4.65	4.10
29F284	314BS	J	KHP Style, 4 Pole	2.5	6.10	5.50	4.90	4.30

SNAPTRACK™ MOUNTING TRACK—Fig. L

For 3″ Wide Sockets		For 2¾″ Wide Sockets		Lgth.	Price
Stock No.	Type No.	Stock No.	Type No.	In.	Net, Each
29F1211	TK2-2	29F285	2TK2-2	2	.30
29F1212	TK2-3	29F286	2TK2-3	3	.35
29F1213	TK2-6	29F287	2TK2-6	6	.50
29F1214	TK2-12	29F288	2TK2-12	12	.90
29F1215	TK2-24	29F289	2TK2-24	24	1.60
29F1216	TK2-48	29F290	2TK2-48	48	3.00

P.C. BOARD EDGE CONNECTOR ASSEMBLY/KLUGE BOARD—Fig. M

Stk. No.	Cat. No.	No. of Pins Out	Edge Connector Style	Prices, Each 1-9	10-24	25-49	50-99
29F291	22PCB	22	Elco 6022	15.00	13.50	12.00	10.50
29F292	22PC	22	Amphenol 143	16.45	14.85	13.20	11.55
29F293	44PCB	44	Elco 6022	20.50	18.45	16.40	14.35
29F294	KB22	22	Kluge Board	17.35	15.65	13.90	12.15

MOLDED STYLE—for mounting single relays—Fig. P

Stk. No.	Cat. No.	Fig.	Description	Length (Inch)	Prices, Each 1-9	10-24	25-49	50-99
29F295	SM8-C	P	8 pin Octal-Wire Clamps	1⅝″	2.85	2.60	2.30	2.00
29F296	SM11-C	P	11 pin Round-Wire Clamps	2¹¹⁄₁₆″	4.80	4.35	3.85	3.40

RELAY AND TIMER BAILS

Prevents relays and timers from vibrating out of the sockets.

Stock No.	Type No.	Bail Fits	Pkg. of 10
29F1217	RB1	General Purpose Relays	6.00
29F297	RB4	Miniature Relays	1.50
29F1218	TB1	Timers	7.00

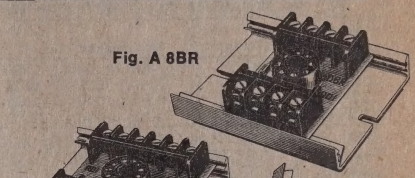


Fig. A 8BR

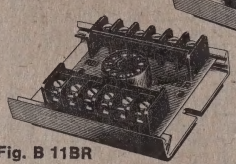


Fig. B 11BR

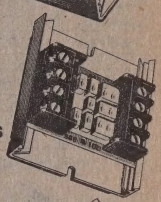


Fig. C 8BS

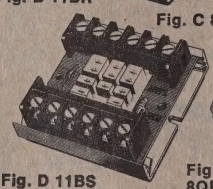


Fig. D 11BS

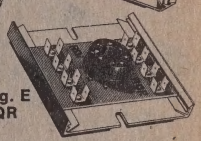


Fig. E 8QR

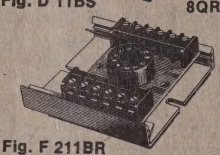


Fig. F 211BR

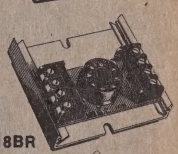


Fig. G 218BR

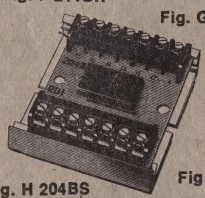


Fig. H 204BS

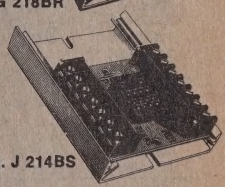


Fig. J 214BS

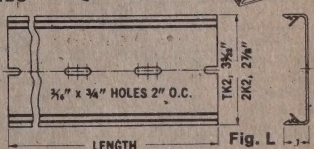


Fig. L

Solve single and two card termination problems. Converts 22 pin card guided edge connector to screw terminal wiring. Also available is optional 22-pin pcb "Kluge" board for prototyping circuits. Holes drilled for DIP devices. Terminal size: 5″ W. x 1¼″ H. top of terminal block. PCB size*: 4.5″ W. x 5″ H. max. suggested. (Guide depth 2½″.)

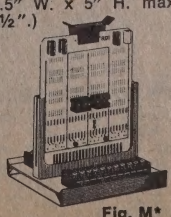


Fig. M*

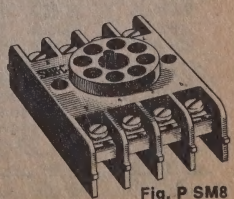


Fig. P SM8

Audio Connectors

A B C D E F G H I J K

Exact replacement plugs and receptacles for most foreign built tape recorders, radios, computers, and test equipment. Designed for all low level circuitry. Nickel plated barrel with plastic "snap-on" shells.

MALE PLUGS

FIG. A—STRAIGHT CORD WITH 30° LOCK RING PIN

Stock No.	Type	Description	1-9	10-24	25-49	50-99
22F454	05CL3M	3 Pins at 180°	2.52	1.89	1.73	1.58
22F455	05CL5M	5 Pins at 180°	2.72	2.04	1.87	1.70
22F456	09CL4M	4 Pins at 210°	2.64	1.98	1.82	1.65
22F457	12CL5M	5 Pins at 240°	2.72	2.04	1.87	1.70

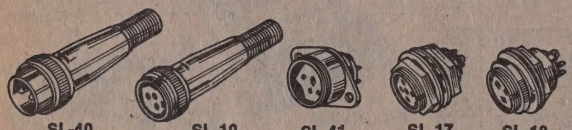
FIG. B—STRAIGHT CORD PLUG WITH SHIELDED BARREL

22F458	05GM3M	3 Pins at 180°	1.48	1.11	1.02	.93
22F459	05GM5M	5 Pins at 180°	1.64	1.23	1.13	1.03
22F465	09GM4M	4 Pins at 210°	1.56	1.17	1.07	.98
22F466	12GM5M	5 Pins at 240°	1.64	1.23	1.13	1.03

FIG. C—STRAIGHT CORD PLUG WITH EXTENDED BARREL

22F467	05BL3M	3 Pins at 180°	2.08	1.56	1.43	1.30
22F468	05BL5M	5 Pins at 180°	2.24	1.68	1.54	1.40
22F469	12BL5M	5 Pins at 240°	2.24	1.68	1.54	1.40

SLIMLINE MINIATURE AUDIO CONNECTORS



SL-40 SL-10 SL-41 SL-17 SL-18

Features interchangeable inserts, allows plug or receptacle to be male or female. Housing provides shielding for internal circuitry. Polarized inserts. Accepts cable up to 9/32" dia. Insert pins are silver plated brass, molded into inserts.

CORD PLUGS

Stock No.	Type	Description	Net.
23F5450	SL-40-2M	2 pin male w/coupler ring	1.48
23F5451	SL-40-3M	3 pin male w/coupler ring	1.52
23F5452	SL-40-4M	4 pin male w/coupler ring	1.64
23F5453	SL-40-2F	2 cont. female w/coupler ring	1.52
23F5454	SL-40-3F	3 cont. female w/coupler ring	1.60
23F5455	SL-40-4F	4 cont. female w/coupler ring	1.68
23F5456	SL-41-2M	2 pin male w/o coupler ring	1.48
23F5457	SL-41-3M	3 pin male w/o coupler ring	1.52
23F5458	SL-41-4M	4 pin male w/o coupler ring	1.64
23F5459	SL-41-2F	2 cont. female w/o coupler ring	1.52
23F5460	SL-41-3F	3 cont. female w/o coupler ring	1.60
23F5461	SL-41-4F	4 cont. female w/o coupler ring	1.68

RECEPTACLES

Stock No.	Type	Description	Net.
23F5462	SL-10-2M	2 pin male flange mount	.96
23F5463	SL-10-3M	3 pin male flange mount	1.00
23F5464	SL-10-4M	4 pin male flange mount	1.08
23F5465	SL-10-2F	2 cont. female flange mount	1.00
23F5466	SL-10-3F	3 cont. female flange mount	1.04
23F5467	SL-10-4F	4 cont. female flange mount	1.16
23F5468	SL-17-2M	2 pin male rear/panel mt.	1.36
23F5469	SL-17-3M	3 pin male rear/panel mt.	1.40
23F5470	SL-17-4M	4 pin male rear/panel mt.	1.52
23F5471	SL-17-2F	2 cont. female rear/panel mt.	1.40
23F5472	SL-17-3F	3 cont. female rear/panel mt.	1.44
23F5473	SL-17-4F	4 cont. female rear/panel mt.	1.56
23F5474	SL-18-2M	2 pin male front/panel mt.	1.36
23F5475	SL-18-3M	3 pin male front/panel mt.	1.40
23F5476	SL-18-4M	4 pin male front/panel mt.	1.52
23F5477	SL-18-2F	2 cont. female fr./panel mt.	1.40
23F5478	SL-18-3F	3 cont. female fr./panel mt.	1.44
23F5479	SL-18-4F	4 cont. female fr./panel mt.	1.56

EUROPEAN A.C. RECEPTACLE

Meets I.E.C. standards. 3 pins. .078" x .157"; rated at 250V, 6 AMP. U.L. and C.S.A. approved. Mounts in a rectangular 1 1/16" x 3 1/4" hole and two 1/8" dia. holes.

Stock No.	Type	1-9	10-24	25-49	50-99
26F719	EAC-301	1.20	.90	.83	.75

Molded phenolic in all inserts, and silver plated contact pins provide low mechanical interference, reduce noise and lower contact resistance. Lock-ring coupling to prevent shock. Exclusive automatic grounding and polarization provision.

MALE PLUGS

FIG. D—STRAIGHT CORD PLUG WITH SNAP-LOCK PLASTIC SHELL

Stock No.	Type	Description	1-9	10-24	25-49	50-99
22F478	05LK3M	3 Pins at 180°	1.04	.78	.72	.65
22F481	12LK5M	5 Pins at 240°	1.24	.93	.86	.78

FIG. E—STRAIGHT CORD PLUG WITH SHORT PLASTIC SHELLS

22F536	12QK5M	5 Pins at 240°	1.12	.84	.77	.70

FEMALE RECEPTACLES

FIG. F—RECEPTACLES FOR LOCKING PLUGS

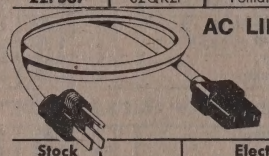
22F537	57HA3F	3 Cont. at 180°	1.20	.90	.83	.75
22F543	60HA4F	4 Cont. at 210°	1.28	.96	.88	.80
22F544	61HA5F	5 Cont. at 240°	1.40	1.05	.97	.88

FIG. G—FLANGE MOUNT RECEPTACLE FOR SHIELDED BARREL PLUGS

Stock No.	Type	Description	1-9	10-24	25-49	50-99
22F545	57GA3F	3 Cont. at 180°	.92	.69	.64	.58
22F546	57GB5F	5 Cont. at 180°	1.12	.84	.77	.70
22F547	60GA4F	4 Cont. at 210°	1.00	.75	.69	.63
22F548	61GA5F	5 Cont. at 240°	1.12	.84	.77	.70

CONTROL AND SWITCHING PLUGS WITH SNAP-ON SHELLS

22F566	01QK2M	Male Fig. I	.56	.42	.39	.35
22F567	02QK2F	Female Fig. H	.64	.48	.44	.40



AC LINE CORD

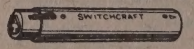
#18 AWG cond., UL type SVT cordage. Lgth. is 7½' with heavy black vinyl jacket. Male plug is 3 pin type. U.L. and C.S.A. recognized. Female connector is designed to meet I.E.C. req.

Stock No.	Type	Electrical Specifications	1-9	10-24	25-49	50-99
26F720	P-2392	3-cond. 7 amps DC 7 amps AC, 125V.	3.28	2.46	2.26	2.05

AC RECEPTACLES

3 brass contact pins are silver plated, chromate dipped. AC3 and LAC3 (ungrounded) and AC3G and LAC3G (grounded) allow movement of pins No. 1 and No. 3 in the shell to take up any off centering of mating plug contacts. Center pin No. 2 is stationary and serves as a guide. Receptacles AC3 and AC3G have .122" dia. pins. LAC3GD, same as LA3G, except center pin is 1/8" longer. LAC3, LAC3G and LAC3GD have .124" dia. pins. U.L. approved. LAC3GD is also C.S.A. approved. Rating: 115V. 7 amps.

Stock No.	Type	1-9	10-24	25-49	50-99
26F722	LAC3	.84	.63	.58	.53
26F723	LAC3G	.80	.60	.55	.50
26F724	LAC3GD	.84	.63	.58	.53



AUDIO CONNECTOR ADAPTER

Male insert at one end, female insert other end. For use as a transformer, attenuator circuit, etc. Length 4".

Stock No.	Type	Insert Pins/ Contacts	1-9	10-24	25-49	50-99
26F721	S3FM	3	5.04	3.78	3.47	3.15

RF JACKS AND PLUGS

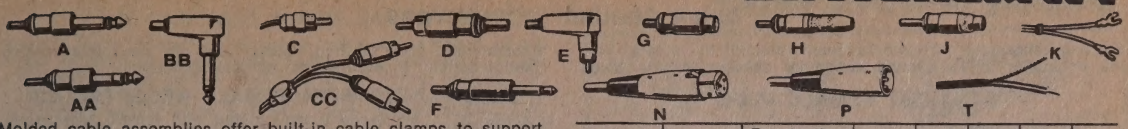
3505F mnts. front of panel in 3/8" hole. Fits panel up to 1 1/64" thick. **3507** has 1 3/32" O.D. shielded. Screw-on handle with cable clamp.

Stock No.	Type	Fig.	Description	1-9	10-24	25-49	50-99
26F717	3505F	J	Chassis jack	.68	.51	.47	.43
26F718	3507	K	Plug	.88	.66	.61	.55

11

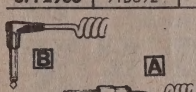
Audio Cable Assemblies

SWITCHCRAFT® INC.



Molded cable assemblies offer built-in cable clamps to support cable. Cable is chrome grey with matching plastic handles. Fig. N, Q-G 3-Pin Audio Connector — Female. Fig. P, Q-G 3-Pin Audio Connector. **25WN25, 25WT25, 25WN82, 25WT82** have molded brown handles and low visibility rip cord cables.

Stock No.	Type	Terminations End No. 1 Fig.	Terminations End No. 2 Fig.	Length	1-9	10-24	25-49	50-99
STRAIGHT 2-CONDUCTOR PHONE PLUG TO VARIOUS CONNECTIONS								
37F2905	05AC05	A	A	18″	**1.84**	**1.38**	**1.27**	**1.15**
37F2906	05AD05	A	A	24″	**2.08**	**1.56**	**1.43**	**1.30**
37F2907	05AK05	A	A	6′	**3.08**	**2.31**	**2.12**	**1.93**
37F2908	05AN05	A	A	10′	**4.24**	**3.18**	**2.92**	**2.65**
37F2909	05AU05	A	A	25′	**5.60**	**4.20**	**3.85**	**3.50**
37F2910	05AK15	A	BB	6′	**3.08**	**2.31**	**2.12**	**1.93**
37F2911	05AK25	A	C	6′	**2.32**	**1.74**	**1.60**	**1.45**
37F2912	05AN25	A	C	10′	**3.28**	**2.46**	**2.26**	**2.05**
37F2913	05AK80	A	H	6′	**3.08**	**2.31**	**2.12**	**1.93**
37F2914	05AN80	A	H	10′	**4.24**	**3.18**	**2.92**	**2.65**
37F2915	05AR80	A	H	15′	**4.80**	**3.60**	**3.30**	**3.00**
37F2916	05AU80	A	H	25′	**5.60**	**4.20**	**3.85**	**3.50**
37F2917	05AK84	A	T	6′	**2.08**	**1.56**	**1.43**	**1.30**
STRAIGHT 3-CONDUCTOR PHONE PLUG TO VARIOUS CONNECTIONS								
Stereo Cable Assembly for use with stereo tape recorders using 3-conductor dual microphone inputs— Norelco, Webcor, Revere, Wollensak. (*) Parallel unshielded cable.								
37F2918	10BK10	AA	AA	6′	**6.36**	**4.77**	**4.37**	**3.98**
37F2919	10BN10	AA	AA	10′	**8.00**	**6.00**	**5.50**	**5.00**
37F2920	10BN81	AA	H	10′	**8.00**	**6.00**	**5.50**	**5.00**
37F2921	10BU81	AA	H	25′	**11.72**	**8.79**	**8.06**	**7.33**
37F2922	10FK25	AA	CC	6′	**5.28**	**3.96**	**3.63**	**3.30**
STRAIGHT PHONO PLUG TO VARIOUS CONNECTIONS								
37F2923	25AC30	C	E	18″	**1.36**	**1.02**	**.94**	**.85**
37F2924	25AK30	C	E	6′	**1.88**	**1.41**	**1.29**	**1.18**
37F2925	25AK80	C	H	6′	**2.56**	**1.92**	**1.76**	**1.60**
37F2926	25AC82	C	G	18″	**1.48**	**1.11**	**1.02**	**.93**
37F2927	25AF82	C	G	36″	**1.68**	**1.26**	**1.16**	**1.05**
37F2928	25AH82	C	G	4′	**2.04**	**1.53**	**1.40**	**1.28**
37F2929	25AK82	C	G	6′	**2.24**	**1.68**	**1.54**	**1.40**
37F2930	25AN82	C	G	10′	**2.64**	**1.98**	**1.82**	**1.65**
37F2931	25AR82	C	G	15′	**3.24**	**2.43**	**2.23**	**2.03**
37F2932	25AT82	C	G	20′	**3.92**	**2.94**	**2.70**	**2.45**
37F2933	25AU82	C	G	25′	**4.68**	**3.51**	**3.22**	**2.93**
37F2934	25WN82	C	G	10′	**1.92**	**1.44**	**1.32**	**1.20**
37F2935	25WT82	C	G	20′	**2.12**	**1.59**	**1.46**	**1.33**
37F2936	25AC84	C	T	18″	**.96**	**.72**	**.66**	**.60**
37F2937	25AF84	C	T	36″	**1.16**	**.87**	**.80**	**.73**
37F2938	25AH84	C	T	4′	**1.16**	**.87**	**.80**	**.73**
37F2939	25AK84	C	T	6′	**1.44**	**1.08**	**.99**	**.90**
37F2940	25AN84	C	T	10′	**2.08**	**1.56**	**1.43**	**1.30**
37F2941	25WN84	C	T	10′	**1.36**	**1.02**	**.94**	**.85**
37F2942	25WT84	C	T	20′	**1.84**	**1.38**	**1.27**	**1.15**
37F2943	25CN85*	C	K	10′	**1.84**	**1.38**	**1.27**	**1.15**
37F2944	25CK86*	C	L	6′	**2.28**	**1.71**	**1.57**	**1.43**
Special Stereo Cables. Two shielded insulated cables inside a common grey plastic jacket. Provides two isolated channels for all stereo applications. Phono plugs color coded.								
37F2945	25FF25	CC	CC	36″	**4.28**	**3.21**	**2.94**	**2.68**
37F2946	25FK25	CC	CC	6′	**4.92**	**3.69**	**3.38**	**3.08**
37F2947	25FN25	CC	CC	10′	**5.92**	**4.44**	**4.07**	**3.70**
37F2948	25FF82	CC	G	36″	**3.88**	**2.91**	**2.67**	**2.43**
37F2949	25FK82	CC	G	6′	**4.56**	**3.42**	**3.14**	**2.85**
37F2950	25FN82	CC	G	10′	**5.36**	**4.02**	**3.69**	**3.35**
37F2951	25FF84	CC	TT	36″	**3.80**	**2.85**	**2.61**	**2.38**
37F2952	25FK84	CC	TT	6′	**4.28**	**3.21**	**2.94**	**2.68**
37F2953	25AC25	C	C	18″	**1.36**	**1.02**	**.94**	**.85**
37F2954	25AF25	C	C	36″	**1.48**	**1.11**	**1.02**	**.93**
37F2955	25AH25	C	C	4′	**1.72**	**1.29**	**1.18**	**1.08**
37F2956	25AK25	C	C	6′	**1.88**	**1.41**	**1.29**	**1.18**
37F2957	25AN25	C	C	10′	**2.64**	**1.98**	**1.82**	**1.65**
37F2958	25AR25	C	C	15′	**3.24**	**2.43**	**2.23**	**2.03**
37F2959	25AT25	C	C	20′	**3.92**	**2.94**	**2.70**	**2.45**
37F2960	25AU25	C	C	25′	**4.68**	**3.51**	**3.22**	**2.93**
37F2961	25WN25	C	C	10′	**1.72**	**1.29**	**1.18**	**1.08**
37F2962	25WT25	C	C	20′	**1.92**	**1.44**	**1.32**	**1.20**
RIGHT ANGLE 2-CONDUCTOR PHONE PLUG TO VARIOUS CONNECTIONS								
37F2963	15AK15	BB	BB	6′	**3.40**	**2.55**	**2.34**	**2.13**
STRAIGHT PHONO PLUG (LONG HANDLE) TO VARIOUS CONNECTIONS								
37F2964	26AF26	D	D	36″	**1.68**	**1.26**	**1.16**	**1.05**
37F2965	26AK26	D	D	6′	**2.04**	**1.53**	**1.40**	**1.28**
37F2966	26AN82	D	G	10′	**2.92**	**2.19**	**2.01**	**1.83**
RIGHT ANGLE PHONO PLUG TO VARIOUS CONNECTIONS								
37F2967	30AF30	E	E	36″	**1.48**	**1.11**	**1.02**	**.93**
37F2968	30AK30	E	E	6′	**1.84**	**1.38**	**1.27**	**1.15**
37F2969	30AN30	E	E	10′	**2.56**	**1.92**	**1.76**	**1.60**
STRAIGHT TINI-PLUG TO VARIOUS CONNECTIONS								
37F2970	40DF05	F	A	36″	**2.76**	**2.07**	**1.90**	**1.73**
37F2971	40DK05	F	A	6′	**3.28**	**2.46**	**2.26**	**2.05**
37F2972	40DF25	F	C	36″	**2.48**	**1.86**	**1.71**	**1.55**
37F2973	40DK25	F	C	6′	**2.96**	**2.22**	**2.04**	**1.85**
37F2974	40DN25	F	C	10′	**3.40**	**2.55**	**2.34**	**2.13**
37F2975	40DK40	F	F	6′	**3.44**	**2.58**	**2.37**	**2.15**
37F2976	40DK80	F	H	6′	**3.28**	**2.46**	**2.26**	**2.05**
37F2977	40DK82	F	G	6′	**2.96**	**2.22**	**2.04**	**1.85**
37F2978	40DK83	F	J	6′	**3.28**	**2.46**	**2.26**	**2.05**
37F2999	40DN83	F	J	10′	**3.88**	**2.91**	**2.67**	**2.43**
37F2979	40DF84	F	T	36″	**2.08**	**1.56**	**1.43**	**1.30**
37F2980	40DK84	F	T	6′	**2.32**	**1.74**	**1.60**	**1.45**
37F2981	40DN84	F	T	10′	**2.96**	**2.22**	**2.04**	**1.85**
37F2982	40DN86	F	L	10′	**2.96**	**2.22**	**2.04**	**1.85**
EXTENSION JACK CORDS								
37F2983	82AK82	G	G	6′	**2.52**	**1.89**	**1.73**	**1.58**
CORDS WITH SPADE LUGS, ALLIGATOR CLIPS								
37F2984	85CT85*	K	K	20′	**1.88**	**1.41**	**1.29**	**1.18**
37F2985	85CU85*	K	K	25′	**2.32**	**1.74**	**1.60**	**1.45**
(*) Parallel unshielded cable.								
MICROPHONE CONNECTOR TO VARIOUS CONNECTIONS								
37F2986	91BU92	N	P	25′	**16.04**	**12.03**	**11.03**	**10.03**

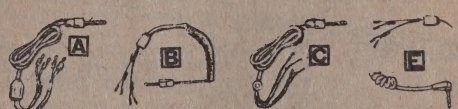


MOLDED COILED CORD ASSEMBLIES

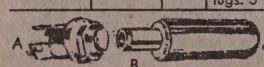
Shielded, coiled cord assemblies with molded terminations and/or stripped and tinned ends. 20 ft. extended lengths. Single conductor shielded cable with black neoprene jacket.

37F2987	05LT05	A	A	20′	**9.80**	**7.35**	**6.74**	**6.13**
37F2988	05LT15	A	B	20′	**9.80**	**7.35**	**6.74**	**6.13**

MOLDED HEADPHONE CABLES



Stk. No.	Type	Fig.	Description	Each
37F2989	05KJ88	A	Molded Headphone Cord. 4′ 2-cond. cable from phone plug to "Y" junction. 1′ cable from "Y" junction to eyelet plugs. Parallel wired.	**4.16**
37F2990	05NJ88	B	Straight 2-cond. phone plug to eyelet lugs. 5′ (extended) coiled cord.	**4.88**
37F2991	10FJ84	C	Molded Stereo Headphone Cord. 4′ cable from phone plug to "molded band". 1′ cable from band to stripped and tinned leads.	**3.88**
37F2992	13NJ88	E	Right angle 2-cond. phone plug to eyelet lugs. 5′ (extended) coiled cord.	**4.44**



"POWER JAX," "POWER PLUG" JACKS AND PLUGS

Designed for AC/DC converter/battery charger connections. Jacks mount in 5/16″ dia. hole in panels up to 1/8″ thick.

Stock No.	Type	Fig.	Mating Plug	Pin Dia.	Ea. 1-9	10-24	25-49	50-99
37F2993	712A	A	760	.100″	**1.04**	**.78**	**.72**	**.65**
37F2994	722A	A	S-760	.080″				

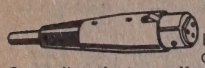
			Handle	Center Hole Dia.				
37F2995	760	B	Blk. Plastic	.100″	**.96**	**.72**	**.66**	**.60**
37F2996	765	B	Red Plastic	.100″				
37F2997	S-760	B	Blk. Plastic	.080″	**1.00**	**.75**	**.69**	**.63**
37F2998	S-765	B	Red Plastic	.080″				

SWITCHCRAFT® INC. Audio Connectors

"QUICK GROUND" CONNECTORS

Feature a separate "Ground-Terminal" electrically integral with the connector shell. Ground continuity between mating plugs automatically accomplished. Socket and pin assemblies utilize "wedge-action" to assure firm, reliable positioning.

STRAIGHT FEMALE PLUG



Fresh, streamlined design includes rugged, diecast zinc body, satin nickel finish. Grounding feature offers 4-, 5-, 6-contact versatility. Mates with straight male plugs with similar arrangements.

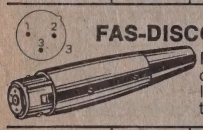
Stock No.	Type	No. Con.	1-9	10-24	25-49	50-99
27F066	A3F	3	2.72	2.04	1.87	1.70
27F067	A4F	4	3.40	2.55	2.34	2.13
39F2274	A5F	5	5.60	4.20	3.85	3.50

STRAIGHT MALE PLUG

One-piece pin insert assembly easily removable for fast soldering. Polarizing groove. Mates with straight female plugs and other connectors with similar contact arrangements. Overall length $2\frac{25}{32}$"; dia. ¾".

Stock No.	Type	No. Pins	1-9	10-24	25-49	50-99
27F068	A3M	3	2.36	1.77	1.62	1.48
27F069	A4M	4	2.52	1.89	1.73	1.58
39F2275	A5M	5	4.48	3.36	3.08	2.80

FAS-DISCONNECT FEMALE PLUG



Fas-Disconnect audio plugs mate with all other standard audio connectors. Spring latch releases wtih 4 lb. force without need to operate latch.

Stock No.	Type	No. Pins	1-9	10-24	25-49	50-99
20F905	A3FD	3	2.72	2.04	1.87	1.70

RIGHT-ANGLE MALE AND FEMALE PLUGS

Rugged die-cast housing. Ideal for equipment with limited space for connectors. Mates with straight male and female plugs and other similar connectors and receptacles.

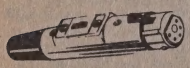
Stock No.	Type No.	Con./Pins	1-9	10-24	25-49	50-99
39F2284	R3F	3	6.16	4.62	4.24	3.85
39F2285	R4F	4	6.96	5.22	4.79	4.35
39F2286	R5F	5	9.52	7.14	6.55	5.95
39F2287	R3M	3	5.68	4.26	3.91	3.55
39F2288	R4M	4	5.88	4.41	4.04	3.68
39F2289	R5M	5	8.36	6.27	5.75	5.23

FEMALE PLUG

Mounts directly to a flexible gooseneck and/or microphone stem. ⅝-27NS-2B internal thread, $\frac{9}{16}$" deep. Overall length 2¼"; dia. ¾".

Stock No.	Type	No. Con.	1-9	10-24	25-49	50-99
22F1023	P3F	3	3.48	2.61	2.39	2.18
22F1024	P4F	4	4.20	3.15	2.89	2.63

FEMALE PLUG WITH ON-OFF SWITCH



Connect directly to microphones. Built-in submin. slide switch permits instant on-off control of audio. Switch provides in-line DPDT (2-C) switching — Has locking switch. $3\frac{61}{64}$" L; dia. ¾".

Stock No.	Type	No. Con.	1-9	10-24	25-49	50-99
22F1025	T3F	3	8.36	6.27	5.75	5.23
22F1026	T4F	4	8.92	6.69	6.13	5.58
22F1027	T5F	5	11.16	8.37	7.67	6.98

WALL PLATES WITH MALE PANEL SOCKETS

Single gang wall plates with male panel sockets. Fits standard electrical outlet box. 4½" H. x 2¾" W. Stainless steel finish.

Stock No.	Type	No. Pins	1-9	10-24	25-49	50-99
27F1000	G3MS	3	5.84	4.38	4.02	3.65
22F1028	G4MS	4	6.16	4.62	4.24	3.85

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WALL PLATES WITH FEMALE RECEPTACLES

Single gang wall plates with female receptacle. Fits standard electrical outlet box. 4½" H. x 2¾" W. Stainless steel finish.

Stock No.	Type	No. Con.	1-9	10-24	25-49	50-99
22F1029	J3FS	3	6.08	4.56	4.18	3.80
22F1030	J4FS	4	6.32	4.74	4.35	3.95

MALE PANEL SOCKETS

For panel or chassis mounting; locknut accommodates panels up to ¼" thick. Single hole mounting, can be keyed by using "D" shaped panel hole or S-3519 mounting adapter. Mates with straight female plugs and other connectors with similar contact arrangements. Flange $1\frac{7}{64}$" dia.; Barrel $1\frac{7}{16}$" overall; pin extension $\frac{9}{32}$".

Stock No.	Type	No. Pins	1-9	10-24	25-49	50-99
27F062	B3M	3	3.36	2.52	2.31	2.10
27F065	B4M	4	3.48	2.61	2.39	2.18
39F2279	B5M	5	5.72	4.29	3.93	3.58

FEMALE PANEL SOCKETS

Panel mount receptacle. Supplied with 1¼-18 UNEF spanner nut; mounts in 1¼" dia. hole, in panels up to $\frac{7}{16}$" thick. Mates with straight male plugs and other similar connectors.

Stock No.	Type	No. Con.	1-9	10-24	25-49	50-99
39F2276	B3F	3	5.60	4.20	3.85	3.50
39F2277	B4F	4	5.88	4.41	4.04	3.68
39F2278	B5F	5	8.12	6.09	5.58	5.08

MALE PANEL SOCKETS WITH FLANGE

Mounts on wall panel or chassis with three .140" dia. mounting holes. High impact thermosetting plastic pin insert. Mates with straight female plugs and other connectors with similar contact arrangements. Flange $1\frac{7}{16}$" dia.; Barrel $1\frac{3}{16}$" overall; pin extensions $\frac{9}{32}$".

Stock No.	Type	No. Pins	1-9	10-24	25-49	50-99
27F060	C3M	3	1.80	1.35	1.24	1.13
27F064	C4M	4	1.92	1.44	1.32	1.20
39F2280	C5M	5	4.20	3.15	2.89	2.63

FEMALE PANEL SOCKETS WITH FLANGE

For panel or chassis mounting; has socket insert, push-type latch locking device. Flange has three .140" holes for mounting screws. Mates with Switchcraft straight male plugs and other similar connectors.

Stock No.	Type	No. Con.	1-9	10-24	25-49	50-99
27F059	C3F	3	3.60	2.70	2.48	2.25
27F063	C4F	4	3.72	2.79	2.56	2.33
27F2281	C5F	5	5.88	4.41	4.04	3.68

MALE PANEL SOCKETS WITH RECTANGULAR FLANGE

Narrow, rectangular flange design for mounting on compact panel or chassis. Mates with straight female plugs and other similar connectors.

Stock No.	Type	No. Pins	1-9	10-24	25-49	50-99
27F072	D3M	3	2.24	1.68	1.54	1.40
22F1031	D4M	4	2.40	1.80	1.65	1.50
39F2283	D5M	5	4.12	3.09	2.83	2.58

FEMALE PANEL SOCKETS WITH RECTANGULAR FLANGE

Rectangular flange design permits close mounting on crowded panel or chassis. Positive latch locking device and high impact thermosetting socket insert. Mates with straight male plugs and other connectors with similar contact arrangements.

Stock No.	Type	No. Con.	1-9	10-24	25-49	50-99
27F070	D3F	3	3.68	2.76	2.53	2.30
27F071	D4F	4	3.80	2.85	2.61	2.38
27F2282	D5F	5	5.96	4.47	4.10	3.73

WALL PLATES WITH FEMALE RECEPTACLES

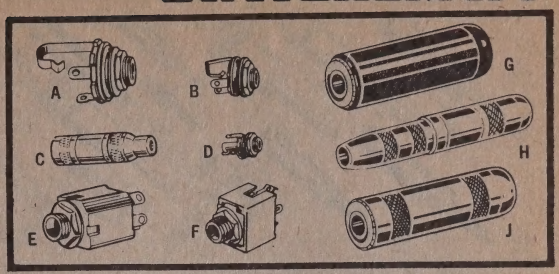
Two gang wall plates with two female receptacles. Mounts in standard electrical outlet junction box. 4½" H. x 2¾" W. Stainless steel finish.

Stock No.	Type	No. Pins	1-9	10-24	25-49	50-99
22F1032	K3FS	3	8.60	6.45	5.91	5.38
22F1033	K4FS	4	9.24	6.93	6.35	5.78

11

Phone Jacks

SWITCHCRAFT® INC.



E. HI-D JAX® PHONE JACKS

Smaller, more compact phone jacks, mate with std. ¼" phone plugs. Molded box body protects integral silver-plated, nickel silver springs. Low contact resistance and electrical leakage with little capacity between the springs. Mount on ⅝" centers in single ⅜" hole in panels up to 5/32" thick, depth behind panel 1 3/32". (*)"N" prefix feature a threaded nylon bushing to provide complete insulation of jack sleeve from mtg. panel. **Type M-112B** is designed and adjusted to mate with telephone and MIL-std. plugs. **Type 114B** switches out speakers when connecting stereo headphones. Dual N.C. switch contacts open both stereo circuits independently when a 3-cond. plug is inserted.

TWO CONDUCTOR TYPES

Stk. No.	Type	Schem. No.	Mating Plug	1-9	10-24	25-49	50-99
39F656	111	I	250	.56	.42	.39	.35
39F642	N-111*	I	250	.72	.54	.50	.45
39F657	112A	III	250	.60	.45	.42	.38
39F643	N-112A*	III	250	.76	.57	.53	.48
39F644	113	V	250	1.04	.78	.72	.65
39F645	113D	VI	250	1.04	.78	.72	.65

THREE CONDUCTOR TYPES

39F658	112B	IV	267	.64	.48	.44	.40
39F646	M-112B	IV	482	1.00	.75	.69	.63
39F659	113B	VII	267	.84	.63	.58	.53
39F660	113F	XXVIII	267	.84	.63	.58	.53
39F661	114B	XII	267	.92	.69	.64	.58
39F647	N-114B*	XII	267	1.04	.78	.72	.65

F. "TINI-D JAX" MINIATURE PHONE JACK

Small, completely enclosed, molded phone jack. Mate with "Tini-Plug". Has threaded bushing for conventional mtg. Tip spring terminals that "snap-in" P.C. boards. Mount on ⅜" centers, in ¼" dia. hole in panels up to ⅛" thick. Depth behind panel 7/16".

Stk. No.	Type	Schem. No.	No. Cond.	1-9	10-24	25-49	50-99
39F648	142A	III	2	.64	.48	.44	.40

"EXTENSION JAX" CABLE EXTENSION JACKS

Standard ¼", 2- and 3-conductor extension phone jacks with solder lugs or screw type terminals. Size 1 1/16" O.D., 2 5/32" long; 121 and 131 ½" O.D., 2½" long.

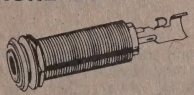
Stock No.	Type	Fig.	No. Cond.	Term.	Handle	1-9	10-24	25-49	50-99
39F670	80	G	2	Screw	Black	1.60	1.20	1.10	1.00
39F671	88	G	2	Solder	Black	1.44	1.08	.99	.90
39F672	120	J	2	Screw	Shield	2.12	1.59	1.46	1.33
39F247	121	H	2	Solder	Shield	2.20	1.65	1.51	1.38
39F785	126	G	2	Solder	Shield	2.32	1.74	1.60	1.45
39F673	128	G	2	Solder	Shield	1.92	1.44	1.32	1.20
39F649	131	H	3	Solder	Shield	2.80	2.10	1.93	1.75
22F269	830	G	3	Screw	Black	2.12	1.59	1.46	1.33
39F757	1230	J	3	Screw	Shield	2.72	2.04	1.87	1.70

JACK COVERS

Handy, rugged, spring-load phone jack covers. Covers jack openings when phone plug is removed. Protects against dust and moisture. Use with standard ⅜"-32 threaded bushing type jacks.

Stock No.	Type	Color	1-9	10-24	25-49	50-99
39F650	515	Black	2.00	1.50	1.38	1.25

"THICK-PANEL JAX" PHONE JACK



Phone jacks with long bushing. Mount in single 1 5/32" dia. hole in panels up to 1¼" thick. Solder lug terminals. Extra shielding virtually eliminates audio hum.

Stock No.	Type	No. Cond.	Mates With	1-9	10-24	25-49
39F651	151	2	240, 245, 250, 255, 270, 280	2.04	1.53	1.40
39F652	152B	3	260, 267, 269, 297	2.20	1.65	1.51

®Registered tradename of Switchcraft, Inc.

A. LITTEL-JAX® PHONE JACKS

Quality phone jacks that mate with standard ¼" phone plugs. Notched insulating washers mechanically interlock springs and solder lugs. "V" bend in tip spring firmly "holds" mating plug. Minimum space requirements. Economical. Mounts in single ⅜" hole panels up to 5/32" thick except L-11 and L-12A in panels up to ¼" thick. **C-11** and **C-12B** have locating pins (non-turn devices). **S-11** similar to **11** except .210" I.D. sleeve. **C11, C-12B,** and **C-12A** per JAN-J-641. **14B** switches out speakers when connecting stereo headphones.

TWO CONDUCTOR TYPES

Stock No.	Type	Schem. No.	Mating Plug	Mil-Type	1-9	10-24	25-49	50-99
39F782	11	I	250	....	.60	.45	.42	.38
39F662	C-11	I	440	JJ-034	.88	.66	.61	.55
39F653	L-11	I	250	....	.68	.51	.47	.43
39F663	S-11	I	S-250	....	.64	.48	.44	.40
39F783	12A	III	250	....	.64	.48	.44	.40
39F664	C-12A	III	440	JJ-089	1.00	.75	.69	.63
39F654	L-12A	III	250	....	.72	.54	.50	.45
39F655	13	V	250	....	1.20	.90	.83	.75
39F691	13A	VI	250	....	1.08	.81	.75	.68
39F699	13E	IX	250	....	1.20	.90	.83	.75

THREE CONDUCTOR TYPES

39F665	12B	IV	267	....	.72	.54	.50	.45
39F667	C-12B	IV	480, 484	JJ-033	1.00	.75	.69	.63
39F576	L-12B	IV	267	....	.96	.72	.66	.60
39F666	S-12B	IV	480, 484	....	.96	.72	.66	.60
39F668	13B	VII	267	....	1.04	.78	.72	.65
39F669	S-13B	VII	480, 484	....	1.36	1.02	.94	.85
39F577	14B	XII	267	....	1.40	1.05	.97	.88

B. "TINI-JAX" MINIATURE PHONE JACKS

Miniature 2-conductor phone jacks, approximately ⅓ the size of the Littel-Jax jack, otherwise similar in construction. Mount in ¼" dia. hole; panel up to ⅛" thick.

Stock No.	Type	Schem. No.	Mating Plug	1-9	10-24	25-49	50-99
39F744	41	I	750	.56	.42	.39	.35
39F745	42A	III	750	.60	.45	.42	.38
39F689	43A	VI	750	.92	.69	.64	.58

C. "TINI-EXTENSION JAX" MINIATURE EXT. JACK

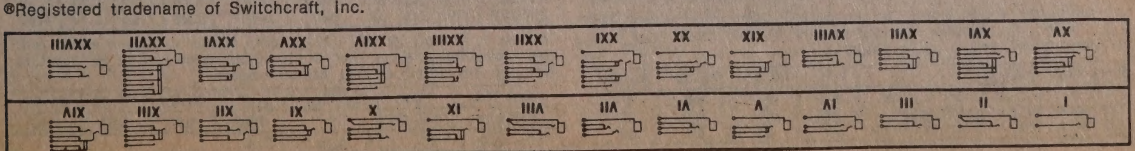
An extension or cable jack to mate with "Tini-Plug". Metal housing for ruggedness and shielding. Solder lug terminals.

Stock No.	Type	No. Cond.	1-9	10-24	25-49	50-99
22F248	125	2	1.76	1.32	1.21	1.10

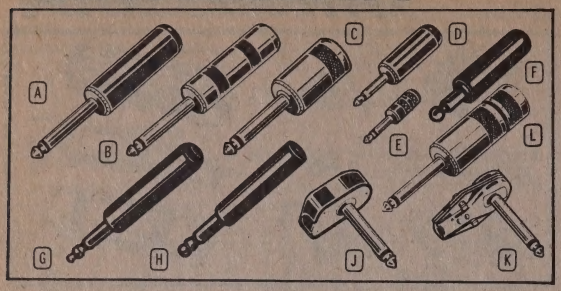
D. MICRO-JAX® SUB MINIATURE PHONE JACK

Precision manufactured jack for miniaturized applications. Single closed circuit. Internally keyed nylon insulation interlocks springs and solder lugs to eliminate shorts. Fits .190" dia. hole in panels to 3/32" thick. Only 1/25 the size of standard phone jacks.

Stock No.	Type	Schem. No.	No. Cond.	Mating Plug	1-9	10-24	25-49	50-99
39F578	TR-2A	III	2	850, 880	.72	.54	.50	.45



SWITCHCRAFT® INC. — Phone Jacks and Plugs



"LITTEL-PLUG" PHONE PLUGS

Small size phone plugs fit standard ¼" phone jacks except (*) S-250 and S-280 which have a .206" dia. sleeve. Plugs with solder terminals have built-in cable clamp. ⅝" long x ½" dia. (‡) Has wide insulator between tip and sleeve for use in 3 conductor jack to perform a 2 conductor function without shorting.

TWO-CONDUCTOR TYPE

Stock No.	Type	Fig.	Mtg. Jack	Handle	Term	1-9	10-24	25-49	50-99
39F760	240	A	11	Black	Screw	1.04	.78	.72	.65
39F761	245	A	11	Red	Screw	1.04	.78	.72	.65
39F763	250	A	11	Black	Solder	1.00	.75	.69	.63
39F674	255	A	11	Red	Solder	1.00	.75	.69	.63
39F765	270	B	11	Shield	Screw	1.48	1.11	1.02	.93
39F764	280	B	11	Shield	Solder	1.44	1.08	.99	.90
39F678	288‡	B	11	Shield	Solder	1.48	1.11	1.02	.93
39F677	S-250*	A	S-11	Black	Solder	1.04	.78	.72	.65
39F762	S-280*	B	S-11	Shield	Solder	1.44	1.08	.99	.90

THREE-CONDUCTOR TYPE

39F675	260	A	12B	Black	Screw	1.68	1.26	1.16	1.05
39F771	267	A	12B	Black	Solder	1.48	1.11	1.02	.93
39F676	269	A	12B	Red	Solder	1.48	1.11	1.02	.93
39F766	290	B	12B	Shield	Screw	1.92	1.44	1.32	1.20
39F767	297	B	12B	Shield	Solder	1.84	1.38	1.27	1.15

STANDARD ¼" PHONE PLUGS

TWO-CONDUCTOR TYPE — SOLDER TERMINALS

Typical mating jack "Littel-Jax" No. 11.

Stock No.	Type	Fig.	Handle	Length & Dia.	1-9	10-24	25-49	50-99
39F679	40	A	Black	2 1/16 x ¾	1.04	.78	.72	.65
39F680	70	B	Shield	2 1/16 x 1 1/16	1.72	1.29	1.18	1.08
39F681	160	C	Shield	1 x 1 1/16	1.40	1.05	.97	.88
22F275	170	L	Shield	2 1/16 x 1 1/16	2.20	1.65	1.51	1.38

THREE-CONDUCTOR TYPE — SOLDER TERMINALS

Typical mating jack "Littel-Jax" No. 12B.

39F682	60	A	Black	2 1/16 x 1 1/16	1.44	1.08	.99	.90
39F683	90	C	Shield	1 x 1 1/16	1.80	1.35	1.24	1.13
22F1034	190	B	Shield	2 1/16 x 1 1/16	2.08	1.56	1.43	1.30

"LUG-PLUG" PHONE PLUGS

Low cost, two-conductor phone plugs. Fit all ¼" phone jacks. All have solder lug terminals. Handle: black phenolic.

Stock No.	Type	Fig.	Mtg. Jack	Length & Dia.	1-9	10-24	25-49	50-99
22F1035	350	A	11	1⅝ x ½	.88	.66	.61	.55

"TINI-PLUG" MINIATURE PHONE PLUGS

Miniature 2-conductor phone plugs for use with "Tini-Jax" only ⅓ the size of standard phone plugs. Handles 1⅝" overall length, are plastic or brass, nickel plated.

Stk. No.	Type	Fig.	Term.	Handle	1-9	10-24	25-49	50-99
22F1036	740	D	Screw	Black	.96	.72	.66	.60
22F1037	745	D	Screw	Red	.96	.72	.66	.60
39F746	750	D	Solder	Black	.92	.69	.64	.58
39F747	755	D	Solder	Red	.92	.69	.64	.58
39F748	780	D	Solder	Shield	1.28	.96	.88	.80

"MICRO-PLUG" SUB-MINIATURE PHONE PLUGS

Sub-miniature 2-conductor phone plugs, only 1 1/4" long; ¼" O.D., .097" dia. sleeve. Accommodates cables up to 7/64" dia. All plugs have integral cable clamps.

Stock No.	Type	Fig.		1-9	10-24	25-49	50-99
22F395	850	E	Black Handle	.88	.66	.61	.55
22F1038	855	E	Red Handle	.88	.66	.61	.55
22F1039	880	E	Natural Handle	.88	.66	.61	.55

MILITARY TYPE "LITTEL-PLUG" & "EXTENSION JAX"

Plugs are made in accordance with MIL-P-642(A) specifications. One piece tip rod and one piece sleeve and plug body provide internal interlock to prevent parts shifting in position. Handle: black except *red. All plugs have screw terminals.

Stock No.	Type	Fig.	Mil-Type	Mating Jack	No. Cond.	1-9	10-24	25-49	50-99
22F1040	430	F	PJ-054B	820	2	1.96	1.47	1.35	1.23
39F792	440	..	PJ-055B	MT-331	2	1.84	1.38	1.27	1.15
39F791	480	G	PJ-068	MT-342B	3	4.00	3.00	2.75	2.50
22F391	482*	H	PJ-051R	MT-332B	3	4.44	3.33	3.05	2.78
22F1041	483	H	PJ-051B	MT-332B	3	4.44	3.33	3.05	2.78

"FLAT-PLUG" PHONE PLUGS

¼" phone plugs featuring flat, space-saving handles. Ideal for applications where conventional plugs would protrude too far. No. 220 has adapter clip which makes it convenient to clamp standard phone tips to terminals.

TWO-CONDUCTOR TYPE

Stock No.	Type	Mating Fig.	Mating Jack	Handle	Term.	1-9	10-24	25-49	50-99
39F768	220	J	11	Black	Screw	1.48	1.11	1.02	.93
22F1042	227	J	11	Black	Screw	1.16	.87	.80	.73
22F1043	228	K	11	Shield	Solder	1.36	1.02	.94	.85

THREE-CONDUCTOR TYPE

22F1044	238	K	12B	Shield	Solder	1.88	1.41	1.29	1.18

MILITARY TYPE "TWIN-PLUG"

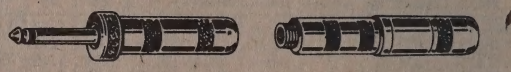
Meet exact industrial and military requirements. Nos. 412 & 413 use identical materials. Sleeves spaced ⅝" center to center with self-aligning feature.

No. 412 — Two electrically independent 2-conductor plugs in black plastic handle. Has external cord clamp. Old Military Type PJ-289. Similar to W.E. 289B.

No. 413 — Three circuit plug with two electrically independent tip circuits. Interchangeable with MIL-Type PJ-421 and W.E. 241.

Stock No.	Type	MIL-Type	1-9	10-24	25-49	50-99
22F1045	412	PJ-289	5.24	3.93	3.60	3.28
22F1046	413	PJ-421	5.76	4.32	3.96	3.60

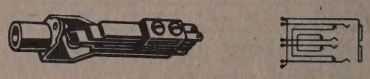
"LOCK-PLUG" & "EXTENSION JAX"



Standard size ¼", 3-cond. phone plug and mating cable extension jacks, with built-in locking device. Ideal for all P.A. audio applications. Plug has coupling ring that can be threaded to the bushing of a "Littel-Jax" or to the mating end of the "Lock-Extension Jax." Solder lug terminals.

Stk. No.	Type		1-9	10-24	25-49	50-99
22F1047	298	3-Cond. "Lock-Plug"	2.44	1.83	1.68	1.53
22F1048	133	3-Cond. "Extension Jax"	3.04	2.28	2.09	1.90

"MT-JAX" MILITARY TELEPHONE JACKS



Long frame, telephone switchboard jacks designed for high quality communication and military equipment. Springs are of a special nickel silver alloy with welded cross bar palladium contacts. "A" frame design.

Stock No.	Type	Schem. No.	For Plug	MIL-Type	1-9	10-24	25-49	50-99
22F255	MT-331	I	440*	JJ-086	1.48	1.11	1.02	.93
22F256	MT-332A	III	440	JJ-024	1.76	1.32	1.21	1.10
22F257	MT-332B	IV	482†	JJ-022	1.76	1.32	1.21	1.10
22F259	MT-334B	XII	482	JJ-042	2.08	1.56	1.43	1.30

Similar in design to "MT-Jax" except frame is double width, with two mounting ears on 1⅜" centers; bushings are on ⅝" centers. Has two 3-conductor jacks interconnected.

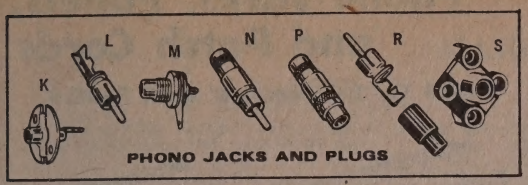
Stock No.	Type	For Plug	1-9	10-24	25-49	50-99
22F1049	MT-389	482	5.84	4.38	4.02	3.65

*MIL Type PJ-055. †MIL Type PJ-051B.

11

Phono Jacks, Plugs, Adapters

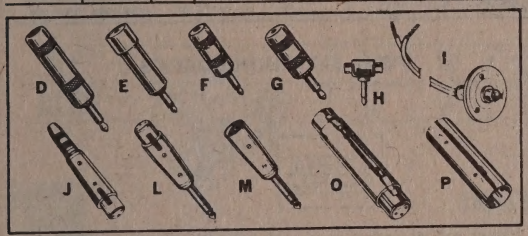
SWITCHCRAFT® INC.



PHONO JACKS AND PLUGS

Low cost 2-cond. jacks and plugs for record players, FM-AM tuners, tape recorders, test equipment, etc. **3501MC** has ⅜" O.D. shell and cable clamp. **3501FP** for front panel mount in ¼" hole, in panels up to ⅛" thick. **3501FR** for rear panel mount in ⅜" hole, in panels up to 1¾4" thick. **3502** has unique cable clamp with 13/32" O.D. shielded removable handle. **3503** ext. jack has removable handle, 1 1/32" O.D. with cable clamp. **3508,** color coded phono plugs with cable clamp and "snap-on" plastic handles.

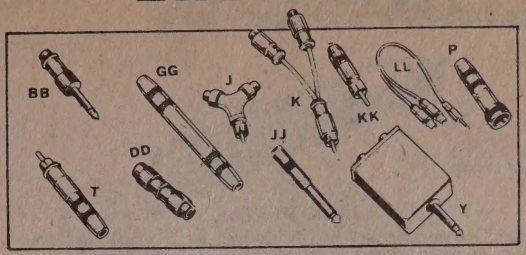
Stock No.	Type	Fig.	Description	1-9	10-24	25-49
39F2154	3501F	K	Chassis jack	.24	.18	.17
39F2155	3501M	—	Plug, less cable clamp	.16	.12	.11
39F2156	3501MC	L	Plug with cable clamp	.28	.21	.20
39F2157	3501FP	M	Chassis jack	.40	.30	.28
39F2158	3501FR	—	As above, chassis jack	.60	.45	.42
39F2159	3502	N	Plug	.60	.45	.42
39F2160	3503	R	Extension jack	.80	.60	.55
39F2161	3558-1	R	Plug, Red handle	.32	.24	.22
39F2162	3558-2	R	Plug, Black handle	.32	.24	.22
39F2163	3558-5	R	Plug, White handle	.32	.24	.22
39F2164	3512	S	Chassis jack, closed circuit	.40	.30	.28
39F2165	3512A	S	Chassis jack, closed circuit, grounded	.40	.30	.28



Versatile adapters for interconnecting components and cables that do not have mating jacks and/or plugs. Positive mating contacts prevent resistive line-losses. **378,** "Tini-Tee," provides dual output jacks for two separate earphones. Allows two to listen at once from a single radio, tape recorder, etc.

ADAPTERS

Stock No.	Type	Fig.	Description	1-9	10-24	25-49
39F2166	374	D	Phone jack input to a 2-cond. "Tini-Plug" output.	2.24	1.68	1.54
39F2167	375	E	Phono jack input to a 2-cond. "Micro-Plug" output.	2.04	1.53	1.40
39F2168	376	F	"Tini-Jax" input to a 2-cond. "Micro-Plug" output.	2.04	1.53	1.40
39F2169	377	G	"Micro-Jax" input to a 2-cond. "Tini-Plug" output.	2.04	1.53	1.40
39F2170	378	H	"Tini-Tee" Adapter. 2-cond. "Tini-Plug" input to two 2-cond. "Tini-Jax" outputs.	2.64	1.98	1.82
39F2171	379	I	Speaker enclosure phono jack. 24" cable.	1.52	1.14	1.05
39F2172	383A	J	3 Contact Switchcraft A3F female microphone input to 3-cond. extension phone jack output.	5.44	4.08	3.74
39F2173	386A	L	3 Contact Switchcraft A3F female microphone input to a standard 3-cond. phone plug output.	5.36	4.02	3.69
39F2174	387A	M	3 Pin Switchcraft A3M male microphone input to a standard 3-cond. phone plug output.	4.72	3.54	3.25
39F2175	389	O	Coupler. 3-pin audio connector (Switchcraft A3M) at each end. Shielded.	5.60	4.20	3.85
39F2176	390	P	Coupler. 3-pin male audio connector (Switchcraft A3M) at each end. Shielded.	4.72	3.54	3.25

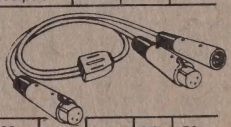


A versatile and complete line of adapters for interconnecting components that do not have mating jacks and/or plugs. **335A** has unsoldered internal wire at one end to permit user to convert terminal needed. **33A, 334A** can be used as male or female connector; coupling ring screws back, converting to male mike connector. *Shielded.

ADAPTERS

Stk. No.	Type	Fig.	Description	1-9	10-24	25-49
39F2178	330F*	J	Y-Adapter. Two phono jacks to phono plug.	2.28	1.71	1.57
39F2179	330F1	K	Flexible Y-Adapter. Phono plug to 2 phono jacks	2.64	1.98	1.82
39F2180	330F2	.....	Above, but phono plug and phono jack to phono plug.	2.64	1.98	1.82
39F2181	330F3	.....	Above, but 2 phono plugs to 1 phono plug.	2.64	1.98	1.82
39F2184	330T3	LL	Above, but 2-cond. "Tini-Plug" to 2 "Tini-Jax".	2.64	1.98	1.82
39F2185	332A	P	Phone jack input to female mike connector output.	2.20	1.65	1.51
39F2189	336A*	T	2-cond. phone jack input to phono plug output.	2.20	1.65	1.51
39F2192	340*	Y	Two 2-cond. phone jack inputs to 2-cond. phone plug output.	4.68	3.51	3.22
39F2193	345A	BB	Phone plug output to phono jack input.	1.68	1.26	1.16
39F2194	349A*	DD	Phone plug coupler, phono plug at each end.	1.40	1.05	.97
39F2195	361*	GG	Coupler. 2-cond. phone jack at each end.	2.96	2.22	2.04
39F2196	362	.....	Above, but 3-cond. phone jack at each end.	3.52	2.64	2.42
39F2197	364A*	JJ	2-cond. "Tini-Jax" to 2-cond. phone plug.	1.96	1.47	1.35
39F2198	365*	KK	2-cond. "Tini-Jax" input to phone jack output.	1.96	1.47	1.35

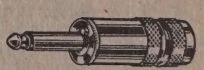
"Q-G" Y-Adapters: (1) parallel — 2 mic outputs or (2) split — two speaker outputs. Mates with Switchcraft "Q-G" connectors and compatible Amphenol and Cannon types.



Stk. No.	Type	"Q-G" Cord Plug Nos. Plug A	Plug B	Plug C	1-9	10-24	25-49	50-99
39F2199	391Q13	A3F	A3M	A3M	13.52	10.14	9.30	8.45

SILENT-PLUG

Stops unwanted amp. noise when plugging in or out. Built-in switch shorts out the amp. input and loudspeakers remain quiet. 2-piece nickel plated handle. Terminal screws. Strain relief protects wiring from twisting/pulling damage.



Stk. No.	Type	Description	EACH 1-9	10-24	25-49	50-99
20F906	172	2-cond. silent-plug	3.60	2.70	2.48	2.25

BIG UGLY

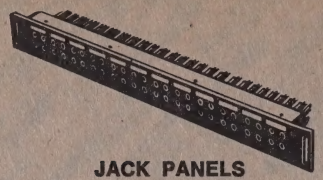
Designed for audio connections of amplified instruments and audio equipment in demanding audio connecting situations. Rugged brass frame. Sleeve solder lug. U-shaped cable strain relief clamp withstands 20 lbs. of pull. Auxiliary cable relief clamp for extra support.

Stk. No.	Type	Description	EACH 1-9	10-24	25-49	50-99
20F907	173	2-cond. ¼" dia. Blk.	3.20	2.40	2.20	2.00

"Micro-Plug"® and "Micro-Jax"® are registered tradenames of Switchcraft, Inc.

SWITCHCRAFT® INC.

Phone Jacks, Panels, and Patch Cords



JACK PANELS

Rugged, heavy-duty jack panels for switching, distribution, and control of audio signals in broadcasting stations, theaters, P.A. systems installations, etc. Mounting brackets slotted to fit all standard 19″ relay racks. Panel includes plastic covered designation strips.

Stk. No.	Type	Rows	Number of Jacks	1-9	10-24	25-49	50-99
39F2128	1332A	Single	24 MT-332A	47.88	35.91	32.92	29.93
39F2129	2532A	Double	48 MT-332A	88.20	66.15	60.64	55.13
39F2130	2732A	Double	52 MT-332A	91.56	68.67	62.95	57.23

JACK PANEL HOLE PLUG

Molded nylon, fits all Switchcraft jack panels. Designed to plug unused holes in jack panels.

Stk. No.	Type	Description	1-9	10-24	25-49	50-99
39F2131	P-1801	Hole Plug	.28	.21	.20	.18

PATCH CORD SETS

Constructed of bronze tinsel conductors, insulated and shielded, with a heavy black nylon braid overall.

Series 17Q — 2-conductor, shielded patch cords have twin-plug at each end with shields grounded both ends.

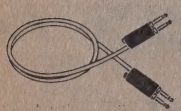
Series 18Q — 2-conductor, shielded patch cords use Military Plug PJ-051 at each end with shields grounded both ends.

Series 19Q — Single cond., shielded Military Plug PJ-047B connected to each end with shield grounded both ends.

Stk. No.	Type	Lgth.	1-9	10-24	25-49	50-99
39F2132	17QA17	6″	12.84	9.63	8.83	8.03
39F690	17QD17	2′	13.44	10.08	9.24	8.40
39F2133	17QH17	4′	14.28	10.71	9.82	8.93
39F2134	17QK17	6′	15.20	11.40	10.45	9.50
39F2135	17QN17	10′	16.08	12.06	11.06	10.05
39F692	17PD17	2′	13.44	10.08	9.24	8.40
39F2136	18QA18	6″	13.44	10.08	9.24	8.40
39F694	18QD18	2′	14.60	10.95	10.04	9.13
39F695	18QF18	3′	15.20	11.40	10.45	9.50
39F696	18QH18	4′	15.80	11.85	10.86	9.88
39F2137	19QA19	6″	7.00	5.25	4.81	4.38
39F2138	19QD19	2′	7.92	5.94	5.45	4.95
39F2139	19QF19	3′	8.48	6.36	5.83	5.30

"tini-telephone" PATCH CORDS

"tini-telephone" patch cords with 2- and 3-cond. attachable single and twin plugs. .173″ dia. fingers. Mate with TT-Jax® jacks.



Series TT-720 — 2-cond. Shielded cord. Shield is grounded to sleeve of each plug.

Series TT-740 — 2-cond. Shielded cord. Shield is grounded to sleeve of each plug.

Series TT-840 — 2-cond. Shielded cord with twin-plug phone plug attached to each end.

SERIES TT-720

Stk. No.	Type	Length	Plug Type	1-9	10-24	25-49	50-99
39F2140	TT-722	1′	TT-251	12.08	9.06	8.31	7.55
39F2141	TT-727	4′	TT-251	15.20	11.40	10.45	9.50
39F2142	TT-729	6′	TT-251	17.12	12.84	11.77	10.70

SERIES TT-740

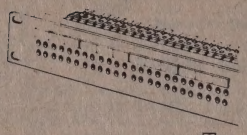
39F2143	TT-742	1′	TT-253	14.72	11.04	10.12	9.20
39F2144	TT-747	4′	TT-253	17.92	13.44	12.32	11.20
39F2145	TT-749	6′	TT-253	19.88	14.91	13.67	12.43

SERIES TT-840

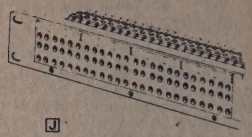
39F2146	TT-842	1′	TT-261	19.28	14.46	13.26	12.05
39F2147	TT-847	4′	TT-261	22.24	16.68	15.29	13.90
39F2148	TT-849	6′	TT-261	24.52	18.39	16.86	15.33

®Registered trademark of Switchcraft, Inc.

SERIES TT "Tini-Telephone" JACK PANELS



G

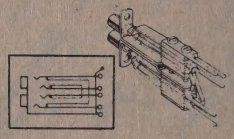


J

Series **1600,** a double row panel for 96 TT-Jax jacks with 4 molded plastic inserts which accommodate 24 jacks each. Series **1700,** a double row panel for 48 "TT-Twin-Jax" jacks with 2 molded plastic inserts which accommodate 24 twin jacks each. Series **B1700** same as Series 1700 except accommodates 48 "Tri-Jax" jacks, Nos. TT-95 or WTT-95 (24 per insert). All series feature exclusive "kwik-change" designation strips. Strips consist of a clear plastic snap-on cover and a reusable plastic marking strip.

Stk. No.	Type	Fig.	Rows	No. of Jacks	1-9	10-24
39F2149	1600	.....	2	96 single jacks	27.80	20.85
39F2150	1632A	.....	2	96, TT-32A	138.88	104.16
39F2151	1634B	.....	2	96, TT-34B	176.68	132.51
39F2152	1700	G	2	48 twin jacks	32.44	24.33
39F2153	1789	G	2	48, TT-89	250.28	187.71
22F961	B1700	J	3	48 "Tri-Jax" jacks	37.04	27.78
22F962	B1795	J	3	48, TT-95	287.96	215.97
22F963	WB1795	J	3	48, WTT-95	308.04	231.03

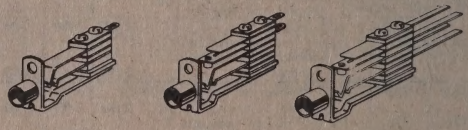
TWIN JAX PHONE JACKS



2 frames are welded back-to-back with mtg. holes on $^{13}/_{16}$″ centers and bushings on $^{5}/_{16}$″ centers. Designed to be mounted on Series 1700 jack panels. Wire-wrapping terminals. Mate with TT-patch Cord cords.

Stk. No.	Type	Description	1-9	10-24	25-49	50-99
22F967	WTT-89	Twin jack	5.20	3.90	3.58	3.25

SERIES TT-30 & WTT-30 TT-Jax PHONE JACKS



C D E

Miniatures of the std. long frame telephone-type jacks. Rugged steel frame, with gusset for extra rigidity. Series **TT-30** require only $2^{13}/_{16}$″ depth behind panel, mounted on $^{5}/_{8}$″ centers, in a ¼″ dia. hole in panels up to ⅜″ thick. Designed to be mounted on Series 1600 "TT" Jack Panels. Series **WTT-30,** depth behind panel $2^{1}1/_{16}$″. Both TT-30 and WTT-30 jacks can be mounted on Series 1600 panels.

SERIES TT-30

Stk. No.	Type	Fig.	Schem. No.*	Mating Plug	1-9	10-24	25-49	50-99
39F2295	TT-31	D	I	TT-251	1.20	.90	.83	.75
39F2296	TT-32A	D	III	TT-251	1.48	1.11	1.02	.93
39F2298	TT-34B	C	XII	TT-253	1.76	1.32	1.21	1.10

SERIES WTT-30

22F968	WTT-31	E	I	TT-251	1.28	.96	.88	.80
22F969	WTT-32A	E	III	TT-251	1.64	1.23	1.13	1.03
22F970	WTT-32B	E	IV	TT-253	1.60	1.20	1.10	1.00
22F971	WTT-34B	E	XII	TT-253	1.84	1.38	1.27	1.15

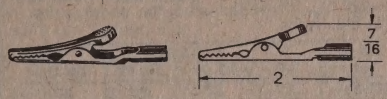
(*) See page 443

ALLIGATOR CLIPS

2" ALLIGATOR CLIPS

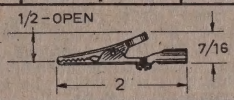
½" jaw opening. Accepts standard banana plug in rear. 5 amps AC for 10°C temp. rise, continuous duty.

SOLDER CONNECTION



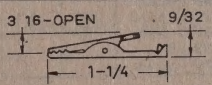
Stock No.	Type	1-9	10-99	100-499
28N500	Steel, cadmium plated	.19	.14	.12

SCREW CONNECTION



Stock No.	Type	1-9	10-99	100-499
28N501	Steel, cadmium plated	.21	.16	.13
28N502	Solid copper	.32	.24	.20

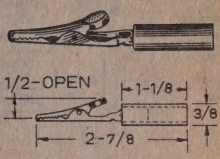
MINIATURE ALLIGATOR CLIP



3/16" jaw opening. Jaws match accurately and grip securely. Unique spring construction. Solder connection and ears for crimping. 1 amp AC for 10°C temp. rise, continuous duty.

Stock No.	Type	1-9	10-99	100-499
28N528	Steel, cadmium plated	.15	.12	.10
28N529	Copper	.18	.14	.11

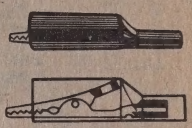
ALLIGATOR CLIP ADAPTER



Phone tip to alligator clip. Steel, cadmium plated clip. Brass body. Phosphor bronze contact. Molded Butyrate handle. 5 amps AC for 10°C temp. rise, cont. duty. Rear jack permits adapting std. tip plug to alligator clips.

Stock No.	Color	1-9	10-49	50-99	100-Up
28N604	Red	.54	.45	.41	.36
28N605	Black				

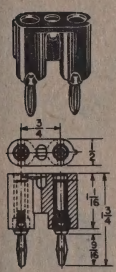
ALLIGATOR CLIP BOOTS



Molded vinyl plastic material. Fully insulates clip while allowing maximum jaw opening. 1 K volts, 60 cycle AC continuous working voltage.

Stock No.	Color	Type	Clip Length	1-9	10-99	100-499
28N492	Red	Std.	2"	.09	.08	.06
28N493	Black	Std.	2"	.09	.08	.06
28N472	Red	Midget	1¼"	.08	.06	.05
28N473	Black	Midget	1¼"	.08	.06	.05

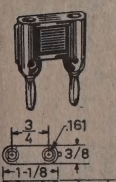
INSTRUMENT ADAPTERS



DUAL BANANA PLUG

Brass, nickel plated plug. Four-leaved, phosphor bronze, nickel plated spring. Steel, cadmium plated screw. 1.0 pf cap. between conductors. Wire held with internal set screw.

Stock No.	Color	1-99	100-499	500-999	1000-Up
39N895	Red	2.00	1.46	1.17	1.00
39N896	Black				



DUAL BANANA PLUG

Brass, nickel plated plug. Four-leaved, beryllium copper, nickel plated spring. Molded Butyrate handle. 7/32" dia. cable guide on rear. 15 amps AC for 10°C. temp. rise, cont. duty.

Stock No.	Color	1-24	25-49	50-99	100-249
34N856	Red	1.10	.99	.94	.77
34N857	Black				

BINDING POST TO BNC MALE

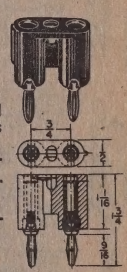
Front: BNC male. Rear: Insulated 5-way binding post. Permits adaptation of a 5-way insulated binding post to equipment using BNC jack.

Stock No.	Color	1-24	25-49	50-99	100-249
35N1069	Red	2.50	2.25	2.13	1.75
35N1070	Black				

BNC MALE TO BANANA PLUGS

Rear: BNC series co-axial plug. Front: Dual banana plugs on ¾" centers. Banana jack holes for side stacking. Black.

Stock No.	1-24	25-49	50-99	100-249
35N1067	4.25	3.83	3.61	2.98



DUAL SHORTING PLUG

Internally shorted plug mates with standard dual binding posts on ¾" centers. Rear banana jack holes allow connection to shorted posts. Black.

Stock No.	1-24	25-49	50-99	100-249
34N858	1.50	1.35	1.28	1.05

BINDING POSTS TO BNC MALE

Meets UG-144 I/U. Front: BNC series co-axial plug. Rear: Insulated dual 5-way binding posts, red and black, on ¾" centers. Black body.

Stock No.	1-24	25-49	50-99	100-249
34N870	5.45	4.91	4.63	3.82

BINDING POSTS TO BNC FEMALE

Front: BNC series co-axial jack. Rear: Insulated, dual 5-way binding posts, red and black on ¾" centers. Black body.

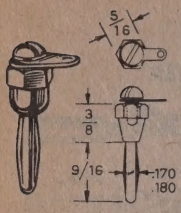
Stock No.	1-24	25-49	50-99	100-249
35N1068	4.95	4.46	4.21	3.47

BNC FEMALE TO BANANA PLUGS

Front: Dual banana plugs on ¾" centers. Banana jack holes for side stacking. Rear: BNC series co-axial jack. Black body.

Stock No.	1-24	25-49	50-99	100-249
34N860	3.50	3.15	2.98	2.45

BANANA PLUGS



BANANA PLUG

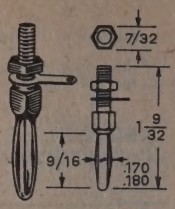
Hex brass, nickel plated body. Four-leaved phosphor bronze, nickel plated spring. 15 amps AC for 10°C temperature rise, cont. duty. Supplied with screw and phosphor bronze tinned lug. Fits std. jacks.

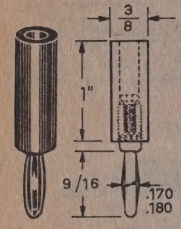
Stock No.	EACH			
	1-99	100-499	500-999	1000-Up
39N890	.53	.39	.31	.27

BANANA PLUG

Hex brass, nickel plated body. Four-leaved phosphor bronze, nickel plated spring. 15 amps AC for 10°C temperature rise, cont. duty. Supplied with hex nut, phosphor bronze tinned lug. Threaded stud for panel mntg. Fits std. jacks.

Stock No.	EACH			
	1-9	10-49	50-99	100-Up
38N291	.42	.35	.32	.28





INSULATED BANANA PLUG

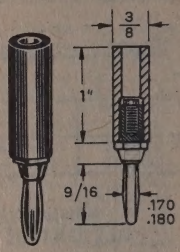
Nickel plated plug. Four-leaved phosphor bronze nickel plated spring. 15 amps AC for 10°C temperature rise, continuous duty. Wire can be soldered to brass stud or directly into plug itself. Stud also locks wire to plug for solderless connection. Fits standard banana jacks. Available in four colors.

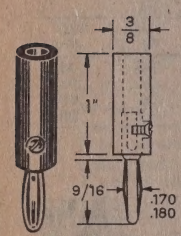
Stock No.	Color	1-9	10-49	50-99	100-Up
39N944	Red	.40	.33	.30	.27
39N940	Black				
39N941	Yellow				
39N942	Green				

INSULATED BANANA PLUG

Hex brass, nickel plated plug. Four-leaved phosphor bronze, nickel plated spring. 15 amps AC for 10°C temperature rise, continuous duty. Wire can be soldered to brass stud or plug. Stud also locks wire for solderless connection.

Stock No.	Color	1-9	10-49	50-99	100-Up
39N934	Red	.48	.40	.36	.32
39N935	Black				
39N936	Yellow				
39N937	Green				
39N938	Blue				
39N939	White				





INSULATED BANANA PLUG

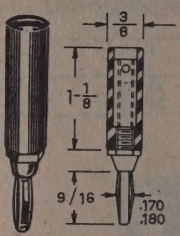
Brass, nickel plated plug. Four-leaved phosphor bronze, nickel plated spring. 15 amps AC for 10°C temperature rise, continuous duty. Set screw secures wire without soldering. Fits standard banana jacks. Molded phenolic plastic handle available in four colors: red, black, green and yellow.

Stock No.	Color	1-9	10-49	50-99	100-Up
39N863	Red	.40	.33	.30	.27
39N864	Black				
39N865	Green				
39N866	Yellow				

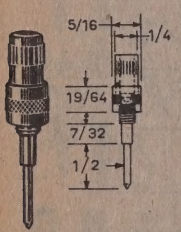
INSULATED BANANA PLUG

Hex brass nickel plate with mating brass spacer plug. Four-leaved phosphor bronze, nickel plated spring. 15 amps AC for 10°C temperature rise, continuous duty. Machined Butyrate, per MIL-P-10408A, Type I, class II handle. Cross drilled hole in spacer allows quick solderless connection of wire to plug. Fits standard banana jacks.

Stock No.	Color	1-9	10-49	50-99	100-Up
35N635	Red	.84	.70	.63	.56
35N640	Black				



TIP PLUGS



SOLDERLESS TIP PLUG

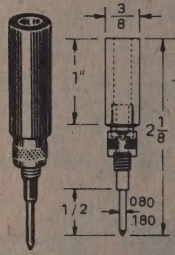
Brass, nickel plated body. 12 amps AC for 10°C temperature rise, continuous duty. Solderless wire fits thru body of tip then wraps around screw portion and is tightened with knurled collar. Force fit type. Fits std. phone tip jacks.

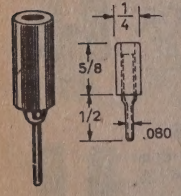
Stock No.	1-9	10-49	50-99	100-Up
39N850	.26	.21	.19	.17

INSULATED TIP PLUG

Brass, nickel plated plug. 12 amps AC for 10°C temperature rise, continuous duty. Solderless. Wire fits thru body of tip, then wraps around screw portion and tightened with knurled collar. Threaded type. Fits std. phone tip jacks. Molded phenolic handle.

Stock No.	Color	1-9	10-49	50-99	100-Up
39N852	Red	.34	.28	.26	.23
39N853	Black				





INSULATED TIP PLUG

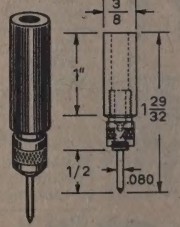
Brass, nickel plated plug. 12 amps AC for 10°C temperature rise, continuous duty. Drawn hollow tip for easy soldering. Molded Butyrate per Fed. Spec. L-P349A, Type 3, Class MS handle. Fits standard phone tip jack.

Stock No.	Color	1-9	10-49	50-99	100-Up
35N689	Red	.12	.10	.09	.08
35N690	Black				

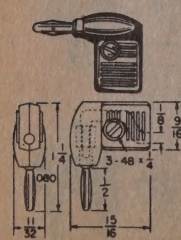
INSULATED TIP PLUG

Brass, nickel plated plug. 12 amps AC for 10° temp. rise, continuous duty. Solderless. Knurled, threaded type collar. Molded phenolic handle. Fits std. phone tip jacks.

Stock No.	Color	1-9	10-49	50-99	100-Up
35N775	Red	.34	.28	.26	.23
35N776	Black				
35N777	Green				
35N778	Yellow				



METER PLUGS



METER BANANA PLUG

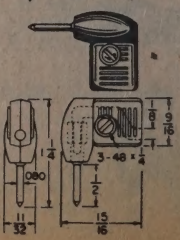
Brass, nickel plated plug. Four-leaved phosphor bronze, nickel plated spring. 10 amps AC for 10°C Temp. rise, cont. duty. Molded in two halves for easy assembly with screw and nut. Fits std. banana jacks. Phenolic handle.

Stock No.	Color	1-9	10-49	50-99	100-Up
39N965	Red	.63	.52	.47	.42.
39N966	Black				

METER TIP PLUG

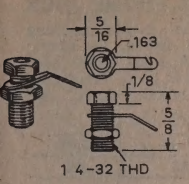
Brass, nickel plated plug .12 amps AC for 10°C temperature rise, continuous duty. Molded in two halves for easy assembly with screw and nut. Fits standard phone tip jacks. Molded phenolic handle. Red or black.

Stock No.	Color	1-9	10-49	50-99	100-Up
39N963	Red	.46	.38	.35	.31
39N964	Black				



BANANA AND TIP JACKS

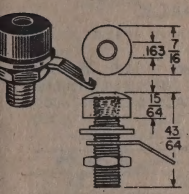
BANANA JACKS



Hex brass, nickel plated body. 15 amps AC for 10°C Temp. rise, cont. duty. Supplied with hex nut and brass tinned lug. Mounts in ¼" hole in panels up to ⅜" thick. Accepts std. banana plugs.

Stock No.	1-9	10-49	50-99	100-Up
39N867	.23	.19	.18	.16

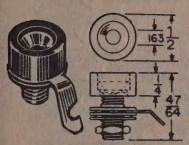
INSULATED BANANA JACKS



Brass, nickel plated body. 15 amps AC for 10°C temp. rise, cont. duty. 750V, 60 cycle AC cont. working voltage. 4.0 pf cap. Supplied with hex nut/fiber washer. Mnts. in 5/16" hole in panels up to ⅜".

Stock No.	Color	1-9	10-49	50-99	100-Up
39N868	Red	.27	.22	.20	.18
39N869	Black				
39N870	Green				
39N871	Yellow				

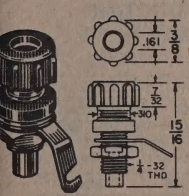
INSULATED BANANA JACK



Brass, nickel plated body. 15 amps AC for 10°C temp. rise, cont. duty. 750 V, 60 cycle AC cont. working voltage. 4.0 pf. cap. Supplied with hex nut/fiber washer/lockwasher/brass tinned lug.

Stock No.	Color	1-9	10-49	50-99	100-Up
39N967	Red	.38	.31	.28	.25
39N968	Black				

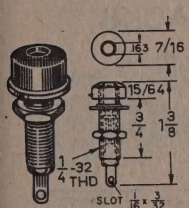
NYLON BANANA JACK



Brass, nickel plated body. Molded nylon, per MIL-P-20693A, head. 15 amps AC for 10°C temp. rise, cont. duty. 1K Volts 60 cycle AC cont. working voltage. 4.0 pf. cap. Hex nut, brass tinned lug. Mts in 5/16" hole in panels up to ¼" thick.

Stock No.	Color	1-9	10-49	50-99	100-Up
39N972	Red	.54	.45	.41	.36
39N973	Black	.54	.45	.41	.36

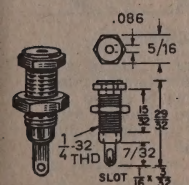
INSULATED JACK



Brass, nickel plated body. Phosphor bronze spring. 12 amps AC for 10°C temp. rise, cont. duty. 4 mmfd cap. Hex nut/fiber washer. Accepts std. phone tip or banana plugs. Mnts. in 5/16" hole in panels up to ½" thick.

Stock No.	Color	1-9	10-49	50-99	100-Up
35N2760	Red	.42	.35	.32	.28
35N2761	Black				
35N2762	Green				
35N2763	Yellow				

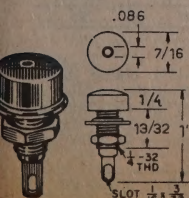
PHONE TIP JACK



Brass, nickel plated body. Phosphor bronze contact. 15 amps AC for 10°C temp. rise, cont. duty. Positive contact with std. phone tip plugs. Hex nut. Mounts in ¼" hole in panel up to ⅜" thick.

Stock No.	1-9	10-49	50-99	100-Up
39N855	.36	.30	.27	.24

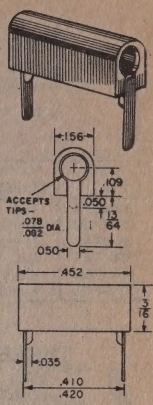
INSULATED PHONE TIP JACKS



Brass, nickel plated body. Phosphor bronze contact. 15 amps AC. 4.0 pf cap. Supplied with hex nut/fiber washer. Mounts in 5/16" hole in panels up to ⅜" thick. Accepts standard phone tip plugs.

Stock No.	Color	1-9	10-49	50-99	100-Up
39N856	Red	.33	.27	.25	.22
39N857	Black				
39N858	Green				
39N859	Yellow				

PC TEST JACK

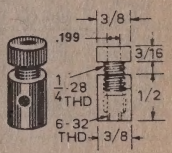


Right angle. Molded nylon per MIL-P-20693A, body. Beryllium copper spring. Silver underplate with gold overplate finish. 5 amps AC for 10°C temp. rise, cont. duty. 1.5 KV, 60 cycle AC cont. working voltage. .005 ohms max. res. at rated current. Cap. less than 1 pf at 5mHz. Mnts in .052" hole on .4" cntrs.

Stock No.	Color	1-24	25-49	50-99	100-249
99N1725	White	.42	.38	.33	.31
99N1726	Red				
99N1727	Black				
99N1728	Brown				
99N1729	Green				
99N1730	Orange				
99N1731	Blue				
99N1732	Yellow				
99N1733	Gray				
99N1734	Violet				
99N1735	Natural				

BINDING POSTS

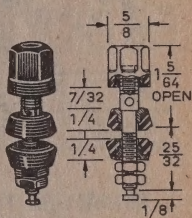
METAL BINDING POST



Brass, nickel plated head and body. 15 amps AC for 10°C temp. rise, cont. duty. Accepts standard phone tip or banana plugs.

Stock No.	1-9	10-49	50-99	100-Up
38N293	.42	.35	.32	.28

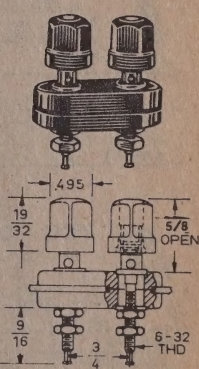
6-WAY BINDING POST



Captive molded Lexan, with brass, gold plated insert hex head. Brass, gold plated body. Molded Lexan, with gold plated brass insert washers. 30 amps AC for 10°C temp. rise, cont. duty. 2 KV AC, 60 Hz., cont. working voltage. 5 pf cap. to ⅛" thick aluminum panel. Accepts phone tip, spade lug, banana plug, alligator clip, stranded or solid wire up to 15 AWG.

Stock No.	Color	1-9	10-49	50-99	100-Up
35N844	Red	.84	.70	.63	.56
35N749	Black				

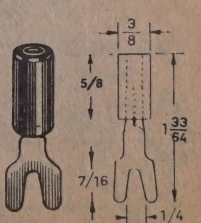
DUAL ASSEMBLY BINDING POST NYLON



Brass, nickel plated body. Captive molded Lexan head. Molded black styrene insulation, cross slotted to accept std. phone tips in post either forward or sideways. 15 amps AC for 10°C temp. rise, cont. duty. 2 KV, 60 cycle AC cont. working voltage. 2 pf cap. between conductors. 3 pf to panel. Mnts in 2½" holes on ¾" mntg cntrs in panels up to ¼" thick. Accepts single or dual banana plugs. Supplied with 4 hex nuts. 2 flat washers.

Stock No.	Color	1-9	10-49
35N845	Two Black	1.50	1.25
35N846	Two Red		
35N847	One Red, One Black		

INSULATED SPADE LUG



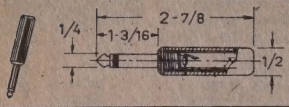
Steel electro tinned, .020" thick lug. Molded Butyrate handle. 15 amp AC for 10°C temp. rise, cont. duty. Tapered slots fit studs from ¼" down to #6 dia. Fits all standard binding posts. Accepts std. banana plugs in rear. Solder bridge for wire connection up to No. 18 AWG. Red or black.

Stock No.	Color	1-9	10-49	50-99	100-Up
39N977	Red	.12	.10	.09	.08
39N978	Black				

VOLTREX brand Plugs and Jacks

PHONE PLUGS

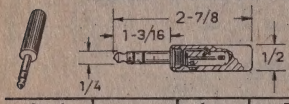
TWO CONDUCTOR PHONE PLUG



Brass, nickel plated plug. Molded Bakelite handle except*. Mates with two conductor std. phone jacks. Solder type plug has tinned terminals for easy solderability.

Stock No.	Handle	Lug Type	1-9	10-24	25-49	50-99
39N674	Red	Solder	1.00	.75	.69	.63
39N763	Black	Solder	1.00	.75	.69	.63
39N764	Metal*	Solder	1.44	1.08	.99	.90
39N761	Red	Screw	1.04	.78	.72	.65
39N760	Black	Screw	1.04	.78	.72	.65
39N765	Metal*	Screw	1.48	1.11	1.02	.93

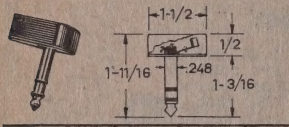
THREE CONDUCTOR PHONE PLUG



Molded Bakelite or brass. nickel plated handle. Brass nickel plated plug. Mates with std. phone jacks. Solder type plug has tinned terminals.

Stock No.	Handle	Lug Type	1-9	10-24	25-49	50-99
39N676	Red	Solder	1.48	1.11	1.02	.93
39N771	Black	Solder	1.48	1.11	1.02	.93
39N767	Metal	Solder	1.84	1.38	1.27	1.15
39N675	Black	Screw	1.68	1.26	1.16	1.05
39N766	Metal	Screw	1.92	1.44	1.32	1.20

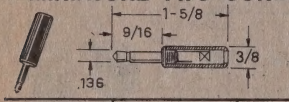
RIGHT ANGLE 2 OR 3 CONDUCTOR PHONE PLUG



Black, molded Bakelite handle. Brass, nickel plated plug. Flat profile does not interfere with operation or placement of equipment. Screw type terminals. Mates with std. phone jacks.

Stock No.	No. Cond.	1-9	10-24	25-49	50-99
39N768	2	1.48	1.11	1.02	.93
39N769	3	1.80	1.35	1.24	1.13

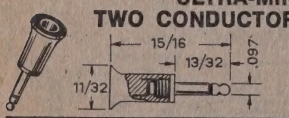
MINIATURE TWO CONDUCTOR PHONE PLUG



Molded Bakelite or brass, nickel plated handle. Brass, nickel plated plug. Has tinned terminals. Mates with miniature phone jack.

Stock No.	Handle	1-9	10-24	25-49	50-99
39N747	Red	.92	.69	.64	.58
39N746	Black	.92	.69	.64	.58
39N748	Metal	1.28	.96	.88	.80

ULTRA-MINIATURE TWO CONDUCTOR PHONE PLUG

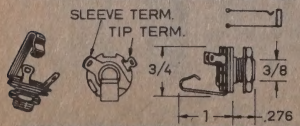


Black, molded Bakelite handle. Brass, nickel plated plug. Tinned terminals. Mates with ultra-miniature phone jack.

Stock No.	1-9	10-24	25-49	50-99
22N395	.88	.66	.61	.55

PHONE JACK

TWO CONDUCTOR OPEN CIRCUIT PHONE JACK

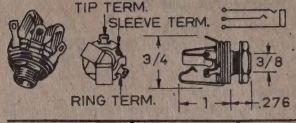


Brass, nickel plated bushing and spring. Brass, tin plated terminals. Accepts two conductor std. phone plug. Needs 1" clearance behind panel, 3/8" dia. hole.

Stock No.	1-9	10-24	25-49	50-99
39N782	.60	.45	.42	.38

PHONE JACKS

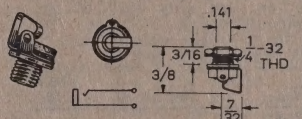
THREE CONDUCTOR OPEN CIRCUIT PHONE JACK



Brass, nickel plated bushing and spring. Brass, tin plated terminals. Accepts three conductor phone plug. Needs 1" clearance behind panel, 3/8" dia. hole.

Stock No.	1-9	10-24	25-49	50-99
39N665	.72	.54	.50	.45

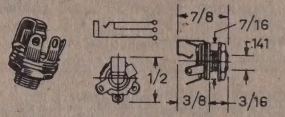
MINIATURE TWO CONDUCTOR OPEN CIRCUIT PHONE JACK



Brass, nickel plated bushing and spring. Brass, tin plated terminals. Accepts two conductor miniature phone plug. Mounts in 1/4" dia. hole.

Stock No.	1-9	10-24	25-49	50-99
39N744	.56	.42	.39	.35

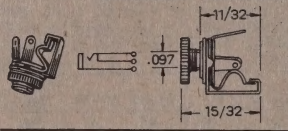
MINIATURE TWO CONDUCTOR CLOSED CIRCUIT PHONE JACK



Brass, nickel plated bushing and spring. Brass, tin plated terminals. Accepts two conductor miniature phone plug. Mounts in 1/4" dia. hole.

Stock No.	1-9	10-24	25-49	50-99
39N745	.60	.45	.42	.38

ULTRA-MINIATURE TWO CONDUCTOR CLOSED CIRCUIT PHONE JACK

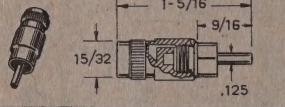


Brass, nickel plated bushing and spring. Brass, tin plated terminals. Accepts two conductor ultra-min. phone plug.

Stock No.	1-9	10-24	25-49	50-99
22N394	.72	.54	.50	.45

PHONO PLUGS & JACKS

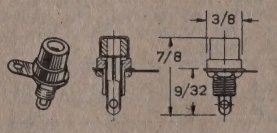
SHIELDED HANDLE PHONO PLUG



Steel, cadmium plated shell. Drawn brass, nickel plated pin. .062" fiber washer. Mates with phono jacks. Finger grip. Neat appearance.

Stock No.	1-9	10-24	25-49	50-99
39N685	.60	.45	.42	.38

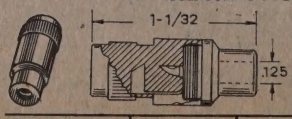
FRONT MOUNT PHONO JACK



Steel, cadmium plated shell. Brass, nickel plated contacts. Brass, cadmium plated lugs. XP laminated phenolic insulation. Mates with phono plugs. Mnts. in 3/8" dia. hole. Supplied with nut, washer and solder lug.

Stock No.	1-9	10-24	25-49	50-99
39N684	.40	.30	.28	.25

INLINE PHONO JACK



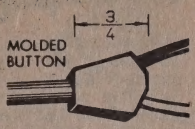
Steel, cadmium plated shell. Brass, nickel plated contacts. XP laminated phenolic insulation. Mates with phono plugs. Combo clamp and shielded jack.

Stock No.	1-9	10-24	25-49	50-99
22N250	.72	.54	.50	45

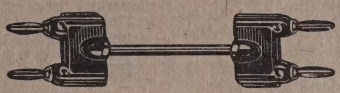
PATCH CORDS

CABLE TYPES AVAILABLE

	Wire "A"	Wire "B"
Descr.	18 ga. 65/36 str.	RG58/U Coax
Insul.	Vinyl	Polyethylene
Jacket	Vinyl	Vinyl
Nom. Cap.	30 pd/ft.	50 ohm imp.



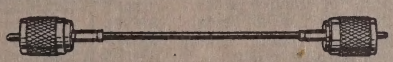
DOUBLE PLUG BOTH ENDS



Brass, nickel plated plug. Four-leaved, beryllium copper, nickel plated spring. Wire "B," 36" L. Molded Butyrate handle. Mates with std. dual binding post having ¾" cntrs. Each end terminates with molded double banana plug. Interconnects unlimited no. of multiple circuits top and side.

Stock No.	1-9	10-24	25-49	50-Up
34N801 34N805	5.95	5.36	5.06	4.17

UHF PLUG BOTH ENDS



Feature pre-assembled, flexible, weather resistant RG-58U cable. Coaxial connectors crimped to wire with unique waterproof seal for greater flexibility and strain relief. With wire "B."

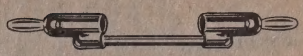
Stock No.	Cable Length	1-9	10-49	50-99	10-Up
16N1104	12"	4.80	4.00	3.60	3.20
16N1105	24"	5.04	4.20	3.78	3.36
16N1106	36"	5.16	4.30	3.87	3.44

BNC MALE BOTH ENDS

With wire "B" as specified above.

Stock No.	Length	1-9	10-24	25-49	50-Up
34N842 34N843	24" 36"	6.85	6.17	5.82	4.80

CROSS PATCH BANANA PLUG CORD



Brass, nickel plated body. Four-leaved, beryllium copper, nickel plated spring. Uses wire "A." Molded Butyrate handle. Interconnects unlimited number of multiple circuits. Positive, lasting contact for all banana plugs on top and side. With plug spring 9/16" long.

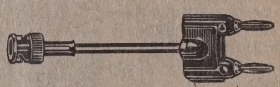
Stock No. Red	Stock No. Black	Wire Length	1-9	10-24	25-49	50-Up
34N877	34N878	8"	1.80	1.62	1.53	1.26
34N879	34N880	12"				
34N848	34N849	24"				
34N850	34N851	36"				

DOUBLE PLUG TO ALLIGATOR CLIPS

Brass, nickel plated plug. Four-leaved, beryllium copper, nickel plated spring. Steel, cadmium plated clip. Molded vinyl plastic insulation. 36" long wire. Mates with std. dual binding post having ¾" cntrs. One end with double banana plug, other has insulated alligator clips; one red, one black. Polarity indication molded in.

Stock No.	Wire	1-9	10-24	25-49	50-Up
34N807 34N811	"A" "B"	6.95	6.26	5.91	4.87

BNC MALE TO DOUBLE PLUG



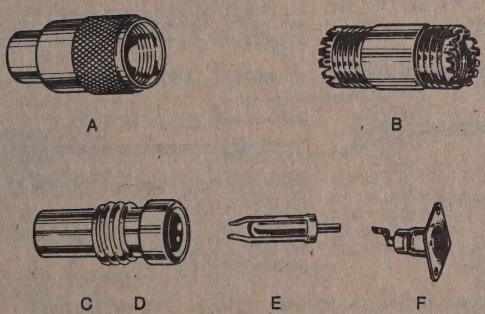
Brass, nickel plated plug. Four-leaved, beryllium copper, nickel plated spring. Molded Butyrate handle. Wire "B," 36" L. Mates with std. dual binding post having ¾" cntrs. One end double banana plug, other has BNC male plug.

Stock No.	1-9	10-24	25-49	50-Up
34N815	6.95	6.26	5.91	4.87

11

MISCELLANEOUS CONNECTORS

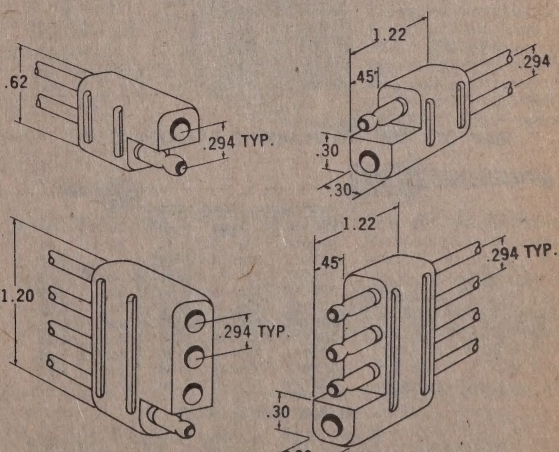
UHF CONNECTORS



Use for connecting RG-6, RG-8, RG-11, RG-58 and RG-59U cables. PL-259. Brass, silver plated shell. PL-258. Junction for joining separate cable lengths. Other types include UG-175U reducing adapter for RG-58U cable, UG-176U reducing adapter for RG-59U cable, Motorola plug and jack.

Stock No.	Description	Fig.	Each 1-24	Each 25-99
39N030	PL-259 Straight Solder Type Plug	A	1.01	.78
39N035	PL-258 Straight Adapter	B	1.36	1.06
39N040	UG-175U Reducing Adaptor for RG-58U	C	.28	.21
39N041	UG-176U Reducing Adaptor for RG-59U	D	.30	.23
16N1080	Motorola Plug	E	.18	.15
16N1081	Motorola Jack	F	.24	.20

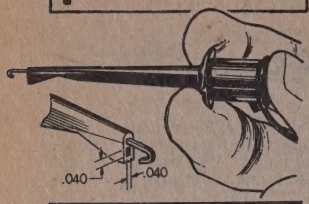
POLARIZED CONNECTORS

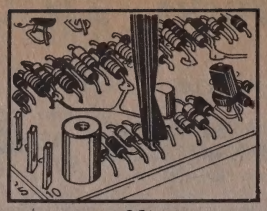


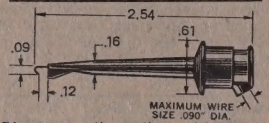
Full insulated to permit quick connect, disconnect. 18" color coded wire loop. Available with 2 or 4 contacts.

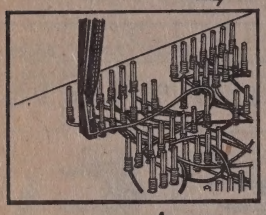
Stock No.	No. of Contacts	1-9	10-49	50-99	100-Up
16N1094	2	.48	.40	.36	.32
16N1095	4	1.01	.84	.76	.68

POMONA ELECTRONICS



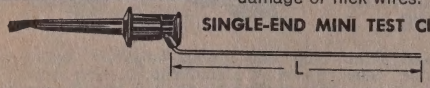






Plunger action clips with gold-plated contact hook can be connected rapidly to component leads. Clip is completely insulated to point of connection. Comfortable finger grip operation. Positive connection that won't pop off. No sharp teeth to damage or nick wires.

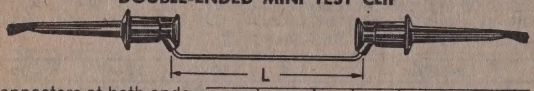
SINGLE-END MINI TEST CLIP



No connector on one end to permit connection of various components. Nylon insulation molded directly to clip for added durability. Gold-plated beryllium copper tip for maximum sensitivity. Wire is 22 AWG, stranded 26x36. Extra flexible polyvinyl insulation, .052" outside diameter.

Stk.No.	Type	Lgth.	Color	1-24	25-49	50-99
35F1020	3780-8	8"	Red			
35F1021	3780-12	12"	Red	1.00	.90	.85
35F1022	3780-24	24"	Red			
35F1023	3780-36	36"	Red			
35F1024	3780-48	48"	Red	1.05	.95	.89
35F1025	3780-60	60"	Red	1.10	.99	.94
35F1026	3780-8	8"	Black			
35F1027	3780-12	12"	Black	1.00	.90	.85
35F1028	3780-24	24"	Black			
35F1029	3780-36	36"	Black			
35F1030	3780-48	48"	Black	1.05	.95	.89
35F1031	3780-60	60"	Black	1.10	.99	.94

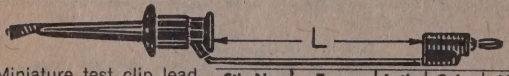
DOUBLE-ENDED MINI TEST CLIP



Connectors at both ends for quick connections between test points, without damage from sharp teeth. Both ends have gold-plated beryllium copper hook tips for high conductivity. Nylon insulation molded directly onto wire for added strength. 22 AWG, stranded tin copper wire. Polyvinyl insulation has .052" O.D. Operating range: −25°C to +105°C.

Stk.No.	Type	Lgth.	Color	1-24	25-49	50-99
35F1032	3781-8	8"	Red			
35F1033	3781-12	12"	Red			
35F1034	3781-18	18"	Red	1.65	1.49	1.40
35F1035	3781-24	24"	Red			
35F1036	3781-36	36"	Red			
35F1037	3781-48	48"	Red	1.70	1.53	1.45
35F1038	3781-60	60"	Red	1.75	1.58	1.49
35F1039	3781-8	8"	Black			
35F1040	3781-12	12"	Black			
35F1041	3781-18	18"	Black	1.65	1.49	1.40
35F1042	3781-24	24"	Black			
35F1043	3781-36	36"	Black			
35F1044	3781-48	48"	Black	1.70	1.53	1.45
35F1045	3781-60	60"	Black	1.75	1.58	1.49

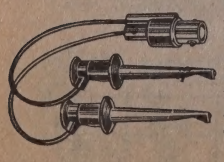
MINI TEST CLIP—TO STACKING BANANA PLUG



Miniature test clip lead adapts to equipment using miniature banana jacks. Beryllium copper gold-plated hook tip. Nylon insulation molded directly onto clip and wire. Wire is 20 AWG, stranded 41x38 T.C. Extra flexible polyvinyl insulation.

Stk. No.	Type	Lgth.	Color	Net
35F950	3784-12-0	12"	Black	1.85
35F951	3784-24-0	24"	Black	1.85
35F952	3784-36-0	36"	Black	1.85
35F953	3784-48-0	48"	Black	1.95
35F954	3784-60-0	60"	Black	2.05
35F955	3784-12-2	12"	Red	1.85
35F956	3784-24-2	24"	Red	1.85
35F957	3784-36-2	36"	Red	1.85
35F958	3784-48-2	48"	Red	1.95
35F959	3784-60-2	60"	Red	2.05

CLIPS TO BNC RECEPTACLE

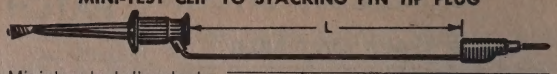


Model 3788. Molded breakout converts coaxial cable with a male plug to test cable with clips. Clips are gold-plated beryllium copper with hook tips. Nylon insulation molded directly onto one black, one red wire. Wire 22 AWG tinned copper, PVC insulation .052" O.D. Connector BNC receptacle UG-1094/U. Length, 7".

Stock No.	Type	1-24	25-49	50-99	100-249
35F1061	3788	3.95	3.56	3.36	2.77

Test Leads and Clips

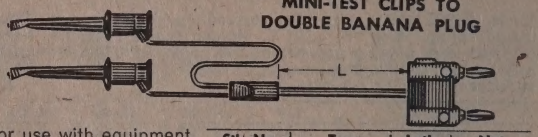
MINI-TEST CLIP TO STACKING PIN TIP PLUG



Miniature test clip adapts to equipment using standard pin tip jacks. Beryllium copper gold-plated hook tip. Nylon insulation. .080 dia., ½" long, brass, gold flashed pin tip plug. Beryllium copper, gold flashed stack-up. Accepts .080 dia. pin.

Stk. No.	Type	Lgth.	Color	Net
35F960	3785-12-0	12"	Black	1.85
35F961	3785-24-0	24"	Black	1.85
35F962	3785-36-0	36"	Black	1.85
35F963	3785-48-0	48"	Black	1.95
35F964	3785-60-0	60"	Black	2.05
35F965	3785-12-2	12"	Red	1.85
35F966	3785-24-2	24"	Red	1.85
35F967	3785-36-2	36"	Red	1.85
35F968	3785-48-2	48"	Red	1.95
35F969	3785-60-2	60"	Red	2.05

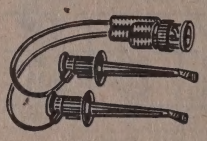
MINI-TEST CLIPS TO DOUBLE BANANA PLUG



For use with equipment having standard binding posts or banana jacks. Shielded coaxial cable, RG58C/U, .195" O.D., nom. cap. 28.5 pf/ft.

Stk. No.	Type	Lgth.	Net
35F970	3786-C-18	18"	
35F971	3786-C-24	24"	
35F972	3786-C-36	36"	6.50
35F973	3786-C-48	48"	
35F974	3786-C-60	60"	

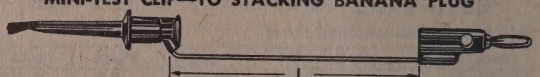
MINI-TEST CLIPS TO BNC PLUG



Molded breakout converts coaxial cable with BNC receptacle to test cable with clips. Beryllium copper gold-plated hook tip. Nylon insulation molded directly onto clip and wire: one red, one black.

Stk. No.	Type	Lgth.	Net
35F975	3789	7"	4.95

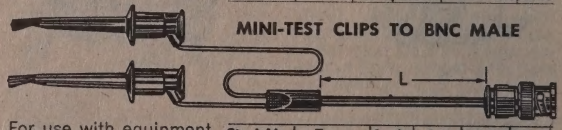
MINI-TEST CLIP—TO STACKING BANANA PLUG



Miniature test clip lead adapts to equipment using standard banana jacks. Beryllium copper gold-plated hook tip. Nylon insulation molded directly onto clip and wire. Wire is 20 AWG, stranded 41x38 T.C. Extra flexible polyvinyl insulation.

Stk. No.	Type	Lgth.	Color	1-24	25-49	50-99
35F1046	3782-12	12"	Red	1.65	1.49	1.40
35F1047	3782-24	24"	Red	1.65	1.49	1.40
35F1048	3782-36	36"	Red	1.65	1.49	1.40
35F1049	3782-48	48"	Red	1.70	1.53	1.45
35F1050	3782-60	60"	Red	1.75	1.58	1.49
35F1051	3782-12	12"	Black	1.65	1.49	1.40
35F1052	3782-24	24"	Black	1.65	1.49	1.40
35F1053	3782-36	36"	Black	1.65	1.49	1.40
35F1054	3782-48	48"	Black	1.70	1.53	1.45
35F1055	3782-60	60"	Black	1.75	1.58	1.49

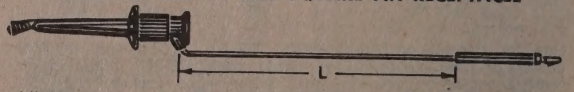
MINI-TEST CLIPS TO BNC MALE



For use with equipment having BNC receptacles. Beryllium copper gold-plated hook tip. Shielded coaxial cable, .195" O.D., 28.5 pf/ft.

Stock No.	Type	Lgth.	1-9	10-24	25-49
35F1056	3787-C-18	18"			
35F1057	3787-C-24	24"			
35F1058	3787-C-36	36"	6.50	5.85	5.53
35F1059	3787-C-48	48"			
35F1060	3787-C-60	60"			

MINI-TEST CLIP TO .025 SQUARE PIN RECEPTACLE



Miniature test clip lead has .025 square pin receptacle which slides over .025 square pins. Beryllium copper gold-plated hook tip. Wire is 20 AWG, stranded 41x 36 T.C. .025 pin receptacle has gold-plated phosphor bronze contact.

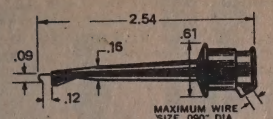
Stk. No.	Type	Lgth.	Color	Net
35F976	3783-12-0	12"	Black	2.25
35F977	3783-24-0	24"	Black	2.25
35F978	3783-36-0	36"	Black	2.25
35F979	3783-48-0	48"	Black	2.35
35F980	3783-60-0	60"	Black	2.45
35F981	3783-12-2	12"	Red	2.25
35F982	3783-24-2	24"	Red	2.25
35F983	3783-36-2	36"	Red	2.25
35F984	3783-48-2	48"	Red	2.35
35F985	3783-60-2	60"	Red	2.45

11

Test Probes, Clips and Sockets

POMONA ELECTRONICS

DO-IT-YOURSELF "GRABBERS"

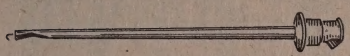


Features plunger type action between thumb and two fingers with comfortable finger grip operation. Positive connection that won't pop off. No sharp teeth to damage or nick wires. High temperature material resists melting when soldering. Accepts wire up to .090" dia.

"GRABBERS"

Stock No.	Type	Color	Per Pkg. of 10 1-24	25-49	50-99
35F1001	3925-0	Black	8.50	7.65	7.23
35F1002	3925-2	Red	8.50	7.65	7.23

"MAXI GRABBER"



6" length, designed especially for high-rise packaging of electronic components where depth of testing is a key factor. Will fit entry holes as small as ¼" dia.

Stk. No.	Type	Color	1-24	25-49	50-99
35F994	4225-0	Black	1.65	1.49	1.40
35F995	4225-2	Red	1.65	1.49	1.40

"MICRO GRABBER"

1.75" grabber is designed for testing of high density packaging. Lightweight and small size permits multiple usage of units in confined areas.

Stk. No.	Type	Color	1-24	25-49	50-99
35F996	4233-0	Black	1.00	.90	.85
35F997	4233-2	Red	1.00	.90	.85

"GRABBER" WITH 6-32 THREAD

Can be used with oscilloscopes and leads equipped with a 6-32 screw-on tip. Can be crimped or soldered to wire. Supplied with shrink sleeving.

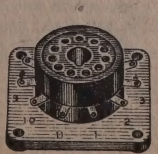
Stk. No.	Type	Color	1-24	25-49	50-99
35F998	4011-0	Black	1.50	1.35	1.28
35F999	4011-2	Red	1.50	1.35	1.28

6-32 SCREW-ON REPLACEMENT TIP

Stk. No.	Type	Pkg. of 10 1-24	25-49	50-99
35F1000	4311	7.50	6.75	6.38

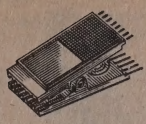
11 CONTACT RELAY SOCKET

For use in Industrial Control equipment requiring a rugged compact 11 contact configuration. Features simplified above chassis mounting, socket may be gang mounted. 600 Vrms at 10 amps.

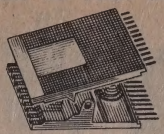


Stock No.	Type	1-24
35F1018	2811	3.85

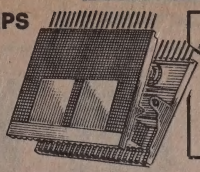
DIP CLIP IC TEST CLIPS



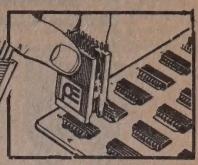
14/16 Pin Dual In-Line

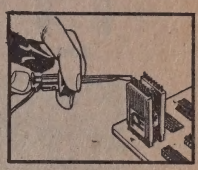


24 Pin Dual In-Line



40 Pin Dual In-Line



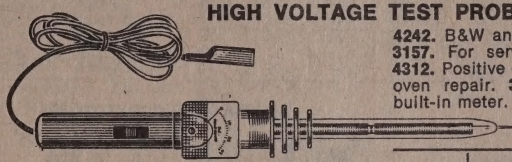


Specially designed to allow the attachment of test probes to IC packages. Design reduces possibility of accidental shorting while testing live circuits. Non-tarnish, nickel-silver contacts have spring-loaded wiping action to assure good electrical connection. Positive control finger design gives positive positioning to prevent accidentally overloading sensitive circuits. Once connected, numerous test probes may be quickly connected for convenient hands-free testing in the laboratory or in the field.

Stock No.	Type	Description	Net
35F1064	3916	14/16 Pin Dual In-Line	4.50
35F1004	4124	24 Pin Dual In-Line	12.85
35F1005	4140	40 Pin Dual In-Line	18.85
35F1006	4236*	14/16 Pin Dual In-Line	4.50
35F1007	4324*	24 Pin Dual In-Line	12.85
35F1008	4340*	40 Pin Dual In-Line	18.85

*Reduced thickness for testing ultra dense packages.

HIGH VOLTAGE TEST PROBES



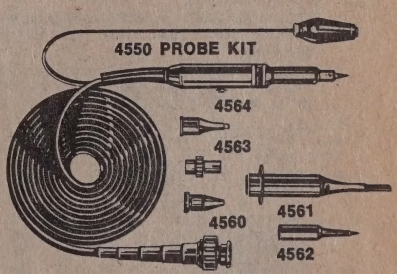
4242. B&W and Color T.V. measurements. **3157.** For servicing electronic air filters **4312.** Positive ground designed, microwave oven repair. **3200.** Only AC probe with built-in meter. With carrying case.

Easily make high voltage adjustments in the home without carrying bulky equipment. Just ground the probe to TV chassis with alligator clip, contact test probe tip to high voltage anode, and read voltage indicated on built-in meter. On-off switch in handle protects meter when not in use.

Stock No.	Type Gnd.	Volts Full Scale	Multiplier Resist.	Each
34F899	4242 Neg.	42K DC	720-840	24.95
34F967	3157 Neg.	15K DC	300MΩ	24.95
35F1003	4312 Pos.	15K DC	300MΩ	24.95
34F970	3200	10K AC	20MΩ	34.50

OSCILLOSCOPE PROBE KIT

Passive probe has 3-position slide switch in head and cable length of 1.5 m. (4.92 ft.). **Position x 1 Bandwidth:** D.C. to 10 MHz. Input Res.: 1MΩ (oscilloscope input). Working Volt.: 600 VDC (including Peak A.C.). Position Ref.: Probe top grounded via 9MΩ resistor, oscilloscope input grounded. **Position x 10 Bandwidth:** D.C. to 100 MHz. Input Res.: 10MΩ when used with 1MΩ input oscilloscopes. Working Volt.: 600 VDC (including Peak A.C.).
39F3609. Model 4550. Net **44.85**



REPLACEMENT ACCESSORIES

Stock No.	Type	Description	1-24	25-49	50-99
39F3610	4560	Insulating Tip	.50	.45	.43
39F3611	4561	Sprung Hook	6.85	6.17	5.82
39F3612	4562	Trimmer Tool	.75	.68	.64
39F3613	4563	BNC Adap.	1.70	1.53	1.43
39F3614	4564	I.C. Tip	1.30	1.17	1.11

BREADBOARD SOCKETS, RELAY & TEST SOCKET ADAPTERS

Test socket tube adapters are ideal for making measurements of voltage, audio, and video without tracing complicated circuits from the bottom of the chassis. Feature extended test tabs for easy use with either alligator clips or test prods.

Stock No.	Type	Description	1-49	50-99	100-249
34F527	TVS-7	7 pin min.	2.75	2.48	2.20
34F545	TVS-8	8 pin Octal	3.25	2.93	2.60
34F546	TVS-9	9 pin min.	2.95	2.66	2.36
34F869	TVS-12	Compactron	3.85	3.47	3.08

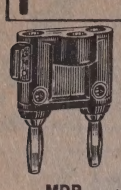
Surface mounted breadboard sockets are ideal for experimental circuit design, portable and enclosed units, plug-in and packaged assemblies. Feature an insulated base to prevent connections from shorting to chassis.

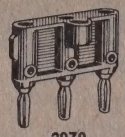
Stock No.	Type	Description	1-49	50-99	100 249
34F864	XS-7	7-pin min.	.90	.81	.72
34F865	XS-9	9-pin min.	1.10	.99	.88
34F866	XS-8	8 pin Octal	1.50	1.35	1.20

11

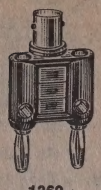
POMONA ELECTRONICS

Plugs, Adapters & Connectors

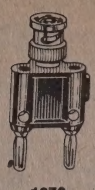

MDP


2970

MDP-X


1269

1296


1270

1452

3430

1297

MDP. Double banana plugs to separate cables. **2790.** Triple banana plug to 3 separate cables. **MDP-X.** Jacks and plugs for 4 isolated terms. **MDP-S.** Int. bonded shorting bar. **1269.** BNC jack to dbl. banana plug, 1296. Binding post to BNC plug. **1270.** BNC plug to dbl. banana plug. **1452.** Binding post jack to BNC receptacle. **3430.** Binding post to BNC plug. **1297.** BNC to phone plug.

Stk. No.	Model	Color	1-24	25-49	50-99	100-249
34F856	MDP	Red	1.10	.99	.94	.77
34F857	MDP	Black	1.10	.99	.94	.77
35F1065	2970	Red	1.85	1.67	1.57	1.30
35F1066	2970	Black	1.85	1.67	1.57	1.30
34F858	MDP-S	White	1.50	1.35	1.28	1.05
34F859	MDP-X	Red	3.85	3.47	3.27	2.70
34F860	1269	Black	3.50	3.15	2.98	2.45
34F870	1296	Black	5.45	4.91	4.63	3.82
35F1067	1270	Black	4.25	3.83	3.61	2.98
35F1068	1452	Black	4.95	4.46	4.21	3.47
35F1069	3430	Red	2.50	2.25	2.13	1.75
35F1070	3430	Black	2.50	2.25	2.13	1.75
35F1071	1297	Metal	5.85	5.27	4.97	4.10

MINIATURE BANANA PLUGS AND ADAPTERS

3269

3296

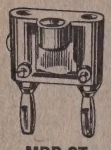
2945

2244

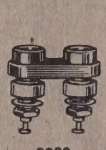
Model 3269. Adapter. BNC receptacle to miniature double banana plug — ½"ctrs. **Model 3296 Adapter.** 5-way binding posts on ½" ctrs. with .104" dia. banana jacks attached to BNC plug.
Model 2945. Miniature Solderless Banana Plug Stack-up. Collar acts as strain relief. .104" dia. jack to plug.
Model 2244. Miniature double banana plug on ½" ctrs.

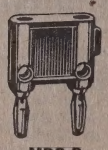
Stk. No.	Type	Color	1-24	25-49	50-99	100-249
34F936	3269	Black	4.25	3.83	3.61	2.98
34F937	3296	Black	5.85	5.27	4.97	4.10
34F938	2945	Black	.85	.77	.72	.60
34F939	2945	Red	.85	.77	.72	.60
34F844	2244	Black	.150	1.35	1.28	1.05

BANANA TYPE CONNECTORS


MDP-ST

1809

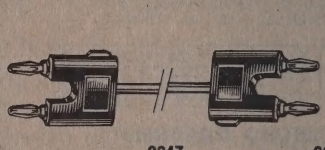

2269


MDP-R

2142

3276

1432


2247

3277/3279

MDP-ST. Standard size double banana plug with solder turret terminals; units are stackable.

1809. .08" dia. tip jack to banana plug adapter. With .166" cross hole for side stacking.

2269. Double banana jack; standard size, nickle plated, one each red and black jacks on either red or black base.

MDP-R-600. Standard size double banana jack with an internal 600 ohm, ½ watt, 1% tolerance resistor across the leads. .166" holes for top and side stack up.

2142. Miniature insulated banana jack; requires ¼" hole.

3276. Miniature banana plug with gold flashed body and threaded stud for rapid mounting.

1432. Banana jack to pin tip adapter; nickle plated brass body with .166" cross hole to allow side stacking.

2247. Miniature double banana plug patch cord. Two miniature double plugs on RG174/U coax.

3277. Miniature banana jack; for 1/16" panel, mounts in .135" hole.

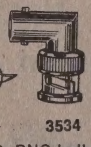
3279. Same as **3277** except ⅛" panel.

Stk. No.	Type	Descript.	1-24	25-49	50-99	100-249
39F3615	MDP-ST	Black	1.25	1.13	1.06	.88
39F3616	1809-0	Black	.75	.68	.64	.53
39F3617	1809-2	Red	.75	.68	.64	.53
30F1419	2269-0	Black	1.25	1.13	1.06	.88
30F1418	2269-2	Red	1.25	1.13	1.06	.88
39F3618	MDP-R-600	Red	3.50	3.15	2.98	2.45
39F3619	2142-0	Black	.35	.32	.30	.25
39F3620	2142-2	Red	.35	.32	.30	.25

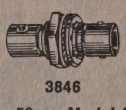
Stk. No.	Type	Descript.	1-24	25-49	50-99	100-249
39F3621	3276	4-40 Thd.x⅜"	.40	.36	.34	.28
39F3622	1432-0	Black	.35	.32	.30	.25
39F3623	1432-2	Red	.35	.32	.30	.25
39F3624	2247-K-12	12"	5.95	5.36	5.06	4.17
39F3625	2247-K-24	24"	5.95	5.36	5.06	4.17
39F3626	3277	1/16" panel	.25	.23	.21	.18
39F3627	3279	⅛" panel	.25	.23	.21	.18

RF CONNECTOR ADAPTORS

4160


3534

3287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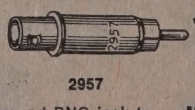
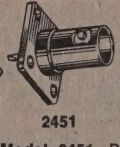


2957


2451

3286

3533

Model 4160. BNC bulkhead receptacle, 50 ohm impedance, can be mounted in panels to .134" in thickness, Teflon insulation and non-tarnish finish.

Model 3534. Right angle BNC jack to BNC plug; 50 ohm impedance, Teflon insulation and non-tarnish finish.

Model 3287. UHF jack to BNC plug; 50 ohm impedance, Rexolite insulation, gold flashed Phosphor Bronze contacts.

Model 3846. Isolated ground BNC jack to jack; mounts in panels up to .175" thick, Teflon insulated.

Model 3288. BNC jack to type "N" plug; contacts are gold flashed, Teflon insulation, non-tarnish case.

Model 2957. Adapts BNC receptacle to male phono plug. All metal construction to insure proper shielding. Allows use of available BNC cables on equipment.

Model 2451. BNC female receptacle; 50 ohms, mounts in 2¾" hole, solder cup connection, Teflon insulated.

Model 3286. BNC jack to UHF plug; gold flashed contacts, Pexolite insulation, non-tarnish finish.

Model 3533. BNC plug to plug; allows interconnection of two coaxial cables with BNC jacks. 50 ohm, Teflon insulated.

Stk. No.	Type	Description	1-24	25-49	50-99	100-249
39F3628	4160	BNC blkd. receptacle	1.50	1.35	1.28	1.05
39F3629	3534	90° BNC adapter	4.95	4.46	4.21	3.47
39F3630	3287	Male BNC to UHF Female	4.25	3.83	3.61	2.98
39F3631	3846	Isolated BNC jack to jack	8.85	7.97	7.52	6.20
39F3632	3288	Female BNC to "N" plug	3.50	3.15	2.98	2.45

Stk. No.	Type	Description	1-24	25-49	50-99	100-249
39F3633	2957	Female BNC to phono plug	3.95	3.56	3.36	2.77
39F3634	2451	Female BNC panel receptacle	1.85	1.67	1.57	1.30
39F3635	3286	Female BNC to UHF plug	3.95	3.56	3.36	2.77
30F1414	3533	BNC plug to plug adapter	3.95	3.56	3.36	2.77

11

Housings and Adapters

POMONA ELECTRONICS

SHIELDED "BLACK BOXES"

Die cast aluminum; shielded housing; fulfill the requirement for RF applications. Cover and screws included. Blue baked enamel finish except (*)-unfinished. (**)-Has BNC jack in top center. (†) Isolated.

Stk. No.	Type	1st End	2nd End	Size	1-24	25-49	50-99	100-249
34F952	2390	BNC Jack	BNC Jack	A	8.85	7.97	7.52	6.20
34F953	2391	BNC Jack	BNC Plug	A	10.85	9.77	9.22	7.60
35F3500	2392**	BNC Jack	BNC Jack	A	11.50	10.35	9.78	8.05
34F954	2397	None	None	A	2.95	2.66	2.51	2.07
35F3502	*2400	None	None	A	2.75	2.48	2.34	1.93
35F3503	3230	BNC Jack	BNC Jack	B	9.85	8.87	8.37	6.90
35F3504	3231	BNC Jack	BNC Plug	B	10.85	9.77	9.22	7.60
34F955	2417	None	None	B	2.95	2.66	2.51	2.07
35F3507	*2428	None	None	B	2.75	2.48	2.34	1.93
35F986	3239	BNC Jack†	BNC Jack†	B	16.85	15.17	14.32	11.80
35F987	3234	BNC Jacks	BNC Jacks	B	14.85	13.37	12.62	10.40
35F3508	2901	None	None	C	7.85	7.07	6.67	5.50
34F966	2902	BNC Jack	BNC Jack	C	14.85	13.37	12.62	10.40
35F3510	*2906	None	None	C	7.50	6.75	6.38	5.25
35F3511	3601	None	None	D	5.85	5.27	4.97	4.10
35F3512	3602	BNC Jack	BNC Jack	D	11.85	10.67	10.07	8.30
35F3513	3603	BNC Jack	BNC Plug	D	13.50	12.15	11.48	9.45
35F3514	*3606	None	None	D	5.45	4.91	4.63	3.82
34F1260	3751	BNC Jack	BNC Jack	MINI	9.85	8.87	8.37	6.90
34F1261	3752	BNC Jack	BNC Plug	MINI	10.85	9.77	9.22	7.60
34F1262	3753	None	None	MINI	2.95	2.66	2.51	2.07
34F1263	*3754	None	None	MINI	2.75	2.48	2.34	1.93

SHIELDED BLACK BOXES WITH CARD GUIDES

Extruded aluminum. Blue finish except (*) unfinished. Top and bottom covers and screws supplied. Slotted to accept 1/16" circuit boards.

Stk. No.	Type	1st End	2nd End	Size	1-24	25-49	50-99	100-249
34F947	3301	None	None	F	11.85	10.67	10.07	8.30
35F3515	3302	BNC Jack	BNC Jack	F	17.85	16.07	15.17	12.50
35F3517	3311	None	None	G	14.85	13.37	12.62	10.40
35F3518	3312	BNC Jack	BNC Jack	G	19.95	17.96	16.96	13.97
35F3520	*3316	None	None	G	14.50	13.05	12.33	10.15

MOUNTING BOARDS AND SHIELDING DIVIDERS FOR BOXES WITH CARD GUIDES

Stk. No.	Type	For Use With	Dimensions A	Dimensions B	No. of Holes	Material	1-24	25-49	50-99	100-249
35F3521	3326	Fig. F	2.39	1.50	24x15	Glass-Epoxy (GEE)	.95	.86	.81	.67
35F3525	3551	Fig. E	2.39	3.00	12x15	Glass-Epoxy (GEE)	1.85	1.67	1.57	1.30
35F3526	3553	Fig. E	2.39	3.00	23x30	Glass-Epoxy (GEE)	2.25	2.03	1.91	1.58

NON-SHIELDED BLACK BOXES

Stock No.	Type	Dimensions Length	Dimensions Width	Dimensions Depth	Connections	1-24	25-49	50-99	100-249
35F3527	2103	2.25	1.00	1.00	None	.95	.86	.81	.67
35F3528	2104	2.38	1.53	1.53	None	.95	.86	.81	.67
35F3529	2105	1.75	1.44	.69	None	.95	.86	.81	.67
34F951	2224	2.38	1.53	1.53	Lower Banana Plug (2)	4.50	4.05	3.83	3.15

MOLDED THERMOPLASTIC BOXES WITH CARD GUIDES

Box and cover are molded of glass filled nylon thermoplastic and are almost unbreakable under normal use. Box and cover are easily machined. Three slots are provided for 1/16" circuit board. Cover and 4 screws included.

Stk. No.	Type	Color	Size	1-24	25-49	50-99	100-249
30F1424	3850-0	Black	H	1.25	1.13	1.06	.88
34F1264	3850-6	Blue	H	1.25	1.13	1.06	.88
34F1265	3850-9	White	H	1.25	1.13	1.06	.88

RF CONNECTOR ADAPTERS/TERMINATORS

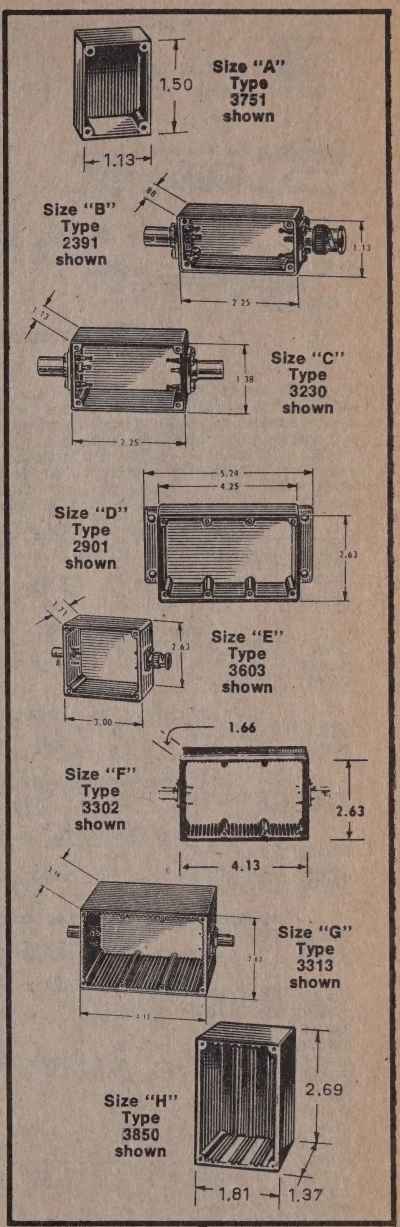
SMA to BNC adapters are 50 ohm RF connectors adaptable to microwave applications such as couplers, dividers and mixers to 12.4 GHz, up to 1000 VRMS. BNC adapters and terminations are all 50 ohm units, contacts are gold flashed beryllium copper with Teflon insulation, exterior is a long lasting non-tarnish finish.

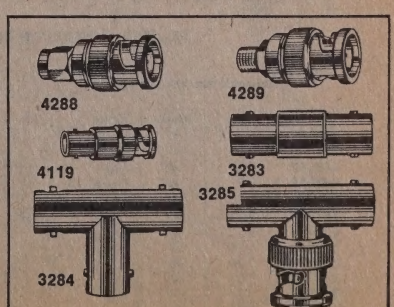
SMA TO BNC

Stk. No.	Type	Description	Net
35F1009	4288	SMA Male to BNC Male	10.50
35F1016	4289	SMA Female to BNC Male	10.50

BNC 50 OHM CONNECTORS

Stk. No.	Type	Description	Net
35F1017	4119	BNC Feed-thru Termination	25.85
30F1401	3283	BNC Jack to Jack	1.85
30F1409	3284	BNC "T"—3 Jacks	6.25
30F1402	3285	BNC "T" Jack-Plug-Jack	4.85



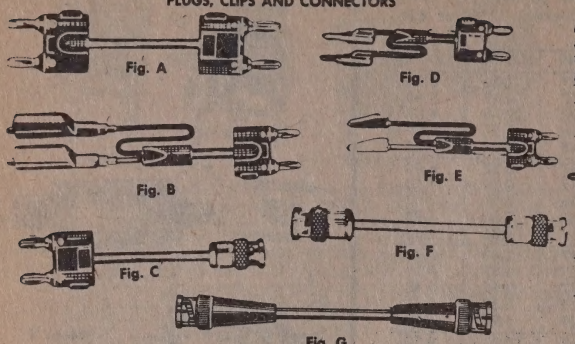


11

POMONA ELECTRONICS

Patch Cords, Test Leads

PLUGS, CLIPS AND CONNECTORS



¾" double banana plug cabled to a variety of plugs, connectors, clips and tips as indicated below. The double banana plug permits parallel multiple stacking and has a clearly marked ground connection. Color of plug body matches cable color, awwt., 5 oz. *Two conductor twisted 18 ga. (65 x 36) wire. Vinyl jacket and insulation. Nom. cap. 30 mmf/ft., gray color. **Shielded microphone cable. Polyethylene insulation. Vinyl jacket. Nom. cap. 25 mmf/ft., gray color. Coaxial cable, clr. blk. †50 ohm RG58C/U,‡ 75 ohm RG59 B/U,§ 93 ohm RG62 A/U.

WITH DOUBLE PLUGS EACH END — Fig. A

Stk. No.	Type	Length	1-9	10-24	25-49	50-99
34F801	2BA-36*	36"	5.95	5.36	5.06	4.17
34F803	2BB-36**	36"				
34F805	2BC-36†	36"				

WITH ALLIGATOR CLIPS — Fig. B.

34F807	2BA-AL-36*	36"	6.95	6.26	5.91	4.87
34F809	2BB-AL-36**	36"				
34F811	2BC-AL-36†	36"				

WITH UG88E/U MALE BNC CONNECTOR — Fig. C.

34F813	2BB-BNC-36**	36"	6.95	6.26	5.91	4.87
34F815	2BC-BNC-36†	36"				

WITH .080 DIA. PHONE TIP PLUG — Fig D.

34F821	2BC-PP-36†	36"	7.50	6.75	6.38	5.25

WITH MINIGATOR CLIPS — Fig E

34F823	2BA-MG-36*	36"	6.95	6.26	5.91	4.87
34F825	2BB-MG-36**	36"				
34F827	2BC-MG-36†	36"				

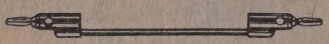
UG88E/U MALE BNC CONNECTOR BOTH ENDS — Fig. F

34F842	BNC-C24†	24"	6.85	6.17	5.82	4.80
34F843	BNC-C36†	36"				

CRIMP BNC BOTH ENDS — Fig. G.

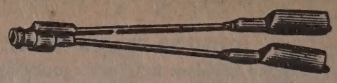
35F1072	2249-C-12†	12"	5.95	5.36	5.06	4.17
35F1073	2249-C-24†	24"				
35F1074	2249-C-36†	36"				
35F1075	2249-C-48†	48"				
35F1076	2249-C-60†	60"				
35F1077	2249-E-12‡	12"				
35F1078	2249-E-24‡	24"				
35F1079	2249-E-36‡	36"				
35F1080	2249-E-48‡	48"				
35F1081	2249-E-60‡	60"				
35F1082	2249-M-12§	12"	6.85	6.17	5.82	4.80
35F1083	2249-M-24§	24"				
35F1084	2249-M-36§	36"				
35F1085	2249-M-48§	48"				
35F1086	2249-M-60§	60"				

STACK-UP CONNECTING LEADS



Model B. Fits all standard banana jacks. Permit stack-up and side connections.

Stk. No.	Type	Length	Color	1-24	25-49	50-99	100-249
34F875	B-4	4"	Red	1.80	1.62	1.53	1.26
34F876	B-4	4"	Black				
34F877	B-8	8"	Red				
34F878	B-8	8"	Black				
34F879	B-12	12"	Red				
34F880	B-12	12"	Black				
34F881	B-18	18"	Red				
34F882	B-18	18"	Black				
34F848	B-24	24"	Red				
34F849	B-24	24"	Black				
34F850	B-36	36"	Red				
34F851	B-36	36"	Black				



BREAK-OUT CABLE

Model 2630. BNC jack - aligator clips. 2-18-AWG stranded leads. Cable and clips are color coded. 1 red and 1 black. 500V peak. Operating temp. range: −25°C to +85°C. 7" long.
Model 2631. Same as 2630, except with minigator clips.

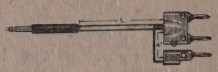
Stk. No.	Type	1-24	25-49	50-99	100-249
34F964	2630	3.75	3.38	3.19	2 63
34F965	2631	3.75	3.38	3.19	2.63

STACK-UP BANANA PLUG PATCH CORD

Multiple stacking feature keeps circuitry neater. Reliable solderbound connections can stand 50 lb. pull. Colors: Black, Red.

Stock No. Red	Stock No. Black	Type	Length	1-24	25-49	50-99	100-249
25F2218	25F2200	4274-12	12"	3.50	3.15	2.98	2.45
25F2219	25F2201	4274-24	24"				
25F2220	25F2202	4274-36	36"				
25F2221	25F2203	4274-48	48"				
25F2222	25F2204	4274-60	60"				

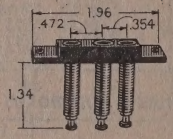
BANTAM PLUG TO DOUBLE PLUG BALANCED LINE



Plastic jacketed, shielded cable; Color: gray. Minature 3 conductor phone plug. Dble. banana plug w/single plug breakout.

Stock No.	Type	Length	1-9	10-24	25-49	50-99
25F2205	4281-12	12"	19.95	17.96	16.96	13.97
25F2206	4281-24	24"				
25F2207	4281-36	36"				
25F2208	4281-48	48"				
25F2209	4281-60	60"				

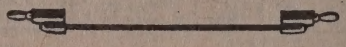
EUROPEAN TRIPLE BANANA JACK



Tin-plated brass jacks w/polycarbonate Thermoplastic insulation. Size: 1.96" x 1.34". With two 6-32 nuts and screws.

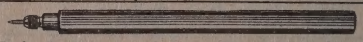
Stock No.	Type	Color	1-24	25-49	50-99	100-249
25F2210	4163-0	Black	2.95	2.66	2.51	2.07
25F2211	4163-2	Red				
25F2212	4163-8	Gray				

MINIATURE STACK-UP BANANA PLUG



Model 1081 miniature banana plug; fits .104" banana jacks. Stocked in black only.

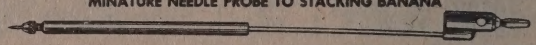
Stk. No.	Type	1-24	25-49	50-99	100-249
29F3053	1081-18-0	1.80	1.62	1.53	1.26
29F3054	1081-24-0	1.80	1.62	1.53	1.26
29F3055	1081-36-0	1.80	1.62	1.53	1.26
29F3056	1081-48-0	1.90	1.71	1.62	1.33
29F3057	1081-60-0	2.00	1.80	1.70	1.40



Needle Tip Probe To Banana Jack Type 1705, 1705-2. Sharp replaceable needle tip for encapsulated circuits. Banana jack in handle connected to tip. Pin tip is steel nickel plated. Jack is .166" dia. brass nickel plated. Length: 5 ½".

Stk. No.	Type	Color	1-24	25-49	50-99	100-249
35F1087	1705	Black	1.95	1.76	1.66	1.37
35F1088	1705-2	Red				

MINATURE NEEDLE PROBE TO STACKING BANANA



Type 3861. Also has replaceable steel, nickel-plated tip. Tough thermo plastic is molded directly onto probe tip. 20 AWG wire, overall length, 48". Plug is one piece beryllium copper. Temp. range: −25°C to +105°C.

Stk. No.	Type	Color	1-24	25-49	50-99	100-249
35F1089	3861-48	Black	3.85	3.47	3.27	2.70
35F1090	3861-48	Red				

TEST LEAD HOLDER

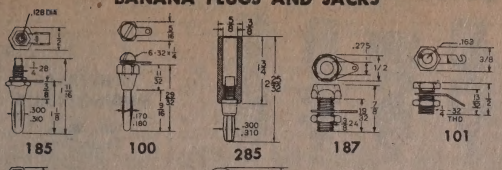
Model 1508. Patch cords and cable assemblies can be filed for instant selection. Accepts cables up to .210" diameter. Cold rolled steel with orange baked enamel finish. Wt. 5 oz.
Model 2708. RG cable holder. Similar to 1508, but with .450" slots for coax cable. Blue-finish. 11" L x 3.5" W; p slots.

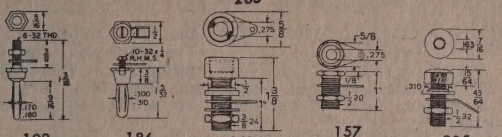
Stk. No.	Type	Color	Max. Cable Dia.	1-24	25-49	50-99	100-249
34F956	1508-3	Orange	5.33mm (.210")	3.85	3.47	3.27	2.70
34F957	2708-6	Blue	11.4mm (.450")	3.85	3.47	3.27	2.70
34F1017	4408-0	Black	8.13mm (.320")	3.85	3.47	3.27	2.70

11

H. H. Smith Plugs and Jacks

BANANA PLUGS AND JACKS



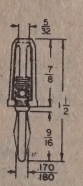


Standard and Jumbo. Brass Nickel plated. Plugs have phosphor bronze springs. (*) Indicates Jumbo plug or jack.

Stock No.	Type No.	Description	1-9	10-49
38F290	102	⅜" x 5/32" Thd	.45	.37
28F1167	433	¾" x 5/32" Thd	.52	.43
28F1168	100	6/32" screw	.45	.37
28F1169	185*	¼-28 Thd	1.20	1.00
38F295	186*	10-32 screw	1.08	.90
35F865	101	jack	.23	.19
39F868	205-102	red ins. jack	.27	.22
39F869	205-103	blk ins. jack	.27	.22
35F789	187*	jack	.72	.60
28F1170	287-102*	red jack	1.20	1.00
28F1171	287-103*	blk jack	1.20	1.00
32F829	285-102*	red plug	1.92	1.60
32F830	285-103*	blk plug	1.92	1.60

SOLDERLESS INSULATED BANANA PLUG

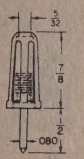
Nylon handles per Mil-P-20693A. Brass Nickel plated phosphor bronze banana plug spring, solderless conn. Accepts up to #16 wire. 15 A.



Stock No.	Type No.	Color	1-9	10-49
35F779	455-101	White	.41	.34
35F780	455-102	Red		
35F781	455-103	Black		
35F782	455-104	Green		
35F783	455-105	Blue		
28F1174	455-106	Orange		
35F784	455-107	Yellow		
28F1175	455-108	Brown		
28F1176	455-112	Purple		
28F1177	455-113	Grey		

SOLDERLESS PHONE TIPS

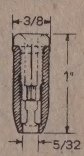
Molded Nylon handle per Mil-P-20693A. Nickel plated Brass tip. Accepts up to #16 wire, 12 A.



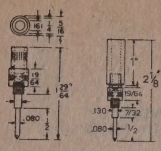
Stock No.	Type No.	Color	1-9	10-49
28F1186	492-102	Red	.30	.25
28F1187	492-103	Black		
28F1188	492-104	Green		
28F1189	492-105	Blue		
28F1190	492-107	Yellow		

NYLON IN-LINE TIP JACK

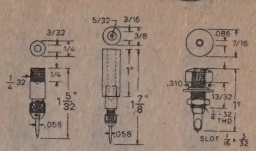
Gold plated phosphor bronze contact accepts .080 std. phone tip plugs. Handle molded per Mil-P-20693A. Rated at 5 KV, 15 A. AC continuous.



Stock No.	Type No.	Color	1-9	10-49
28F1196	1513-102	Red	.42	.35
28F1197	1513-103	Black		



PHONE TIP PLUGS AND JACKS

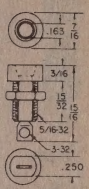


Solderless insulated and non-insulated types. Brass Nickel plated, .080 tip. Nylon Handles. Rated at 12 Amps. *Needle tip.

Stock No.	Type No.	Description	1-9	10-49
39F850	105	Un-ins. plug	.26	.21
28F1219	128*	Un-ins. plug	.36	.30
39F852	200-102	Red ins. plug	.34	.28
39F853	200-103	Blk ins. plug	.34	.28
39F856	202-102	Red ins. jack	.33	.27
39F857	202-103	Blk ins. jack	.33	.27
28F1172	216-102*	Red ins. tip	.48	.40
28F1173	216-103*	Blk ins. tip	.48	.40

INSULATED BANANA JACKS

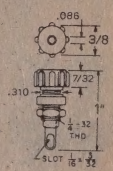
Molded Lexan, soldertail contact—Brass Cadmium plated. Mounts in 5/16" round or double "D" hole. Rated at 15 Amps, 1000 Volts. Supplied with 5/16"-32 mounting nut.



Stock No.	Type No.	Color	1-9	10-49
28F1178	1509-101	White	.18	.15
35F870	1509-102	Red		
35F869	1509-103	Black		
28F1179	1509-104	Green		
28F1180	1509-105	Blue		
28F1181	1509-106	Orange		
28F1182	1509-107	Yellow		
28F1183	1509-108	Brown		
28F1184	1509-112	Purple		
28F1185	1509-113	Grey		

INSULATED PHONE TIP JACK

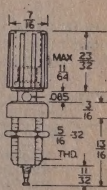
Nylon head, Nickel plated Brass body, Phosphor Bronze soldertail. Mounts in 5/16" hole in panels up to ¼" thick. Rated at 12 A., 750 V.



Stock No.	Type No.	Color	1-9	10-49
28F1191	241-102	Red	.54	.45
28F1192	241-103	Black		
28F1193	241-104	Green		
28F1194	241-105	Blue		
28F1195	241-107	Yellow		

ALL-INSULATED BINDING POST

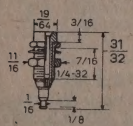
Silver plated brass covered with Lexan. Mounts in 5/16" round or double "D" hole. Accepts phone tip plugs, banana plugs, alligator clips, wire, and spade lugs. 15 Amps at 5K VAC.



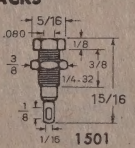
Stock No.	Type No.	Color	1-9	10-49
28F1198	1464-101	White	.60	.50
28F1199	1464-102	Red		
28F1200	1464-103	Black		
28F1201	1464-104	Green		
28F1202	1464-105	Blue		
28F1203	1464-107	Yellow		

NYLON TIP JACKS

METAL CLAD TYPES 1501 & 1502

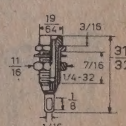

1502

Designed to meet Mil-C-39024/10. Gold plated Beryillium copper contact rated at 5 Amps. Mounts in ¼" hole up to ¼" thick. No. 1501 Turret terminal meets Mil-C-39024-01-10. No. 1502 Eyelet term. meets Mil-C-39024-11-20.


1501

ALL-MOLDED TYPE 1506

Meets Mil-P-20693 spec. Eyelet contact. Mounts in ¼" hole in ¼" thick panel Hex molded head. 10A, 3KV

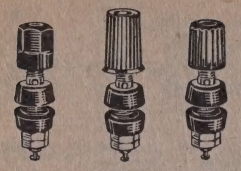

1506

Stock No.	Type No.	Color	1-9	10-49
35F700	1501-101	White	.72	.60
35F701	1501-102	Red		
35F702	1501-103	Black		
35F703	1501-104	Green		
35F704	1501-105	Blue		
28F1210	1501-106	Orange		
35F705	1501-107	Yellow		
28F1211	1501-108	Brown		
28F1212	1501-112	Purple		
28F1213	1501-113	Grey		

Stock No.	Type No.	Color	1-9	10-49
35F706	1502-101	White	.84	.70
35F707	1502-102	Red		
35F708	1502-103	Black		
28F1214	1502-104	Green		
35F710	1502-105	Blue		
28F1215	1502-106	Orange		
35F711	1502-107	Yellow		
28F1216	1502-108	Brown		
28F1217	1502-112	Purple		
28F1218	1502-113	Grey		

Stock No.	Type No.	Color	1-9	10-49
28F1204	1506-101	White	.44	.36
35F757	1506-102	Red		
35F758	1506-103	Black		
28F1205	1506-104	Green		
35F760	1506-105	Blue		
28F1206	1506-106	Orange		
35F761	1506-107	Yellow		
28F1207	1506-108	Brown		
28F1208	1506-112	Purple		
28F1209	1506-113	Grey		

H. H. Smith Electronic Connectors

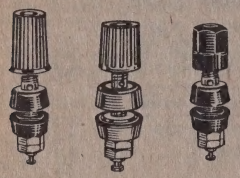


257 1517 459

UNIVERSAL BINDING POSTS

Accepts banana plug, phone tip plug, alligator clip, wire, and spade lug. Lexan insulation. Gold plated brass conductor rated at 30 Amps, 2 KV for Hex and Fluted head types; 15 Amps, 1 KV for Mini types.

Color	Mini Head Stk. No.	Mini Head Type	Hex Head Stk. No.	Hex Head Type	Fluted Head Stk. No.	Fluted Head Type	EACH
White	39F841	1517-101	28F1232	257-101	28F1233	459-101	.70
Red	67F4000	1517-102	35F844	257-102	28F1225	459-102	
Black	67F4001	1517-103	35F749	257-103	28F1226	459-103	
Green	28F1220	1517-104	28F1223	257-104	28F1227	459-104	
Blue	28F1221	1517-105	28F1224	257-105	28F1228	459-105	
Yellow	28F1222	1517-107	35F826	257-107	28F1229	459-107	



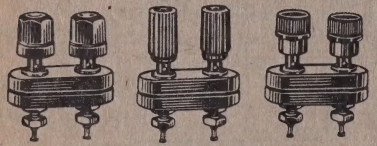
1275 799 899

ECONOMY BINDING POSTS

- Nickel Plated
- Has Wire-Wrap Solder Turret

Identical to above except brass parts are Nickel plated.

Color	Mini Head Stk. No.	Mini Head Type	Hex Head Stk. No.	Hex Head Type	Fluted Head Stk. No.	Fluted Head Type	EACH
Red	28F1230	1275-102	28F1235	899-102	28F1240	799-102	.63
Black	28F1231	1275-103	28F1236	899-103	28F1241	799-103	

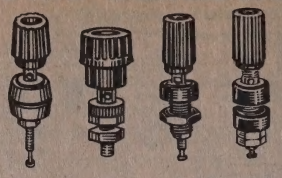


269 RB 1477 RB 224 RB

INSULATED DUAL BINDING POSTS

Insulators of black Styrene. Supplied with one red and one black head of molded Lexan (**Types 269 RB & 1477 RB**) or of molded Butyrate (**Type 224 RB**). Nickel plated brass conductors. Mounts in two ⅛" holes on ¾" centers in panels up to ¼" thick. Accepts single or dual banana plugs. 15 A. at 2 KV.

Stock No.	Type No.	EACH
35F847	269 RB	1.25
28F1245	224 RB	.95
28F1246	1477 RB	.95



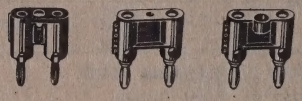
3015 230 220 1463 1480

UNIVERSAL BINDING POSTS

- Wire-Wrap Solder Turret

Insulated binding posts. **Type 3015:** Nylon ins., Gold plated cond. **Types 220 & 230:** Butyrate ins., Nickel plated cond. **Type 1463:** Lexan ins., Silver plated cond. All insulated. **Type 1480:** Lexan ins., Nickel plated.
(*) 5/32 x ½ Stud (+) 5/32 x ⅜ Stud

Stock No.	Type No.	Color	Max. KV	Ratings Amps	EACH
35F2745	3015-102	Red	1	5	.60
39F1801	3015-103	Black	1	5	.60
38F296	220-102*	Red	1	15	.34
38F297	220-103*	Black	1	15	.34
35F629	230-102†	Red	1	15	.34
35F630	230-103†	Black	1	15	.34
28F1247	1463-102	Red	5	15	.50
28F1248	1463-103	Black	5	15	.50
28F1252	1480-102	Red	1	15	.36
28F1253	1480-103	Black	1	15	.36



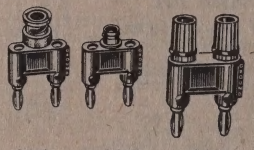
210 1749 1675

INSULATED DUAL ADAPTORS

- Nickel plated contact
- Stackable

Banana plugs to banana jacks, accepts single and dual banana plugs. All are cable mounting types with wire being held by internal set screws. Type 1749 on ½" centers, all others on ¾" centers.

Stock No.	Type No.	Color	EACH
67F4002	210-102	Red	1.35
67F4003	210-103	Black	1.35
28F1249	1749-102	Red	1.20
35F2739	1749-103	Black	1.20
28F1250	1675-102	Red	1.35
28F1251	1675-103	Black	1.35



1687 1686 1682

INSULATED DUAL ADAPTORS

Dual adaptors on ¾" centers. Affords side stacking and many combinations for interconnections.

Stock No.	Type No.	Description	EACH
28F1254	1682	Bind. post to banana plug	3.50
28F1255	1686	BNC female to banana plug	2.60
28F1256	1687	Banana plug to BNC male	3.60

RIGHT ANGLE P.C. TEST JACKS

Molded Nylon body with Gold plated Beryllium copper contact. Mounts on .400" centers in .052" holes. May be mounted side by side on .160" centers. No. 325 conforms to Mil-C-39024/11-01 thru −10 for boards up to 1/16" thick. No. 321 conforms to Mil-C-39024/11-21 thru −30 for boards up to ⅛" thick.

- Meets Mil-C-39024/11A

Stock No.	Type No.	Color	EACH
28F1257	325-101	White	.17
39F843	325-102	Red	
39F862	325-103	Black	
28F1258	325-104	Green	
28F1259	325-105	Blue	
28F1260	325-106	Orange	
28F1261	325-107	Yellow	
28F1262	325-112	Purple	
28F1263	325-113	Grey	

Stock No.	Type No.	Color	EACH
28F1264	321-101	White	.17
39F875	321-102	Red	
39F876	321-103	Black	
28F1265	321-104	Green	
28F1266	321-105	Blue	
28F1267	321-106	Orange	
28F1268	321-107	Yellow	
28F1269	321-108	Brown	
28F1270	321-112	Purple	
28F1271	321-113	Grey	

H. H. Smith Spacers

¼" O.D. ROUND ALUMINUM

Lgth. In.	Clearance Hole #4 (.115) Stk. No.	Type	Clearance Hole #6 (.140) Stk. No.	Type	Clearance Hole #8 (.171) Stk. No.	Type	Pkg. of 100
.125	67F4011	8480	67F4019	8500	67F4027	8520	5.00
.250	67F4012	8481	67F4020	8501	67F4028	8521	6.00
.375	67F4013	8482	67F4021	8502	67F4029	8522	7.00
.500	76F4014	8483	67F4022	8503	67F4030	8523	8.00
.625	67F4015	8484	67F4023	8504	67F4031	8524	9.00
.750	67F4016	8485	67F4024	8505	67F4032	8525	10.00
.875	67F4017	8486	67F4025	8506	67F4033	8526	11.00
1.000	67F4018	8487	67F4026	8507	67F4034	8527	12.00

¼" O.D. ROUND THREADED ALUMINUM

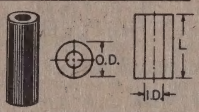
Lgth. In.	4-40 Thread Stk. No.	Type	6-32 Thread Stk. No.	Type	8-32 Thread Stk. No.	Type	Pkg. of 100
.125	67F4060	3820	67F4076	8340	67F4092	8360	6.00
.250	67F4061	8321	67F4077	8341	67F4093	8361	7.00
.375	67F4062	8322	67F4078	8342	67F4094	8362	8.00
.500	67F4063	8323	67F4079	8343	67F4095	8363	9.00
.625	67F4064	8324	67F4080	8344	67F4096	8364	10.00
.750	67F4065	8325	67F4081	8345	67F4097	8365	11.00
.875	67F4066	8326	67F4082	8346	67F4098	8366	12.00
1.000	67F4067	8327	67F4083	8347	67F4099	8367	14.00
1.250	67F4068	8328	67F4084	8348	67F4100	8368	16.00
1.500	67F4069	8329	67F4085	8349	67F4101	8369	17.00
1.750	67F4070	8330	67F4086	8350	67F4102	8370	18.00
2.00	67F4071	8331	67F4087	8351	67F4103	8371	19.00

¼" HEX THREADED ALUMINUM

.125	67F4108	8400	67F4116	8420	67F4124	8440	7.00
.250	67F4109	8401	67F4117	8421	67F4125	8441	8.00
.375	67F4110	8402	67F4118	8422	67F4126	8442	9.00
.500	67F4111	8403	67F4119	8423	67F4127	8443	10.00
.625	67F4112	8404	67F4120	8424	67F4128	8444	11.00
.750	67F4113	8405	67F4121	8425	67F4129	8445	12.00
.875	67F4114	8406	67F4122	8426	67F4130	8446	13.00
1.000	67F4115	8407	67F4123	8427	67F4131	8447	14.00

FIBRE SPACERS

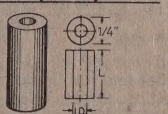
Per MIL-F-1148A, Grade CH, ¼" O. D.



Versatile fibre bushings are ideal for use in raising sub-panels, chassis, tuning capacitors, transformers, etc. Clearance hole: #4, #6, or #8 as indicated.

Lgth. in.	Clearance Hole #4 (.115) Stk. No.	Type	Clearance Hole #6 (.140) Stk. No.	Type	Clearance Hole #8 (.171) Stk. No.	Type	Pkg. of 100
.125	67F4169	8880	67F4170	8881	67F4171	8882	5.20
.250	67F4172	2335	35F547	2130	35F550	2140	6.30
.375	67F4173	2336	67F4183	2131	67F4184	2141	7.80
.500	67F4174	2337	35F567	2132	35F568	2142	9.20
.625	67F4177	8895	67F4178	8896	67F4179	8897	10.60
.750	67F4175	2338	35F548	2133	35F566	2143	12.60
.875	67F4180	8904	67F4181	8905	67F4182	8906	14.50
1.000	67F4176	2339	35F549	2134	67F4185	2144	15.50

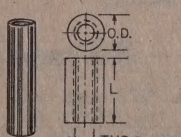
NYLON SPACERS



Non-conductive, molded of corrosive resistant Nylon. ¼" Outer Diameter with various clearance hole diameters. Useful for applications as bushings, bearings, rollers, and guides.

Lgth. in.	Clearance Hole #4 (.115) Stk. No.	Type	Clearance Hole #6 (.140) Stk. No.	Type	Clearance Hole #8 (.171) Stk. No.	Type	Pkg. of 100
.125	30F1433	4000	30F1434	4001	30F1435	4002	3.30
.250	30F1436	4006	30F1437	4007	30F1438	4008	4.30
.375	30F1439	4012	30F1440	4013	30F1441	4014	5.50
.500	30F1442	4018	30F1443	4019	30F1444	4020	6.50
.625	30F1445	4024	30F1446	4025	30F1447	4026	7.50
.750	30F1448	4030	30F1449	4031	30F1450	4032	8.50
.875	30F1451	4036	30F1452	4037	30F1453	4038	9.30
1.000	30F1454	4042	30F1455	4043	30F1456	4044	10.00

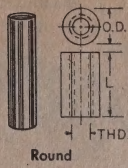
¼" O.D. PHENOLIC THREADED SPACERS



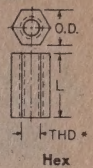
Good mechanical strength; resists chemicals and abrasions. Excellent dielectric and low moisture absorption. PBE Grade MIL-P-79A. Natural color. On spacers ¾" and longer, tap is ⅜" from each end; others continuous.

Lgth. In.	4-40 Thread Stk. No.	Type	6-32 Thread Stk. No.	Type	8-32 Thread Stk. No.	Type	Pkg. of 100
.250	67F4186	8660	67F4187	8661	67F4188	8662	9.40
.375	67F4189	8666	67F4190	8667	67F4191	8668	12.00
.500	67F4192	8672	67F4193	8673	67F4194	8674	13.40
.625	67F4195	8678	67F4196	8679	67F4197	8680	15.00
.750	67F4198	8684	67F4199	8685	67F4200	8686	17.70
1.000	67F4204	8696	67F4205	8697	67F4206	8698	21.00

ALUMINUM AND BRASS SPACERS



Aluminum spacers are Iridite 14-2 per MIL-C-5541. Brass spacers are zinc plated. On threaded spacers ¾" and longer, tap is ⅜" from each end; on smaller threaded spacers, thread is continuous through entire length. Clearance hole on non-threaded units: #4, #6 or #8.



¼" O.D. ROUND BRASS

Lgth. In.	Clearance Hole #4 (.115) Stk. No.	Type	Clearance Hole #6 (.140) Stk. No.	Type	Clearance Hole #8 (.171) Stk. No.	Type	Pkg. of 100
.125	67F4132	8700	67F4133	8701	67F4134	8702	5.70
.250	35F533	2340	35F536	2100	35F541	2105	7.00
.375	35F534	2341	35F537	2101	35F563	2106	8.40
.500	35F535	2342	35F538	2102	35F564	2107	9.40
.750	67F4135	2343	35F539	2103	67F4137	2108	14.50
1.000	67F4136	2344	35F540	2104	35F565	2109	18.60

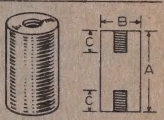
¼" O.D. ROUND THREADED BRASS

Lgth. In.	4-40 Thread Stk. No.	Type	6-32 Thread Stk. No.	Type	8-32 Thread Stk. No.	Type	Pkg. of 100
.125	67F4152	8760	67F4153	8761	67F4154	8762	7.40
.250	35F883	2370	35F553	2120	35F556	2125	8.00
.375	35F884	2371	35F561	2121	35F557	2126	9.50
.500	35F551	2372	35F554	2122	35F558	2127	12.40
.750	35F552	2373	35F555	2123	35F559	2128	18.00
1.000	35F885	2374	35F562	2124	35F560	2129	21.00

¼" HEX THREADED BRASS

.125	67F4155	8820	67F4156	8821	67F4157	8822	7.50
.250	67F4158	2330	35F871	2320	67F4164	2325	8.70
.375	67F4159	2331	67F4163	2321	67F4165	2326	10.60
.500	67F4160	2332	35F872	2322	67F4166	2327	12.40
.750	67F4161	2333	35F873	2323	67F4167	2328	19.30
1.000	67F4162	2334	35F874	2324	67F4168	2329	22.80

CERAMIC STANDOFFS



Mil Spec standoffs made of Grade L-5 ceramic; to MIL-1-10 requirements. Outside is glazed. Threaded as indicated.

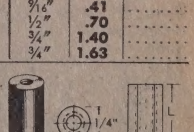
MIL SPEC

Stock No.	Type No.	Thread	Dimensions A	B	C	Each	Pkg. of 100
67F4207	2600	6-32	½"	⅜"	5/32"	.....	31.00
67F4208	2601	6-32	⅝"	⅜"	3/16"	.....	32.00
67F4209	2602	6-32	¾"	⅜"	¼"	.....	33.00
67F4210	2603	6-32	1"	⅜"	⅜"	.35	.....
67F4211	2604	6-32	1¼"	⅜"	⅜"	.38	.....
67F4212	2605	6-32	1½"	⅜"	⅜"	.40	.....
67F4213	2606	6-32	2"	⅜"	⅜"	.45	.....
67F4214	2607	8-32	⅝"	½"	3/16"	.....	33.00
67F4215	2608	8-32	¾"	½"	¼"	.....	35.00
67F4216	2609	8-32	1"	½"	¼"	.38	.....
67F4217	2610	8-32	1¼"	½"	⅜"	.40	.....
67F4218	2611	8-32	1½"	½"	⅜"	.43	.....
67F4219	2612	8-32	2"	½"	⅜"	.48	.....
67F4220	2613	8-32	2½"	½"	⅜"	.54	.....
67F4221	2614	8-32	3"	½"	⅜"	.59	.....

COMMERCIAL CERAMIC STANDOFFS

Stock No.	Type No.	Thread	Dimensions A	B	C	Each	Pkg. of 100
67F4222	2640	6-32	¼"	¼"	Thru	.....	27.00
67F4223	2641	6-32	½"	¼"	5/32"	.....	28.00
67F4224	2642	6-32	⅜"	⅜"	5/32"	.....	29.00
67F4225	2643	6-32	½"	⅜"	3/16"	.....	30.00
67F4226	2644	6-32	½"	½"	3/64"	.....	31.00
67F4227	2645	6-32	¾"	½"	¼"	.....	33.00
67F4228	2646	6-32	1"	½"	⅜"	.35	.....
67F4229	2647	6-32	1½"	½"	9/16"	.41	.....
67F4230	2648	6-32	2½"	½"	½"	.70	.....
67F4231	2649	¼-20	2½"	¾"	¾"	1.40	.....
67F4232	2650	¼-20	4"	¾"	¾"	1.63	.....

NYLON THREADED SPACERS

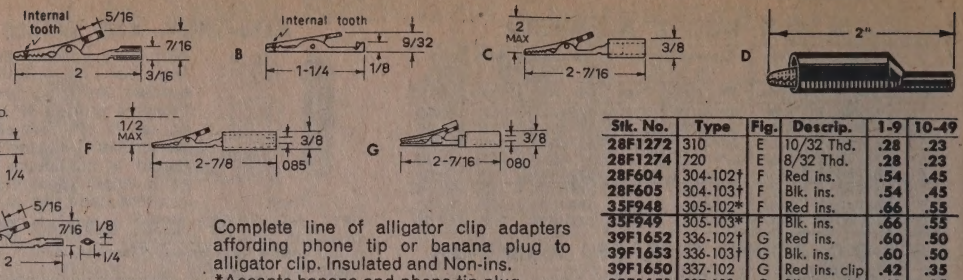


Molded Nylon, Type 66, Mil Spec 20693A, ¼" Outer Diameter. On spacers .750" and longer, tap is .375" from each end and not continuous through spacer. Machine tapped.

Length "L"	4-40 Thread Stk. No.	Type	6-32 Thread Stk. No.	Type	8-32 Thread Stk. No.	Type	Pkg. 100
.250"	30F1457	4050	30F1458	4051	30F1459	4052	11.25
.375"	30F1460	4053	30F1461	4054	30F1462	4055	13.50
.500"	30F1463	4056	30F1464	4057	30F1465	4058	15.00
.750"	30F1466	4059	30F1467	4060	30F1468	4061	15.75
1.000"	30F1469	4062	30F1470	4063	30F1471	4064	18.00

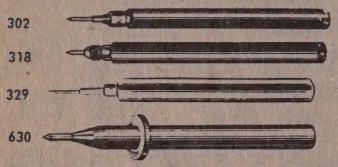
11

H. H. Smith Connectors and Test Leads



Complete range of insulated and non-insulated standard and mini alligator clips and boot insulators. Standard clip jaws open to ½" max., mini clip jaws open to 3/16" max. Steel clips are cadmium plated, standard clips rated at 5A, mini clips 1A, Jumbo clips 10A.
*Insulation piercing types
†Jumbo, all copper

Stk. No.	Type	Fig.	Descrip.	1-9	10-49
28F1311	300	A	Std. sold.	.14	.11
28F1312	350	A	Solderless	.16	.13
28F1313	347*	A	Std. sold.	.24	.20
35F670	338	B	Mini sold.	.11	.09
28F1314	326*	B	Mini sold.	.22	.18
35F671	301-102	C	Red sold.	.21	.17
35F683	301-103	C	Blk. sold.	.21	.17
35F848	397-102†	C	Red sold.	.48	.40
35F849	397-103†	C	Blk. sold.	.48	.40
28F1315	331-102	D	Red boot	.08	.06
28F1316	331-103	D	Blk. boot	.08	.06
28F1317	389-102	D	Red mini boot	.06	.05
28F1318	389-103	D	Blk. mini boot	.06	.05



SOLDERLESS TEST PROD THREADED TYPE

Type 302. Molded Butyrate handle. Brass, nickel plated plug. 12 Amps AC for 10° temp. rise. 4" handle. Shpg. wt., 3 oz.
Type 303. As above except 5½" handle.

Stk. No.	Type	Color	1-9	10-49
35F930	302R	Red	.42	.35
35F638	302B	Black	.42	.35
35F680	303R	Red	.48	.40
35F681	303B	Black	.48	.40

PHONO NEEDLE TEST PRODS

Type 317. Molded Butyrate handle. Brass, nickel plated plug. 12 Amps AC for 10° temp. rise. Removable chuck for needle replacement. 4" handle. Shpg. wt., 3 oz.
Type 318. As above except 5½" handle.

Stk. No.	Type	Color	1-9	10-49
35F939	317B	Black	.48	.40
35F940	317R	Red	.48	.40
35F906	318B	Black	.54	.45
35F907	318R	Red	.54	.45

HEAVY DUTY TEST PRODS

Type 319. Molded Butyrate handle. Brass, nickel plated plug. 12 Amps AC for 10° temp. rise. 4" handle. Shpg. wt., 3 oz.
Type 329. As above except 5½" handle.

Stk. No.	Type	Color	1-9	10-49
35F908	319R	Red	.42	.35
35F909	319B	Black	.42	.35
35F842	329R	Red	.48	.40
35F843	329B	Black	.48	.40

HIGH VOLTAGE TEST PROBE

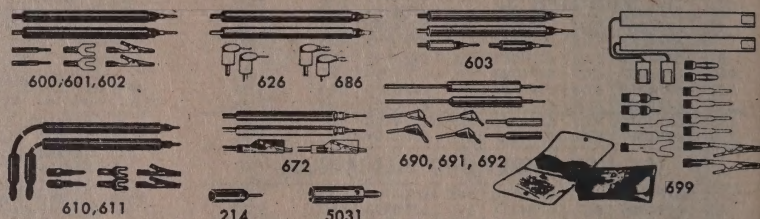
Type 630. Rating 12 amps. AC for 10° temp. rise. Cont. duty 15 KV 60 cycle AC. Shpg. wt., 3 oz.

Stk. No.	Type	Color	1-9	10-49
35F931	630R	Red	6.00	5.00
35F639	630B	Black	6.00	5.00

Complete line of alligator clip adapters affording phone tip or banana plug to alligator clip. Insulated and Non-ins.
*Accepts banana and phone tip plug.
†Accepts phone tip plugs.

Stk. No.	Type	Fig.	Descrip.	1-9	10-49
28F1272	310	E	10/32 Thd.	.28	.23
28F1274	720	E	8/32 Thd.	.28	.23
28F604	304-102†	F	Red ins.	.54	.45
28F605	304-103†	F	Blk. ins.	.54	.45
35F948	305-102*	F	Red ins.	.66	.55
35F949	305-103*	F	Blk. ins.	.66	.55
39F1652	336-102†	G	Red ins.	.60	.50
39F1653	336-103†	G	Blk. ins.	.60	.50
39F1650	337-102	G	Red ins. clip	.42	.35
39F1651	337-103	G	Blk. ins. clip	.42	.35
28F1273	333†	H	Un-ins.	.20	.16

TEST LEADS



SOLDERLESS TIP TEST LEADS

Type 600, 601, 602. Molded Butyrate handles, red and black, 4" lgth. Brass, nickel plated tip. 50" leads. Shpg. wt. 3 oz.

Stk. No.	Type	Desc.	1-9	10-24
39F872	600	Phone tips	2.64	2.20
39F873	601	Spade lugs	2.58	2.15
39F874	602	Alligator clips	2.70	2.25

METER TEST LEADS

Solderless prod, Molded Butyrate. Brass Nickel plated chuck with Steel needle tip. Plastic elbow. Red and black. 50" leads.

Stock No.	Type	Description	1-9	10-49
35F933	626	Phone tip	3.30	2.75
35F402	686	Banana tip	3.42	2.85

Type 603 Solderless phone tip prod with banana plug on other end. Red and black. 50" leads.

35F936	603	Phone tip	3.06	2.55

TEST LEAD KITS

Type 610, 611. Supplied with pair of leads, one end tests prods, other end ins. banana plugs. Two each phone tips, alligator clips, spade lugs. 50", 5000 volt rubber covered test lead wire. Shpg. Wt., 6 oz.

Stk. No.	Type	Prods	1-9	10-Up
35F929	610	*Phone Tip	3.96	3.30
35F682	611	Needle Tip	4.08	3.40

(*) Solderless

ALLIGATOR TEST LEADS

Solderless Brass Nickel plated phone tip with std. alligator clip. 50" lead.

Stock No.	Type	Description	1-9	10-49
35F861	672	Plug	2.82	2.35

"UNIVERSAL" TEST LEAD

Type 699. Fifty leads in one. All parts adapt into prod or tip handle. With plastic folding case. Shpg. Wt., 3 oz.

Stk. No.	Type	1-9	10-49
35F1655	699	8.70	7.25

FUSED TEST LEADS

Phone tip plug. Handle accepts standard 3AG fuse (not supplied). Meter input end available with std. and mini insulated banana plugs. Red and black. Also available with safety sockets. 50" lead.

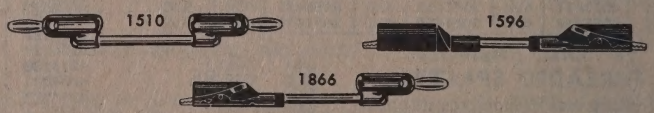
Stock No.	Type	Description	1-9	10-49
28F1275	690	Std. plug	8.40	7.00
28F1276	691	Mini plug	8.40	7.00
28F1277	692	Safety soc.	8.40	7.00

TEST ADAPTORS

Convert phone tip plugs to standard banana plugs and vice-versa.

Stock No.	Type	Description	1-9	10-49
28F1278	5031-102	Red tip-ban.	.84	.70
28F1279	5031-103	Blk. tip-ban.	.84	.70
28F1280	214-102	Red ban.-tip	.66	.55
28F1281	214-103	Blk. ban.-tip	.66	.55

BANANA PLUG CROSS PATCH CORDS STANDARD MINI-ALLIGATOR CLIP JUMPER



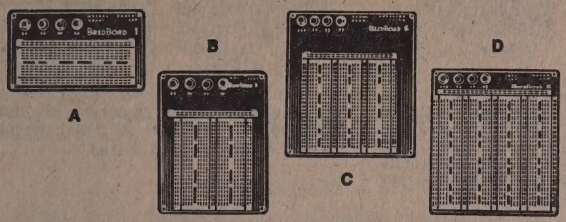
Ten KV Black flexible PVC coated wire. Patch cords and std. ins. alligator clip jumpers. Interconn. at top and sides of stack plugs.

Stock No.	Type	Fig.	Color	Length	1-9	10-49
35F791	1510-24-102	A	Red	24"	1.98	1.65
35F792	1510-24-103	A	Blk.	24"	1.98	1.65
35F795	1510-36-102	A	Red	36"	2.10	1.75
35F796	1510-36-103	A	Blk.	36"	2.10	1.75
28F1283	1596-24-102	C	Red	24"	.96	.80
28F1284	1596-24-103	C	Blk.	24"	.96	.80
35F678	1596-36-102	C	Red	36"	1.08	.90
35F685	1596-36-103	C	Blk.	36"	1.08	.90
35F722	1866-36-102	D	Red	36"	1.56	1.30
35F723	1866-36-103	D	Blk.	36"	1.56	1.30

H. H. Smith Products

PROTOTYPING/TESTING PRODUCTS

BREDBORD KITS



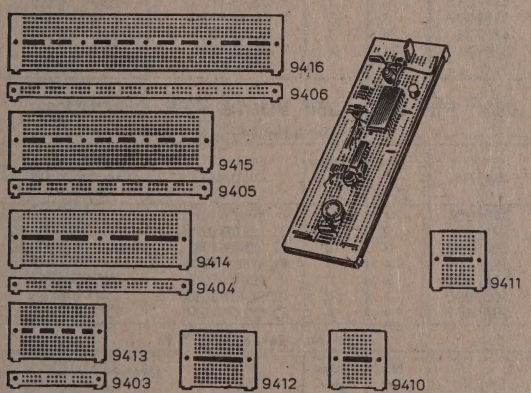
Supplied in easy-to-assemble kit form. Color-coded binding posts allow interface to meters, scopes, and other devices. Constructed on heavy-duty glass-epoxy boards, insulated and screened on top, with full copper ground plane below. Supplied with all parts, hardware, and complete assembly instructions.

Stk. No.	Type	Fig.	5 pt.* Terms.	Bus‡ Lines	Size (Inches)	Each
28F1285	9420	A	94	4 @ 40 pt.	6 W x 3½ L	15.00
28F1286	9422	B	148	6V & 2H @ 30 pt.	5 W x 6½ L	21.00
28F1287	9425	C	282	8V & 2H @ 40 pt.	7 3/32 W x 8 3/32 L	39.00
28F1288	9427	D	472	10V & 4H @ 50 pt.	7 3/32 W x 8 3/32 L	51.00

(*) Number of separate 5 point terminals.
(‡) Number of vertical (V) or horizontal (H) bus lines and number of common test points on each bus line.

BREDBLOX AND BREDSTIX MODULAR PROTOTYPE AIDS

Nickel silver contacts. Snap-Plugs supplied with each unit for easy mounting. **BredBlox** have 2 separated rows of 5 interconnected contacts and accepts up to #22 AWG wire. **BredStix** are buss strips to be used in conjunction with BredBlox. They consist of 2 separate rows of common terms., grouped in clusters of 5. Blox are 1 5/16" wide. Stix are 5/16" wide.



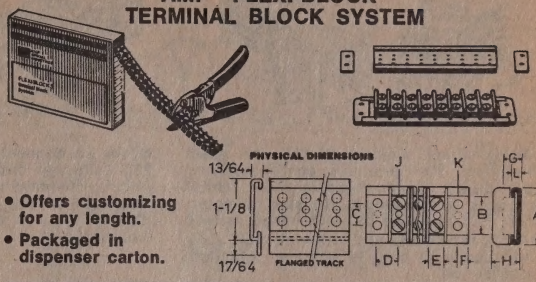
BREDBLOX

Stock No.	Type No.	Jacks	Length	Each
28F1300	9410	70	1 5/16"	2.25
28F1301	9411	80	1 5/16"	2.50
28F1302	9412	120	1 13/16"	3.00
28F1303	9413	180	2 5/16"	4.00
28F1304	9414	370	4 5/16"	6.00
28F1305	9415	470	5 5/16"	8.00
28F1306	9416	590	6½"	10.00

BREDSTIX

27F1307	9403	30	2 5/16"	.75
28F1308	9404	60	4 5/16"	1.25
28F1309	9405	80	5 5/16"	1.50
28F1310	9406	100	6½"	2.00

AMP "FLEXI-BLOCK" TERMINAL BLOCK SYSTEM



- **Offers customizing for any length.**
- **Packaged in dispenser carton.**

A	B	C	D	E	F	G	H	J	K	L
1⅛	¾	27/64	7/16	1/32	3/32	⅜	5/16	6-32 x ¼	.171	13/64

Flexible terminal block comes in a roll on tape. Cut it, slide blocks into track, snap in end stops and assembly is complete. Pre-drilled holes in track permit quick mounting on flat or curved surfaces. Recognized under UL Component Recognition Program for 15 Amp., 300 Volt maximum. Wire size—#22-14. Elect. File No. E60677. 6,000 V RMS. Breakdown line-to-line and line-to-ground voltage.

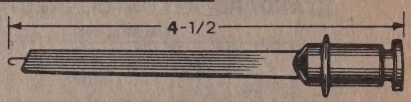
Stock No.	Type	Description	Each
28F1295	9704	100 term. dispenser with Brass NP screws	15.00
28F1296	9705	18" flanged track	.90
28F1297	9706	18" track	.69
28F1298	9707	End strips, 2 required	.03
28F1299	9708	Cutting tool	9.99

'HOOKON' TEST PROBE

Type 3070: Fingertip slide control. Self-locking open position. Lexan construction. Spring tension sensitivity. **Type 3071:** Coax cable adaptor. Banana plug to BNC female. Color Red only. **Type 3072:** Grnd. lead clip ext. w/alligator clip. 18" L.

Stock No.	Type No.	Each
39F946	3070	3.00
39F947	3071	2.00
39F948	3072	.60

HOOKON JUNIOR

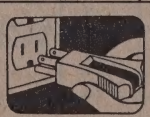


Wire-lead version of "Hookon" probe. Connects to .025 wire-wraps and components, slides between .100" IC terminals. Hook locks forward for probing, retracts with a touch. Black.
28F1289 No. 3067 Net.....1.80

HOOKON JUNIOR JUMPER CORD

PVC test lead wire #24 AWG terminates with No. 3067 Hookon junior on each end. Black, rated at 5 KV.

Stock No.	Type No.	Length	Each
28F1290	3068-12	12"	4.50
28F1291	3068-24	24"	4.60
28F1292	3068-36	36"	4.70
28F1293	3068-48	48"	4.80
28F1294	3068-60	60"	4.90



AMP AC FAULT FINDER

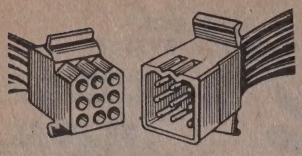
Model 3030. Has indicator lights and chart on both sides. Plug in and then illuminated signals indicate: reverse polarity, faulty wiring, missing or open grounds and/or correct wiring conditions.

Stock No.	Type	Each
39F949	3030	5.95

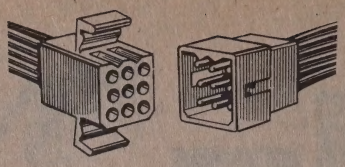
MANUFACTURED BY

molex waldom

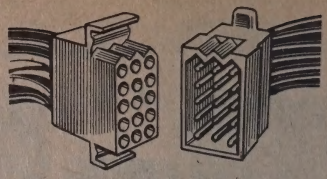
Nylon Connectors



Mistake-Proof Polarity—Noted for great flexibility. Pin terminals easily removed individually from housing for circuit changes & reinserted. Housing is polarized; but possible to interchange female pins in receptacle and to install male pins individually in plug to achieve unlimited polarization.



Miniature connectors .062" pin terminals, 250 volts per circuit, up to 5 Amps per circuit; standard nylon connectors (using .093" pin terminals) from 1 to 15 circuits (250 volts per circuit, up to 12 Amps per circuit).



Most housings have integrally molded mounting ears for ease of panel mounting. UL Approved, CSA Listed.

MINIATURE NYLON CONNECTOR HOUSINGS .062" PIN DIA.—250 VOLTS PER CIRCUIT

PLUG OR RECEPTACLE

With Mounting Ears

Stk. No.	No. of Ckts.	Amps per Ckt.	PLUG CONFIGURATION ONLY Type	Price Per Pkg. Pkg. of 5	Pkg. of 10
31F1002	3	5	P (03-06-2031)	.....	1.70
31F1004	4	5	P (03-06-2041)	.....	3.85
31F1006	5	5	P (03-06-2054)	1.25	.....
31F1008	6	5	P (03-06-2062)	1.20	.....
31F1012	9	5	P (03-06-2091)	1.30	.....
31F1014	12	5	P (03-06-2121)	1.35	.....
31F1016	15	5	P (03-06-2151)	2.20	.....
43F735	24	4	P (03-06-2241)	3.30	.....
31F1018	36	4	P (03-06-2361)	3.75	.....

Without Mtg. Ears

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Pkg. of 10
31F1000	1	5	P (03-06-2011)	.....	1.00
59F1786	3	5	P1 (03-06-2032)	.....	1.70
59F1787	4	5	P1 (03-06-2042)	.....	3.85
59F1788	5	5	P1 (03-06-2055)	1.25	.....
59F1789	6	5	P1 (03-06-2061)	1.20	.....
31F1010	8	5	P (03-06-2081)	1.00	.....
59F1790	9	5	P1 (03-06-2092)	1.30	.....
59F1791	12	5	P1 (03-06-2122)	1.35	.....
59F1792	15	5	P1 (03-06-2152)	2.20	.....
59F1793	24	4	P1 (03-06-2242)	3.30	.....
59F1794	36	4	P1 (03-06-2362)	3.75	.....

RECEPTACLE CONFIGURATION ONLY

With Holding Tabs

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Pkg. of 10
31F1001	1	5	R (03-06-1011)	.....	.85
59F1780	3	5	R1 (03-06-1032)	.....	1.95
59F1781	4	5	R1 (03-06-1042)	.....	3.80
59F1782	9	5	R1 (03-06-1092)	1.50	.....
59F1783	12	5	R1 (03-06-1122)	1.55	.....
59F1784	15	5	R1 (03-06-1152)	2.55	.....
59F1785	24	4	R1 (03-06-1242)	3.45	.....

With Mtg. Ears & Hldg. Tabs

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Pkg. of 10
31F1003	3	5	R (03-06-1031)	.....	1.95
31F1005	4	5	R (03-06-1041)	.....	3.80
31F1007	5	5	R (03-06-1055)	1.65	.....
31F1009	6	5	R (03-06-1061)	1.40	.....
31F1011	8	5	R (03-06-1081)	1.25	.....
31F1013	9	5	R (03-06-1091)	1.50	.....
31F1015	12	5	R (03-06-1121)	1.55	.....
31F1017	15	5	R (03-06-1151)	2.55	.....
43F736	24	4	R (03-06-1241)	3.45	.....
31F1019	36	4	R (03-06-1361)	3.90	.....

STANDARD NYLON CONNECTOR HOUSINGS .093" PIN DIA.—250 VOLTS PER CIRCUIT

With Mtg. Ears

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Pkg. of 10
31F1032	1	12	P (03-09-2021)	.....	1.95
31F1034	3	12	P (03-09-2031)	.....	1.70
31F1036	4	9	P (03-09-2041)	.....	2.40
31F1040	6	9	P (03-09-2061)	1.55	.....
31F1042	9	9	P (03-09-2091)	1.65	.....
59F1795	12	7.5	P1 (03-09-2122)	1.65	.....
59F1796	15	7.5	P2 (03-09-2152)	2.60	.....

Without Mtg. Ears

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Pkg. of 10
31F1030	1	12	P (03-09-2011)	.....	1.00
59F1802	2	12	P1 (03-09-2022)	.....	1.95
59F1803	3	12	P1 (03-09-2032)	.....	1.70
59F1804	4	9	P1 (03-09-2042)	.....	2.40
31F1038	5	9	P (03-09-2052)	1.40	.....
59F1805	6	9	P1 (03-09-2062)	1.55	.....
59F1806	9	9	P1 (03-09-2092)	1.65	.....
31F1044	12	7.5	P (03-09-2121)	1.65	.....
31F1046	15	7.5	P (03-09-2151)*	2.60	.....

*With Pull Tabs Only

With Holding Tabs

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Pkg. of 10
31F1031	1	12	R (03-09-1011)	.....	.85
59F1797	2	12	R1 (03-09-1022)	.....	2.00
59F1798	3	12	R1 (03-09-1032)	.....	1.70
59F1799	4	9	R1 (02-09-1042)	.....	2.45
31F1039	5	9	R (03-09-1052)	1.75	.....
59F1800	6	9	R2 (03-09-1063)	1.60	.....
59F1801	9	9	R3 (03-09-1094)	1.70	.....

With Mtg. Ears & Hldg. Tabs

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Pkg. of 10
31F1033	2	12	R (03-09-1021)	.....	2.00
31F1035	3	12	R (03-09-1031)	.....	1.70
31F1037	4	9	R (03-09-1041)	.....	2.45
31F1041	6	9	R (03-09-1061)	1.60	.....
31F1043	9	9	R (03-09-1091)	1.70	.....
31F1045	12	7.5	R (03-09-1121)	1.85	.....
31F1047	15	7.5	R (03-09-1151)	2.95	.....

STRAIN RELIEF (2 PCS. REQUIRED PER PLUG OR RECEPTACLE)

Stk. No.	Type	Used With	"A" I.D.	Price Per Pkg. of 10
59F1807	15-04-0201	15 cir. .062"	.230"	3.50
59F1808	15-04-0202	36 cir. .062"	.500"	3.75

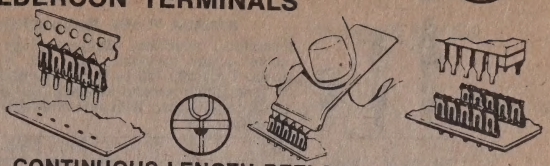
MANUFACTURED BY

Crimp & PC Terminals

waldom molex

INTEGRATED CIRCUIT SOLDERCON TERMINALS

Molex 1938-4 Soldercon terminals advance the state of the art by providing manufacturers with the advantages of plug-in packages for connecting integrated circuits at affordable prices. Available in pre-cut strips to fit your exact I.C. requirements. Provide excellent electrical contact and sturdy mechanical support. Their use speeds assembly, testing and servicing. Gives new flexibility to your entire PC assembly. Standard material: 70/30 spring tempered tin plated brass—.010" thick. Available on special order: gold plated (over nickel) brass, or phospher bronze.



SPECIFICATIONS

1. Height above board—.180".
2. Hole required.
   - A. Drilled—.032/.030 dia.
   - B. Punched—.032/.030 dia. with .037 diameter maximum breakout.
   - C. Plated through—.037/.029 diameter.
3. Minimum spacing—.100 on centers per row; .200 row spacing.
4. Insertion—1oz. minimum per terminal.
5. Withdraw—¾ oz. minimum per terminal.
6. Lead size range—.007"/.011" x .018"/.030".

CONTINUOUS LENGTH REELS Sold in packages of 1000.

Stock No.	Type No.	Contacts	Per Pkg.
30F325	05-30-0001	....	12.75

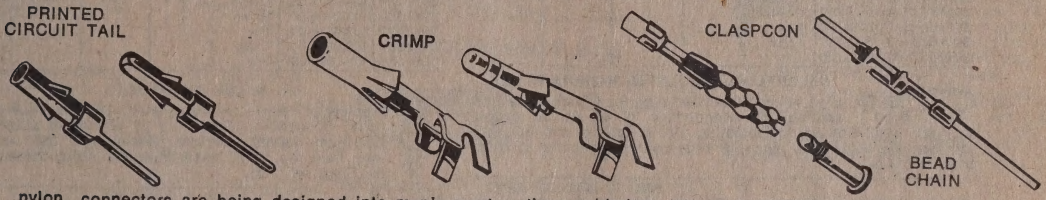
CUT TO LENGTH STRIPS Sold in packages of 50 except (†) 25.

30F332	05-30-0007	7	5.50
30F341	05-30-0008	8	5.90
30F337	05-30-0010	10	7.90
30F344	05-30-0012	12	9.50
30F335	05-30-0014†	14	5.55†

CARRIER BREAK-OFF TOOLS

Stock No.	Type No.	Contacts	Each
30F326	HT-2369-1	7-8	.90
30F333	HT-2369-2	10-12	1.15
30F340	HT-2369-3	14-18	1.25

CRIMP & PC TERMINALS FOR NYLON CONNECTORS



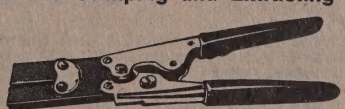
Molex nylon connectors are being designed into man's most exciting circuitry. They offer incomparable reliability, versatility and economy. UL and CSA recognized. Connectors are noted for their great flexibility. Provide a better mode of connection than soldering. Will withstand the toughest environment. Pin terminals can easily be removed individually from their housings for circuit changes at any time, and reinserted. Polarized housings.

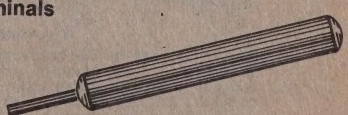
11

Stock No.	Type No.	Type	Mating Dia."	Style	Wire Range	Crimp Tool	Per Pkg.*
31F1020	02-09-1103	F	.093	Crimp	18-14	HT-1919 & HTR-1031-C	4.20
31F1021	02-09-2103	M	.093	Crimp	18-14	HT-1919 & HTR-1031-C	4.20
31F1023	02-09-1118	F	.093	Crimp	24-18	HT-1919 & HTR-1031-C	4.20
31F1022	02-09-2118	M	.093	Crimp	24-18	HT-1919 & HTR-1031-C	4.20
31F1024	02-09-1143	F	.093	Crimp	30-22	HT-1921 & HTR-2262	4.20
31F1025	02-09-2143	M	.093	Crimp	30-22	HT-1921 & HTR-2262	4.20
43F741	02-09-113-4	F	.093	PC Tail	....	...	3.25
43F742	02-09-213-4	M	.093	PC Tail	....	...	3.25
30F327	02-08-1102	F	.093	Claspcon	28-16	HT-1919 & HTR-1031-C	4.60
31F1027	02-06-1103	F	.062	Crimp	22-18	HT-1921 & HTR-2262	4.65
31F1026	02-06-2103	M	.062	Crimp	22-18	HT-1921 & HTR-2262	4.65
31F1029	02-06-1132	F	.062	Crimp	30-22	HT-1921 & HTR-2262	4.65
31F1028	02-06-2132	M	.062	Crimp	30-22	HT-1921 & HTR-2262	4.65
30F339	02-05-1105	F	.062	Claspcon	22-18	HT-1921 & HTR-2262	4.00
30F328	M-93-102	F	.093	Bead Chain	....	...	1.80
30F329	R-93-12	M	.093	Bead Chain	....	...	1.80
30F342	R-93-31	M	.093	Bead Chain	....	...	1.80
30F336	M-118-95A	F	.093	Bead Chain	....	...	1.85
30F330	R-62-3	M	.062	Bead Chain	....	...	1.80
30F343	R-62-4	M	.062	Bead Chain	....	...	1.85
30F334	R-62-5	M	.062	Bead Chain	....	...	1.80

Sold in packages of 100

TOOLING For Crimping and Extracting Terminals





PROTOTYPE HAND TOOLS

Limited production runs. To select the proper crimping tool refer to Crimp Tool column above.

Stock No.	Type	Description	Each
31F1048	HT-1919	for .093" pin dia.	7.95
31F1049	HT-1921	for .062" pin dia.	7.95

PRODUCTION TOOLS

To select the proper crimping tool refer to Crimp Tool column above.

Stock No.	Type	Description	Each
30F331	HTR-1031-C	for .093" pin dia.	75.00
30F338	HTR-2262	for .062" pin dia.	75.00

EXTRACTOR TOOLS

For removing terminal from nylon connector housing without damage.

Stock No.	Type	Description	Each
30F772	11-03-0006	for .093" pin dia.	6.70
30F773	11-03-0002	for .062" pin dia.	6.70

E. F. Johnson Plugs and Jacks

BANANA PLUGS AND JACKS

Complete selection. Banana plugs have nickel silver springs. Jacks are nickeled brass. Type 108-740 is 5/8" long, 108-760 is 1" long. Studs extend full length of sleeves for added support. With nuts and lugs. Shpg. wt. 2 oz.

Stk. No.	Type	Fig.	Descriptions	1-99	100-499	500-999	1000-4999
39F888	108-0750-001	A	Plug, 3/8" stud	.53	.39	.31	.27
39F889	108-0750-002	A	Plug, 3/4"	.53	.39	.31	.27
39F890	108-0753-001	B	Plug, 6-32 screw	.53	.39	.31	.27
39F891	108-0770-001	A	Jumbo type plug	1.10	.80	.65	.56
39F892	108-0771-001	B	Jumbo type plug	1.38	1.00	.81	.69
39F893	108-0740-001	C	Standard jack	.33	.24	.19	.17
39F894	108-0760-001	C	Jumbo jack	1.00	.72	.58	.50

NYLON SIX-WAY BINDING POST

Compact, completely insulated, pre-assembled 6-way binding post. Molded nylon body. Silver-plated brass shank. Current capacity 15 amps. Voltage breakdown 8000 V. Single 5/16"-32 nut furnished for mounting—no auxiliary hardware needed. Shpg. wt. 3 oz.

Stk. No.	Type	Color	1-99	100-499	500-999	1000-4999
39F1545	111-0101-001	White	.78	.57	.46	.39
39F1546	111-0102-001	Red				
39F1547	111-0103-001	Black				
39F1548	111-0104-001	Green				
39F1550	111-0106-001	Orange				
39F1551	111-0107-001	Yellow				
39F1552	111-0108-001	Brown				
39F1554	111-0110-001	Blue				
39F1556	111-0112-001	Violet				
39F1557	111-0113-001	Gray				

SOLDERLESS INSULATED BANANA PLUGS

High voltage insulated plug for a wide variety of applications. Connection of up to 16 gauge stranded wire. Polyamide insulating sleeve retains strength and low loss characteristics over wide range of temperatures. 15 amp. Shpg. wt. 3 oz.

Stk. No.	Type	Color	1-99	100-499	500-999	1000-4999
39F1530	108-0301-001	White	.50	.37	.30	.26
39F1531	108-0302-001	Red				
39F1532	108-0303-001	Black				
39F1533	108-0304-001	Green				
39F1535	108-0306-001	Orange				
39F1536	108-0307-001	Yellow				
39F1537	108-0308-001	Brown				
39F1539	108-0310-001	Blue				
39F1541	108-0312-001	Violet				
39F1542	108-0313-001	Gray				

LOW COST NYLON TIP JACKS

Low cost nylon tip jacks with formed silver-plated phosphor bronze contact. Current rating: .10 amps. Voltage breakdown: 9000 volts DC. Capacity to 1/8" panel, 2.0 pf. 1/4"-32 nut furnished; mounts in 17/64" hole. Shpg. wt. 2 oz.

Stk. No.	Type	Color	1-99	100-499	500-999	1000-4999
39F1560	105-0801-001	White	.27	.20	.16	.14
39F1561	105-0802-001	Red				
39F1562	105-0803-001	Black				
39F1563	105-0804-001	Green				
39F1565	105-0806-001	Orange				
39F1566	105-0807-001	Yellow				
39F1567	105-0808-001	Brown				
39F1569	105-0810-001	Blue				
39F1571	105-0812-001	Violet				
39F1572	105-0813-001	Gray				

METAL-CLAD NYLON TIP JACK TIPS

Shock-proof nylon and metal construction. Nickel-plated machined brass jacket protects nylon body—assures positive fastening to mounting surface.

STANDARD TYPE

These low cost metal-clad jacks have nylon tips for extremely long wear. Each is provided with formed silver-plated phosphor-bronze contact to insure optimal performance. Voltage breakdown is 7,000 volts DC. 3.8 pf. 10 amp.

Stk. No.	Type	Color	1-99	100-499	500-999	1000-4999
39F1700	105-0251-001	White	.39	.28	.24	.20
39F1701	105-0252-001	Red				
39F1702	105-0253-001	Black				
39F1703	105-0254-001	Green				
39F1705	105-0256-001	Orange				
39F1706	105-0257-001	Yellow				
39F1707	105-0258-001	Brown				
39F1709	105-0260-001	Blue				
39F1711	105-0262-001	Violet				
39F1712	105-0263-001	Gray				

NYLON INSULATED SOLDERLESS TIP PLUG

Durable molded nylon insulating sleeves designed so no metal surfaces are exposed when plug is inserted in jack. Connection of up to 16 gauge stranded wire. Withstands extremely high voltages and a wide temperature range. Current rating is 10 amperes. Standard .081 inch diameter pin fits all standard tip jacks. Size: 1 7/16"x3/8". Shpg. wt. 2 oz.

Stk. No.	Type	Color	1-99	100-499	500-999	1000-4999
39F1513	105-0301-001	White	.37	.26	.21	.18
39F1514	105-0302-001	Red				
39F1515	105-0303-001	Black				
39F1516	105-0304-001	Green				
39F1518	105-0306-001	Orange				
39F1519	105-0307-001	Yellow				
39F1520	105-0308-001	Brown				
39F1522	105-0310-001	Blue				
39F1524	105-0312-001	Violet				
39F1525	105-0313-001	Gray				

BANANA JACKS

Completely insulated banana jack. Retains low-loss characteristics through wide temp. range and high rel. humidity conditions. Voltage breakdown: 5,000 V DC. For banana plugs of nom. .175" diam. Shpg. wt. 2 oz.

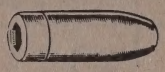
Stk. No.	Type	Color	1-99	100-499	500-999	1000-4999
39F1573	108-0901-001	White	.24	.17	.14	.12
39F1574	108-0902-001	Red				
39F1575	108-0903-001	Black				
39F1576	108-0904-001	Green				
39F1578	108-0906-001	Orange				
39F1579	108-0907-001	Yellow				
39F1580	108-0908-001	Brown				
39F1582	108-0910-001	Blue				
39F1584	108-0912-001	Violet				
39F1585	108-0913-001	Gray				

NYLON TIP JACKS

Molded of tough, low-loss nylon. DC breakdown 11,000 volts. Capacity to panel, 2.0 pf. Recessed silver plated beryllium copper contacts. Mating pin .081" diameter. Mtg. hole reg. 17/32". Head diam. 3/8". Body threaded 1/4"-32. Shpg. wt. 1 oz.

Stk. No.	Type	Color	1-99	100-499	500-999	1000-4999
39F878	105-0601-001	White	.45	.33	.26	.23
39F879	105-0602-001	Red				
39F880	105-0603-001	Black				
39F881	105-0604-001	Green				
39F882	105-0606-001	Orange				
39F883	105-0607-001	Yellow				
39F884	105-0608-001	Brown				
39F885	105-0610-001	Blue				
39F1558	105-0612-001	Violet				
39F1559	105-0613-001	Gray				

NYLON JACKS AND SLEEVE ASSEMBLIES



Nylon tip jack with inside thread. Molded nylon insul. sleeve. Shpg. wt. 3 oz.

Stk. No.	Type	Color	1-99	100-499	500-999	1000-4999
39F1500	105-0701-001	White	.47	.34	.28	.24
39F1501	105-0702-001	Red				
39F1502	105-0703-001	Black				
39F1503	105-0704-001	Green				
39F1506	105-0707-001	Yellow				
39F1509	105-0710-001	Blue				

Accommodates tip plugs of nominal .081" diameter. 1/4"-32 nut furnished. Mounts in 17/64" diameter hole. Capacity to 1/8" metal is 4.8 Mmf. Variations of two available grades listed below. Av. shpg. wt. 3 oz.

MILITARY TYPE

Military type designed to comply with MS-16108 Rev. F of MIL-STD-242A and MIL-C-39024/10. Heavy nickel plated brass jacket. Gold plated beryllium copper contact spring. Voltage breakdown: 8,000 volts DC. 3.8 pf 5 amp.

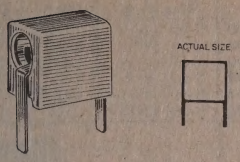
Stk. No.	Type	Color	1-99	100-499	500-999	1000-4999
39F1726	105-0201-200	White	1.00	.74	.60	.51
39F1727	105-0202-200	Red				
39F1728	105-0203-200	Black				
39F1729	105-0204-200	Green				
39F1731	105-0206-200	Orange				
39F1732	105-0207-200	Yellow				
39F1733	105-0208-200	Brown				
39F1735	105-0210-200	Blue				
39F1737	105-0212-200	Violet				
39F1738	105-0213-200	Gray				

11

Plugs, Jacks and Electronic Hardware

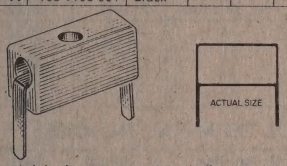
E. F. JOHNSON

HORIZONTAL JACKS



Design accepts 0.080" diameter tip plug in either end. Silver-plated and Irridited beryllium-copper formed contact. Two common terminals. Channel on underside for air-flow cooling during soldering. 5 amps.

Stk. No.	Type	Color	1-99	100-499	500-999
39F1739	105-1101-001	White	.20	.15	.12
39F1740	105-1102-001	Red			
39F1741	105-1103-001	Black			



Horizontal jacks accept .080" dia. tip plug in either end, or from top or bottom. Cross-hole accepts hook-type oscilloscope probe. Channel on underside for air-flow cooling during soldering. Silver-plated and irridited beryllium copper formed contact. Two common terminals.

Stk. No.	Type	Color	1-99	100-499	500-999
39F1742	105-0751-001	White	.18	.13	.10
39F1743	105-0752-001	Red			
39F1744	105-0753-001	Black			
39F1745	105-0754-001	Green			
39F1746	105-0756-001	Orange			
39F1747	105-0757-001	Yellow			
39F1748	105-0758-001	Brown			
39F1749	105-0760-001	Blue			
39F1750	105-0762-001	Violet			

SUB-MINIATURE TIP PLUG

For use with miniature jacks, .080" dia. tip. Nickel-plated machined brass body, solder lead connection. Current rating: 5 amps.

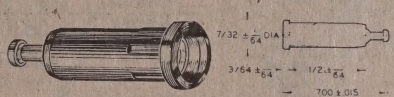
Stk. No.	Type	Color	1-99	100-499	500-999
39F1751	105-0773-001	Black	.40	.29	.23

VERTICAL JACKS

Mounts through single .052" hole, requires minimum mounting area. Accepts .080" dia. tip plug. Silver-plated, machined beryllium copper contact. 5 amps.

Stk. No.	Type	Color	1-99	100-499	500-999
39F1752	105-0851-001	White	.33	.24	.20
39F1753	105-0852-001	Red			
39F1754	105-0853-001	Black			
39F1755	105-0854-001	Green			
39F1756	105-0857-001	Yellow			
39F1757	105-0860-001	Blue			

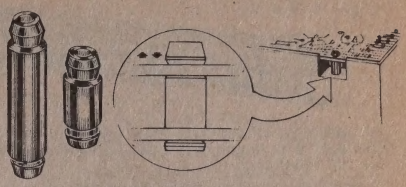
RIB-LOC PRESS-IN TIP JACKS



Permits substantial production line savings, no mounting hardware to handle and assemble. Install by pressing into proper size chassis hole. Rejects larger plugs to prevent accidental contact damage. 10 amps, 5000 volts.

Stk. No.	Type	Color	1-99	100-499	500-999
39F1758	105-1041-001	White	.31	.23	.18
39F1759	105-1042-001	Red			
39F1760	105-1043-001	Black			

POLYAMIDE SPACERS



Makes it possible to snap PC boards to a chassis and provide a choice of stand-off heights from .125" to .750". Nylon design provides permanent snap-in insertion. Other end of spacer snaps in or out of PC board for removal.

Stk. No.	Type	1-99	100-499
39F1761	115-0260-003	.04	.03
39F1762	115-0260-005		
39F1763	115-0260-009		

DUAL SOLDERLESS BANANA PLUGS

Molded body incorporates polarity indication and strain relief for wire leads. Machined brass studs extend length of pins. Voltage breakdown: 10,000 volts DC. Capacity plug to plug: 1.3 pf. Current carrying capacity: 15 amps.

Stk. No.	Type 108-	Color	1-99	100-499	500-999
39F895	0202-001	Red	2.00	1.46	1.17
39F896	0203-001	Black	2.00	1.46	1.17

INSULATED BANANA PLUGS

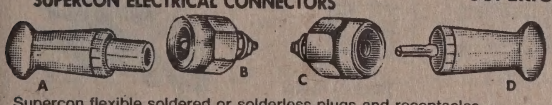
Standard size. Plastic handles, nickel-plated bodies, nickel-silver springs. 2⅛" L x 7/16" dia. 15 amps.

Stk. No.	Type 108-	Color	1-99	100-499	500-999
39F897	0752-001	Black	.84	.61	.49
39F898	0752-002	Red	.84	.61	.49

11

SUPERIOR ELECTRIC

SUPERCON ELECTRICAL CONNECTORS



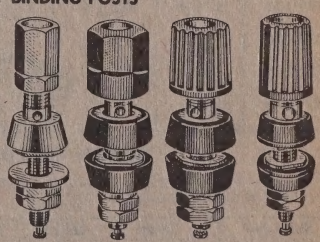
Supercon flexible soldered or solderless plugs and receptacles

Nylon plastic parts; brass current carrying parts. Wiring connections to the same plug can be either soldered or solderless. 25, 50, and 100 ampere types are listed by UL.

	Key	1-19	20-99	100-199	200-Up
Prices	A	4.75	4.05	3.55	3.35
	B	6.00	5.10	4.50	4.20
	C	7.90	6.70	5.95	5.55
	D	13.00	11.05	9.75	9.10

Color	Stk. No.	Type	Desc.	Stk. No.	Type	Desc.	Key
black	06F054	RP25GB	25 amp	06F066	PS25GB	25 amp	A
red	06F056	RP25GR	Recep.	06F068	PS25GR	Plugs	A
black	06F048	RS25GB	25 amp	06F060	PP25GB	25 amp	A
yellow	06F049	RS25GY	Socket	06F061	PP25GY	Pin	A
red	06F050	RS25GR	Recep.	06F062	PP25GR	Plugs	A
green	06F052	RS25GGN		06F064	PP25GGN		A
white	06F053	RS25GWT		06F065	PP25GWT		A
black	06F024	PS50GB	50 amp	06F006	RP50GB	50 amp	B
red	06F026	PS50GR	Plugs	06F008	RP50GR	Recep.	B
black	06F000	RS50GB	50 amp	06F030	PP50GB	50 amp	B
red	06F002	RS50GR	Recp.	06F032	PP50GR	Plug	B
black	06F012	RS100GB	100 amp	06F042	PP100GB	100 amp	C
red	06F014	RS100GR	Recep.	06F044	PP100GR	Plugs	C
white	06F017	RS100GWT		06F047	PP100GWT		C
black	06F036	PS100GB	100 amp	06F018	RP100GB	100 amp	C
red	06F038	PS100GR	Plugs	06F020	RP100GR	Recep.	C
white	06F041	PS100GWT		06F023	RP100GWT		C
black	06F675	RP250GB	250 amp	06F672	PS250GB	250 amp	D
red	06F677	RP250GR	Recep.	06F674	PS250GR	Plugs	D
black	06F095	RS250GB	250 amp	06F097	PP250GB	250 amp	D
red	06F096	RS250GR	Socket	06F098	PP250GR	Pin	D

5-WAY BINDING POSTS



Plastic and gold plated brass parts. Hex. and fluted nut rated at 30 amps. Mini at 15 amps, all 1000 working volts. Mini and hex. Mil-P-20693A, Type IV.

Color	Mini. Stk. No.	Mini. Type	Hex. Nut Stk. No.	Hex. Nut Type	Fluted Stk. No.	Fluted Type
red	06F079	DF21RC	05F762	DF30RC	06F088	DF31RC
white	06F080	DF21WTC	05F764	DF30WTC	06F091	DF31WTC
black	06F081	DF21BC	05F760	DF30BC	06F092	DF31BC
blue	06F082	DF21BLC	05F761	DF30BLC	06F089	DF31BLC
yellow	06F083	DF21YC	05F765	DF30YC	06F093	DF31YC
green	06F084	DF21GNC	05F763	DF30GNC	06F090	DF31GNC

PRICES: 5-20.....77 25-100.....70 105-500.....58

DOUBLE ASSEMBLY 5-WAY BINDING POST

For instrument and equipment panels requiring ¾" centers. Rated for a current capacity of 30 amps and working voltage of 1000 V. Gold plated brass parts. 5 ways to make connections. 0.098" dia. wire holes. Color coded captive thumbnuts.

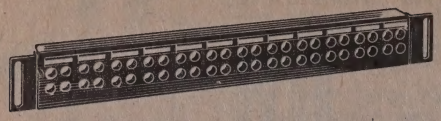
Stk. No.	Type	Thumbnut	1-19	20-99	100-Up
06F087	DF30-2-BRC	Red & Black	2.25	1.70	1.25

ADC Products

A DIVISION OF MAGNETIC CONTROLS COMPANY

Jacks, Plugs, Panels, Terminal Blocks

LONGFRAME PANELS



Molded of solid phenolic, reinforced with steel for added strength. Equipped with mounting brackets and designation strips. Designed for 19″ mounting.

Stock No.	Type	Height	Positions	Each
57F108	PJ-30	1¾″	52	16.25
57F106	PJ-31	2⅛″	48	21.45
57F110	PJ-33	2⅛″	24	20.80

LONGFRAME JACKS

One piece frame. WE #1 gold crossbar contacts welded to nickel silver springs. Insulation of XXXP phenolic. 6-32 mounting screws included. *Double with normals tied.

Stock No.	Type	Schematic	Stack Height	Each
57F126	PJ-123	A	7/16	1.17
57F112	PJ-238	B	9/16	1.41
57F114	PJ-241	D	¾	1.74
57F119	PJ-318	E	½	1.41
57F116	PJ-339	F	9/16	1.65
57F068	PJ-482	F*	...	4.20

LONGFRAME JACK PANELS

Jacks accept ADC standard 2- and 3-conductor plugs. Jacks are spaced permitting use of double plugs with standard ⅝″ centers.

Stock No.	Type	Equipped With	Each
57F069	PJ-390	52—PJ-339	92.30
57F107	PJ-341	48—PJ-318	74.75
57F070	PJ-391	48—PJ-339	97.50
57F071	PJ-393	24—PJ-339	71.50

LONGFRAME PLUGS

ADC standard ¼″ 2- and 3-conductor plugs are manufactured in accordance with stringent WE and military requirements.

Stock No.	Type	WE/MIL Equiv.	Description	Each
57F130	PJ-1	WE-241	2-conductor dual common sleeves.	7.13
57F163	PJ-327	WE-327	Two independent 2-conductor plugs.	8.13
57F072	PJ-047R	WE-347 & 642/1-2	2-conductor designed for T-S jacks.	4.39
57F131	PJ-051R	642/2-2	3-conductor for use with T-R-S jacks.	3.25
57F073	PJ-7	WE-425	Twin T-R-S conductors on ⅝ centers.	8.78
57F074	PJ-310	WE-310	Standard T-R-S ¼″ plug.	3.25
57F075	PJ-055B	642/4-1	.207 dia. sleeve 3-conductors.	2.60

PATCH CORDS

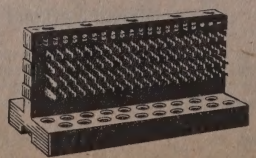
Cords provide tinsel wire conductors plus a braided shield. Overall jacket is black braided nylon; PJ-470 series is red.

Stock No.	Type	Length	Plugs Used	Each
57F141	PJ-12	2′	PJ-1	20.25
57F144	PJ-14	4′	PJ-1	21.61
57F145	PJ-16	6′	PJ-1	22.59
57F133	PJ-82	2′	PJ-051R	12.68
57F134	PJ-84	4′	PJ-051R	13.65
57F135	PJ-86	6′	PJ-051R	14.63
57F076	PJ-172	2′	PJ-7	24.05
57F077	PJ-174	4′	PJ-7	25.35
57F214	PJ-472	2′	PJ-047R	13.33

TERMINAL BLOCKS

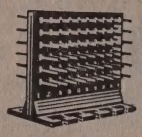
20 PIN

Stock No.	Type	No. of Rows	Height	Each
57F102	PJ-103	3	2.59″	11.05
57F103	PJ-104	4	2.94″	12.68
57F104	PJ-105	5	3.28″	14.30
57F105	PJ-106	6	3.63″	15.93

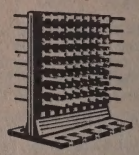


26 PIN

Stock No.	No. of Rows	Solder/ Solder	Stock No.	Wire Wrap/ Wire Wrap	Height	Each
65F280	4	PJ-660-4	65F290	PJ-660-4WW	2.750″	10.89
57F078	5	PJ-660-5	65F291	PJ-660-5WW	3.062″	11.99
57F079	6	PJ-660-6	65F292	PJ-660-6WW	3.375″	13.20
65F281	8	PJ-660-8	65F293	PJ-660-8WW	4.0″	15.40
65F282	10	PJ-660-10	65F294	PJ-660-10WW	4.625″	17.60
65F283	12	PJ-660-12	65F295	PJ-660-12WW	5.250″	19.80



WRAPID TERMINAL BLOCKS

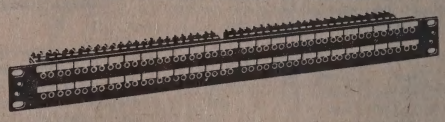


Stock No.	Type	No. of Rows	Height	Each
65F284	PJ-604	4	1.75″	5.36
65F285	PJ-606	6	2.25″	6.18
65F286	PJ-608	8	2.75″	6.99
65F287	PJ-610	10	3.25″	7.80
65F288	PJ-612	12	3.75″	9.10

MOLDED 60-PIN TERMINAL BLOCKS

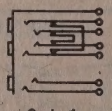
Stock No.	Type	Description	Height	Each
65F289	PJ-656	Wire Wrap terminals	1.75″	4.55

BANTAM JACK PANELS



Stock No.	Type	Holds	Each
57F173	PJ-731	96 jacks, less jacks	28.60
57F1188	PJ-737	96 PJ-818 jacks	117.00
57F1189	PJ-739	96 PJ-839 jacks	139.75
57F080	PJ-789	48 PJ-889 Back-to-Back jacks	191.75
57F081	PJ-721	48 PJ-831 2+1 jacks	204.75

BANTAM JACKS



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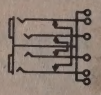
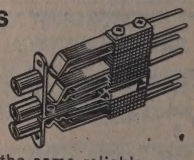


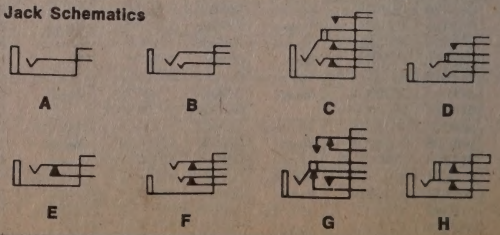
Back-to-Back



These space saving Bantam jacks provide the same reliable service as the regular size telephone jacks and are constructed of the same materials including WE #1 gold contacts. 3-48 mounting screws included.

Stock No.	Type	Schematic	Stack Height	Each
57F082	PJ-805	C	.671	1.77
57F083	PJ-808	H	.671	2.22
57F084	PJ-816	I	.546	1.32
57F1195	PJ-818	E	.406	1.11
57F1196	PJ-823	A	.421	.90
57F1197	PJ-838	B	.500	.99
57F1198	PJ-839	F	.500	1.29
57F1199	PJ-841	D	.656	1.41

Jack Schematics



Patch Cords and Audio Connectors

ADC Products
A DIVISION OF MAGNETIC CONTROLS COMPANY

BANTAM ASSEMBLED PATCH CORDS

Durable assembled patch cords are constructed of black nylon braided cords and tinsel conductors. Plugs are attached to cord by specially tooled lugs and screws.

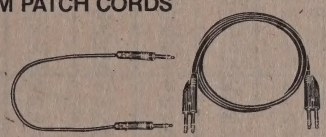
Dual with PJ-778R Plugs or Cord only.

Stock No.	Type	Description	Each
65F298	PJ-851	12" with plugs	15.93
65F299	PJ-951	12" cord only	26.50
65F300	PJ-852	24" with plugs	16.58
65F301	PJ-952	24" cord only	27.00
65F302	PJ-853	36" with plugs	17.23
65F303	PJ-953	36" cord only	27.50
65F304	PJ-854	48" with plugs	17.88
65F305	PJ-954	48" cord only	28.00
65F306	PJ-855	60" with plugs	18.53
65F307	PJ-955	60" cord only	28.50
65F308	PJ-856	72" with plugs	19.18
65F309	PJ-956	72" cord only	29.00

Single with PJ-777R Plugs or Cord only.

Stock No.	Type	Description	Each
65F310	PJ-791	12" with plugs	11.70
65F311	PJ-991	12" cord only	5.61
65F329	PJ-792	24" with plugs	12.35
65F312	PJ-992	24" cord only	6.55
65F313	PJ-793	36" with plugs	13.00
65F314	PJ-993	36" cord only	7.47
65F315	PJ-794	48" with plugs	13.65
65F316	PJ-994	48" cord only	8.53
65F317	PJ-795	60" with plugs	14.30
65F318	PJ-995	60" cord only	9.58
65F319	PJ-796	72" with plugs	14.95
65F320	PJ-996	72" cord only	10.47

BANTAM PATCH CORDS



Cords are plastic jacketed, overall shielded and molded on plugs.

Stock No.	Type	Description	Length	Each
57F086	PJ-702	Single 2 Conductor	12"	5.69
57F187	PJ-704	Single 2 Conductor	24"	5.85
57F188	PJ-706	Single 2 Conductor	36"	6.01
57F087	PJ-708	Single 2 Conductor	48"	6.18
57F196	PJ-712	Single 3 Conductor	12"	6.66
57F197	PJ-714	Single 3 Conductor	24"	6.99
57F198	PJ-716	Single 3 Conductor	36"	7.13
57F199	PJ-718	Single 3 Conductor	48"	7.48
57F088	PJ-720	Single 3 Conductor	60"	7.64
57F1191	PJ-764	Double 3 Conductor	24"	10.73
57F1192	PJ-766	Double 3 Conductor	36"	11.44
57F089	PJ-770	Double 3 Conductor	60"	12.22

ACCESSORIES

Longframe

Stock No.	Type	Description	Each
65F321	PJ-157	Lamp Socket, for use with .625" thick panels	1.98
65F322	PJ-160	Lamp Socket, for use with .875" thick panels	2.50
65F323	PJ-300-24R	Red LED Module, 24V	3.58
65F324	PJ-300-24G	Green LED Module, 24V	3.58
65F325	PJ-300-24A	Amber LED Module, 24V	3.58
65F326	PJ-300-48R	Red LED Module, 48V	3.58
65F327	PJ-300-48G	Green LED Module, 48V	3.58
65F328	PJ-300-48A	Amber LED Module, 48V	3.58

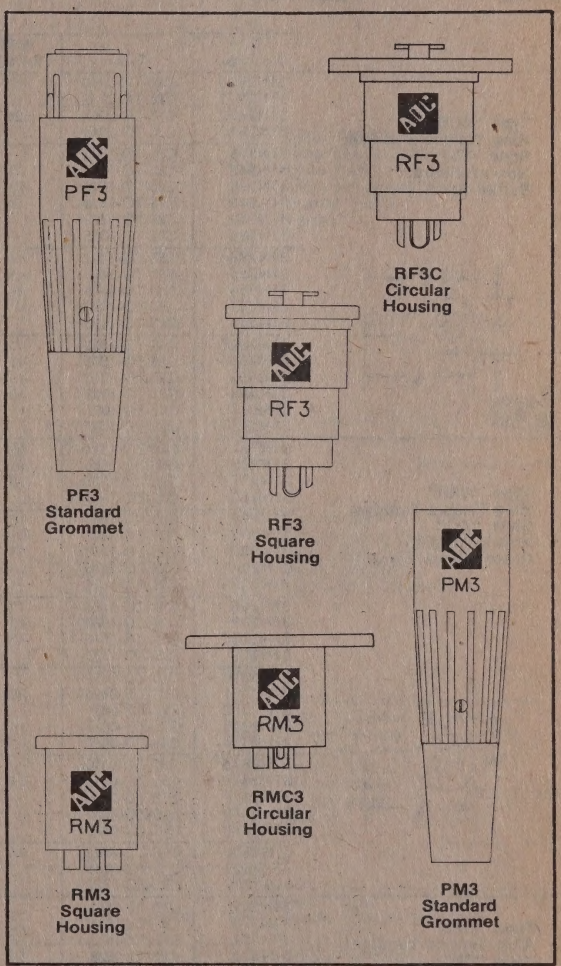
Bantam

Stock No.	Type	Description	Each
57F090	PJ-850	Lamp Holder	1.37
57F092	PJ-859-48R	Red LED Module (48V)	2.70
57F093	PJ-862	Lamp, 24V	2.47
57F094	PJ-729W	White Lens Cap	.49
57F095	PJ-729R	Red Lens Cap	.49
57F096	PJ-729G	Green Lens Cap	.49
57F097	PJ-729B	Hole Plug	.26
57F099	PJ-748R	Dummy Plug	.46

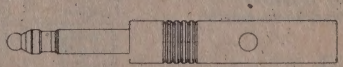
AUDIO PLUGS

Low impedance input and output audio plugs. Interchangeable and compatible with other manufacturers' products. Available in eight models.

Stock No.	Type	Description	Each
65F330	RM3C	Receptacle Assembly, Male Audio Circular Housing	2.25
65F331	RF3	Receptacle Assembly, Female Audio, Square Housing	4.60
65F332	PF3	Plug Assembly, Female Audio	3.40
65F333	PF3S	Plug Assembly, Female Audio; small cable grommet	3.50
65F334	PM3	Plug Assembly, Male Audio	2.90
65F335	PM3S	Plug Assembly, Male Audio small cable grommet	3.00
65F336	RF3C	Receptacle Assembly, Female Audio, Circular Housing	4.50
65F337	RM3	Receptacle Assembly, Male Audio, Square Housing	2.75



BANTAM PLUGS



Attachable Single and Dual Bantam Plugs are manufactured of profiled construction using nylon insulation for extended life. Each plug is supplied with shell, shell mounting screw, two lugs, and two lug attachment screws. Available in Black or Red shells.

Stock No.	Type	Description	Each
65F296	PJ-777	Single Bantam Plug	3.51
65F297	PJ-778	Dual Bantam Plug	6.89

11

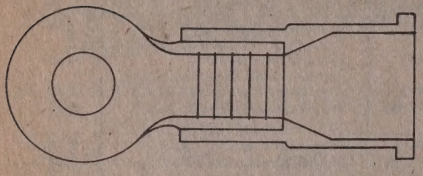
SPC technology

VOLTREX® brand Solderless Terminals and Connectors

Listed E58918

OSHA Acceptable

Certified LR22190-GM

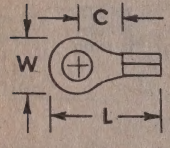


SUPERIOR TERMINAL CONSTRUCTION OFFERS MANY ADVANTAGES

- One piece construction
- Electro-tin plating
- Open end design
- Molded flange
- ETP copper annealed
- Color coded

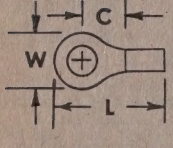
Wire guide barrel provides excellent electrical and mechanical connection. One piece, burr free construction for maximum electrical conductivity. Electro-tin plating for maximum corrosion resistance. Constructed of pure electrolytic (ETP) copper annealed to relieve stress points and to assure maximum installed strength. Barrel to pad transition designed to minimize flexing and bending. Multiple "V" grooves in barrel give maximum holding power and current flow. Insulation is molded of tough, resistant electrical grade vinyl or nylon. Color coding. Molded flange for accurate location of crimper. Open-end design permits visual inspection of wire location before and after crimping.

Type "CRS" Ring Tongue Terminal Style "TO" Non-Insulated, Butted Seam Barrel



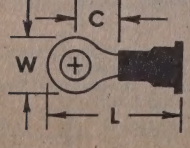
Stock No.	Type	WIRE RANGE	STUD SIZE	"W"	"C"	"L"	Std. Pkg.	Price per Pkg. 1-9	10-49	50-99
31N2800	CRS-TO-2200	26*	0	.14	.11	.32	100	6.05	4.73	3.78
31N2801	CRS-TO-2202	to	2	.14	.11	.32	100	6.05	4.73	3.78
31N2802	CRS-TO-2204	24	4	.20	.21	.46	100	6.05	4.73	3.78
31N2803	CRS-TO-2206		6	.20	.21	.46	100	6.05	4.73	3.78
31N546	CRS-TO-1802		2	.25	.23	.60	100	6.05	4.73	3.78
31N547	CRS-TO-1804	22	4	.25	.23	.60	100	6.05	4.73	3.78
31N548	CRS-TO-1806	to	6	.25	.23	.60	100	6.05	4.73	3.78
31N549	CRS-TO-1808	18	8	.31	.33	.74	100	6.05	4.73	3.78
31N550	CRS-TO-1810		10	.31	.33	.74	100	6.05	4.73	3.78
31N551	CRS-TO-1825		¼	.47	.40	.89	100	8.18	6.40	5.11
31N2804	CRS-TO-1404	16	4	.25	.23	.60	100	6.05	4.73	3.78
31N555	CRS-TO-1406	to	6	.25	.23	.60	100	6.05	4.73	3.78
31N556	CRS-TO-1408	14	8	.31	.33	.74	100	6.05	4.73	3.78
31N557	CRS-TO-1410		10	.31	.33	.74	100	6.05	4.73	3.78
31N558	CRS-TO-1425		¼	.47	.40	.89	100	8.18	6.40	5.11
31N2805	CRS-TO-1006		6	.28	.29	.69	50	4.26	3.33	2.66
31N2806	CRS-TO-1008	12	8	.28	.29	.69	50	4.26	3.33	2.66
31N562	CRS-TO-1010	to	10	.38	.29	.73	50	4.26	3.33	2.66
31N563	CRS-TO-1025	10	¼	.54	.44	.96	50	4.88	3.81	3.05
31N564	CRS-TO-1031		5/16	.54	.44	.96	50	4.88	3.81	3.05
31N565	CRS-TO-1037		⅜	.54	.44	.96	50	4.88	3.81	3.05

Type "CRS" Ring Tongue Terminal Style "ZO" Non-Insulated, Brazed Seam Barrel



31N121	CRS-ZO-1804	22	4	.25	.23	.60	100	8.64	6.75	5.40
31N200	CRS-ZO-1806	to	6	.25	.23	.60	100	8.64	6.75	5.40
31N201	CRS-ZO-1808	18	8	.31	.33	.74	100	8.64	6.75	5.40
31N202	CRS-ZO-1810		10	.31	.33	.74	100	8.64	6.75	5.40
31N122	CRS-ZO-1404	16	4	.25	.23	.60	100	8.64	6.75	5.40
31N204	CRS-ZO-1406	to	6	.25	.23	.60	100	8.64	6.75	5.40
31N205	CRS-ZO-1408	14	8	.31	.33	.74	100	8.64	6.75	5.40
31N206	CRS-ZO-1410		10	.31	.33	.74	100	8.64	6.75	5.40
31N207	CRS-ZO-1425		¼	.47	.40	.89	100	11.68	9.13	7.30
31N208	CRS-ZO-1006	12	6	.28	.29	.69	50	6.08	4.75	3.80
31N209	CRS-ZO-1008	to	8	.28	.29	.69	50	6.08	4.75	3.80
31N210	CRS-ZO-1010	10	10	.38	.29	.73	50	6.08	4.75	3.80
31N211	CRS-ZO-1025		¼	.54	.44	.96	50	6.96	5.44	4.35
31N2810	CRS-ZO-0810		10	.47	.38	.95	25	8.96	7.00	5.60
31N2811	CRS-ZO-0825	#8	¼	.47	.38	.95	25	8.96	7.00	5.60
31N2812	CRS-ZO-0831		5/16	.59	.44	1.06	25	8.96	7.00	5.60
31N2813	CRS-ZO-0837		⅜	.59	.44	1.06	25	8.96	7.00	5.60
31N2814	CRS-ZO-0850		½	.81	.68	1.41	20	8.39	6.55	5.24
31N2815	CRS-ZO-0610		10	.47	.52	1.14	20	8.04	6.28	5.02
31N2816	CRS-ZO-0625	#6	¼	.47	.52	1.14	20	8.04	6.28	5.02
31N2817	CRS-ZO-0631		5/16	.63	.54	1.22	20	8.04	6.28	5.02
31N2818	CRS-ZO-0637		⅜	.63	.54	1.22	20	8.04	6.28	5.02
31N2819	CRS-ZO-0650		½	.81	.68	1.41	10	4.66	3.64	2.91
31N2820	CRS-ZO-0425	#4	¼	.68	.44	1.33	10	5.25	4.10	3.28
31N2821	CRS-ZO-0431		5/16	.68	.44	1.33	10	5.25	4.10	3.28
31N2822	CRS-ZO-0437		⅜	.68	.44	1.33	10	5.25	4.10	3.28

Type "CRS" Ring Tongue Terminal Style "TV" Vinyl Insulated, Butted Seam Barrel



31N569	CRS-TV-1802		2	.25	.23	.80	100	9.97	7.80	6.23
31N570	CRS-TV-1804	22	4	.25	.23	.80	100	9.97	7.80	6.23
31N571	CRS-TV-1806	to	6	.25	.23	.80	100	9.97	7.80	6.23
31N572	CRS-TV-1808	18	8	.31	.33	.94	100	9.97	7.80	6.23
31N573	CRS-TV-1810		10	.31	.33	.94	100	9.97	7.80	6.23
31N574	CRS-TV-1825		¼	.47	.40	1.09	100	12.10	9.45	7.56
31N2807	CRS-TV-1404	16	4	.25	.23	.80	100	9.97	7.80	6.23
31N578	CRS-TV-1406	to	6	.25	.23	.80	100	9.97	7.80	6.23
31N579	CRS-TV-1408	14	8	.31	.33	.94	100	9.97	7.80	6.23
31N580	CRS-TV-1410		10	.31	.33	.94	100	9.97	7.80	6.23
31N581	CRS-TV-1425		¼	.47	.40	1.09	100	12.10	9.45	7.56
31N2808	CRS-TV-1006		6	.28	.29	.99	50	6.44	5.04	4.03
31N2809	CRS-TV-1008	12	8	.28	.29	.99	50	6.44	5.04	4.03
31N585	CRS-TV-1010	to	10	.38	.29	1.03	50	6.44	5.04	4.03
31N586	CRS-TV-1025	10	¼	.54	.44	1.26	50	7.62	5.95	4.76
31N587	CRS-TV-1031		5/16	.54	.44	1.26	50	7.62	5.95	4.76
31N588	CRS-TV-1037		⅜	.54	.44	1.26	50	7.62	5.95	4.76

(*) 26-24 Wire Range Only, Not UL listed.

VOLTREX® brand Solderless Terminals and Connectors

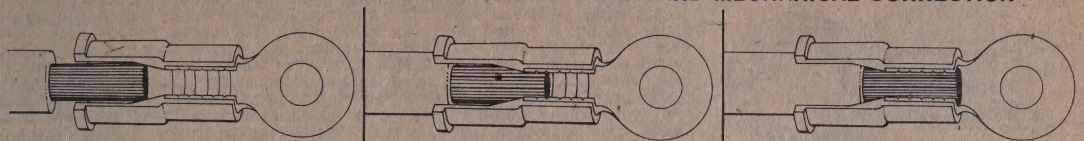
SPC technology

Listed E58918

OSHA Acceptable

Certified LR22190-GM

WIRE GUIDE BARREL FOR EXCELLENT ELECTRICAL AND MECHANICAL CONNECTION



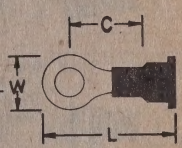
1. Funnel design guides wire into position.

2. No wire strand hang-up as wire is inserted. Fast, positive installation.

3. Wire in place, ready for crimping.

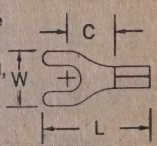
Stock No.	Type	Wire RANGE	Stud SIZE	"W"	"C"	"L"	Std. Pkg.	Price Per Pkg. 1-9	10-49	50-99
31N107	CRS-ZV-1804	22	4	.25	.23	.80	100	14.24	11.13	8.90
31N108	CRS-ZV-1806	to	6	.25	.23	.80	100	14.24	11.13	8.90
31N109	CRS-ZV-1808	18	8	.31	.33	.94	100	14.24	11.13	8.90
31N113	CRS-ZV-1406	16	6	.25	.23	.80	100	14.24	11.13	8.90
31N114	CRS-ZV-1408	to	8	.31	.33	.94	100	14.24	11.13	8.90
31N115	CRS-ZV-1410	14	10	.31	.33	.94	100	14.24	11.13	8.90
31N116	CRS-ZV-1425		1/4	.47	.40	1.09	100	17.28	13.50	10.80
31N117	CRS-ZV-1006	12	6	.28	.29	.99	50	9.20	7.19	5.75
31N119	CRS-ZV-1010	to	10	.38	.29	1.03	50	9.20	7.19	5.75
31N120	CRS-ZV-1025	10	1/4	.54	.44	1.26	50	10.88	8.50	6.80
31N670	CRS-ZV-0810		10	.47	.38	1.26	25	13.44	10.50	8.40
31N671	CRS-ZV-0825	#8	1/4	.47	.38	1.26	25	13.44	10.50	8.40
31N672	CRS-ZV-0831		5/16	.59	.44	1.37	25	13.44	10.50	8.40
31N673	CRS-ZV-0837		3/8	.59	.44	1.37	25	13.44	10.50	8.40
31N674	CRS-ZV-0850		1/2	.81	.68	1.72	20	12.58	9.83	7.86
31N675	CRS-ZV-0610		10	.47	.52	1.50	20	12.05	9.42	7.53
31N676	CRS-ZV-0625	#6	1/4	.47	.52	1.50	20	12.05	9.43	7.53
31N677	CRS-ZV-0631		5/16	.63	.54	1.58	20	12.05	9.43	7.53
31N678	CRS-ZV-0637		3/8	.63	.54	1.58	20	12.05	9.43	7.53
31N679	CRS-ZV-0650		1/2	.81	.68	1.77	10	6.98	5.46	4.37
31N680	CRS-ZV-0410		10	.68	.44	1.74	10	7.88	6.15	4.92
31N681	CRS-ZV-0425	#4	1/4	.68	.44	1.74	10	7.88	6.15	4.92
31N682	CRS-ZV-0431		5/16	.68	.44	1.74	10	7.88	6.15	4.92
31N683	CRS-ZV-0437		3/8	.68	.44	1.74	10	7.88	6.15	4.92
31N684	CRS-ZV-0450		1/2	.68	.44	1.74	10	9.96	7.79	6.23
31N100	CRS-DY-2202	26 to	2	.14	.11	.46	100	20.32	15.88	12.70
31N101	CRS-DY-2204	22	4	.20	.21	.60	100	20.32	15.88	12.70
31N2823	CRS-DY-2206		6	.20	.21	.60	100	20.32	15.88	12.70
31N105	CRS-DY-1804	22	4	.25	.23	.80	100	20.32	15.88	12.70
31N219	CRS-DY-1806	to	6	.25	.23	.80	100	20.32	15.88	12.70
31N220	CRS-DY-1808	18	8	.31	.33	.94	100	20.32	15.88	12.70
31N221	CRS-DY-1810		10	.31	.33	.94	100	20.32	15.88	12.70
31N222	CRS-DY-1825		1/4	.47	.40	1.09	100	22.40	17.50	14.00
31N2824	CRS-DY-1404	16	4	.25	.23	.80	100	20.32	15.88	12.70
31N223	CRS-DY-1406	to	6	.33	.29	.90	100	20.32	15.88	12.70
31N224	CRS-DY-1408	14	8	.31	.33	.94	100	20.32	15.88	12.70
31N225	CRS-DY-1410		10	.31	.33	.94	100	20.32	15.88	12.70
31N226	CRS-DY-1425		1/4	.47	.40	1.09	100	22.40	17.50	14.00
31N228	CRS-DY-1008	12	8	.38	.29	1.03	50	12.40	9.69	7.75
31N229	CRS-DY-1010	to	10	.38	.29	1.03	50	12.40	9.69	7.75
31N230	CRS-DY-1025	10	1/4	.54	.44	1.26	50	13.44	10.50	8.40
32N056	CSS-TO-2202	26 to	0-2	.13	.11	.32	100	6.05	4.73	3.78
31N2825	CSS-TO-2204	22*	4	.20	.21	.46	100	6.05	4.73	3.78
32N058	CSS-TO-2206		6	.25	.27	.54	100	6.05	4.73	3.78
31N2826	CSS-TO-1806	22 to	6	.34	.29	.70	100	6.05	4.73	3.78
31N2827	CSS-TO-1808	18	8	.34	.29	.70	100	6.05	4.73	3.78
31N2828	CSS-TO-1810		10	.34	.29	.70	100	6.05	4.73	3.78
31N2829	CSS-TO-1406	16 to	6	.34	.29	.70	100	6.05	4.73	3.78
31N2830	CSS-TO-1408	14	8	.34	.29	.70	100	6.05	4.73	3.78
31N524	CSS-TO-1410		10	.35	.33	.72	100	6.05	4.73	3.78
31N525	CSS-TO-1010	12-10	10	.38	.29	.73	50	4.26	3.33	2.66
31N2831	CSS-TV-1806	22 to	6	.34	.29	.90	100	9.97	7.80	6.23
31N2832	CSS-TV-1808	18	8	.34	.29	.90	100			
31N2833	CSS-TV-1810		10	.34	.29	.90	100			
31N2834	CSS-TV-1406	16 to	6	.34	.29	.90	100	9.97	7.80	6.23
31N2835	CSS-TV-1408	14	8	.34	.29	.90	100			
31N538	CSS-TV-1410		10	.35	.33	.92	100			
31N2836	CSS-TV-1006	12 to	6	.38	.29	1.03	50	6.44	5.04	4.03
31N2837	CSS-TV-1008	10	8	.38	.29	1.03	50			
31N539	CSS-TV-1010		10	.38	.29	1.03	50			
31N2838	CSS-DY-2204	26 to 22	4	.20	.21	.60	100	20.32	15.88	12.70
31N2839	CSS-DY-2206		6	.25	.27	.68	100			
31N2840	CSS-DY-1806	22 to	6	.34	.29	.90	100	20.32	15.88	12.70
31N2841	CSS-DY-1808	18	8	.34	.29	.90	100			
31N2842	CSS-DY-1810		10	.34	.29	.90	100			
31N2843	CSS-DY-1406	16 to	6	.34	.29	.90	100	20.32	15.88	12.70
31N2844	CSS-DY-1408	14	8	.34	.29	.90	100			
31N2845	CSS-DY-1010	12-10	10	.38	.29	1.03	50	12.40	9.69	7.75

Type "CRS" Ring Tongue Terminal Style "ZV" Vinyl Insulated, Brazed Seam Barrel

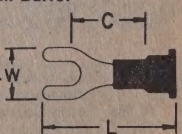


Type "CRS" Ring Tongue Terminal Style "DY" Nylon Insulated, "Sure-Grip" Barrel

Type "CSS" Spade Tongue Terminal Style "TO" Non-Insulated, Butted Seam Barrel



Type "CSS" Spade Tongue Terminal Style "TV" Vinyl Insulated, Butted Seam Barrel



Type "CSS" Spade Tongue Terminal Style "DY" Nylon Insulated, "Sure-Grip" Barrel

(*) 26-24 Wire Range Only, Not UL listed.

11

SPC technology

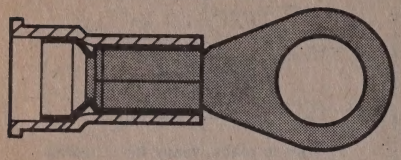
VOLTREX brand

Solderless Terminals and Connectors

LISTED E58918

CERTIFIED LR 22190-6M

OSHA Acceptable



Style "TO" non-insulated butted seam terminal is used where special characteristics are not required. **Style "ZO"** non-insulated brazed seam terminal allows crimp at any location on barrel. Seam is silver brazed and cannot open under crimping or operating pressure. **Style "TV"** vinyl insulated terminals with "wire guide" barrel consists of butted seam with flared, rigid, PVC sleeve. Flexure occurs over wide area on the wire insulation rather than at juncture. Funnel shaped sleeve guides wire strands into barrel. **Style "ZV"** vinyl insulated brazed seam terminals with "wire guide" barrel has same features as style "TV" plus advantages of the brazed seam over the butted seam. **Style "DY"** nylon insulated terminal with sure-grip "wire guide" barrel consists of a butted seam with flared seamless brass sleeve covered with a flared injection molded nylon sleeve. Because nylon is molded with "step" radii, positioning crimping tool is foolproof.

	Stock No.	Type	Wire Range	Stud Size	"W"	"C"	"L"	Std. Pkg.	PRICE PER PKG. 1-9	10-49	50-99
Type "CBS" Block Spade Tongue Style "TO" Non-Insulated Butted Seam Barrel	31N518	CBS-TO-1804	22 to 18	4	.25	.25	.65	100	6.05	4.73	3.78
	31N519	CBS-TO-1806		6	.30	.25	.65	100			
	31N520	CBS-TO-1808		8	.30	.25	.65	100			
	31N521	CBS-TO-1810		10	.30	.25	.65	100			
	31N522	CBS-TO-1406	16 to 14	6	.30	.25	.65	100	6.05	4.73	3.78
	31N523	CBS-TO-1408		8	.30	.25	.65	100			
	31N2846	CBS-TO-1410		10	.30	.25	.65	100			
Type "CBS" Block Spade Tongue Style "ZO" Non-Insulated Brazed Seam Barrel	31N214	CBS-ZO-1806	22 to 18	6	.25	.25	.65	100	8.64	6.75	5.40
	31N138	CBS-ZO-1808		8	.30	.25	.65	100			
	31N215	CBS-ZO-1810		10	.30	.25	.65	100			
	31N216	CBS-ZO-1406	16 to 14	6	.30	.25	.65	100	8.64	6.75	5.40
	31N140	CBS-ZO-1408		8	.30	.25	.65	100	8.64	6.75	5.40
	31N142	CBS-ZO-1006	12-10	6	.32	.29	.73	50	6.08	4.75	3.80
Type "CBS" Block Spade Tongue Style "TV" Vinyl Insulated Butted Seam Barrel	31N532	CBS-TV-1804	22 to 18	4	.25	.25	.85	100	9.97	7.80	6.23
	31N533	CBS-TV-1806		6	.30	.25	.85	100			
	31N534	CBS-TV-1808		8	.30	.25	.85	100			
	31N535	CBS-TV-1810		10	.30	.25	.85	100			
	31N536	CBS-TV-1406	16 to 14	6	.30	.25	.85	100	9.97	7.80	6.23
	31N537	CBS-TV-1408		8	.30	.25	.85	100			
	31N2847	CBS-TV-1410		10	.30	.25	.85	100			
Type "CBS" Block Spade Tongue Style "ZV" Vinli Insulated Brazed Seam Barrel	31N129	CBS-ZV-1806	22 to 18	6	.25	.25	.85	100	14.24	11.13	8.90
	31N130	CBS-ZV-1808		8	.30	.25	.85	100			
	31N131	CBS-ZV-1810		10	.30	.25	.85	100			
	31N132	CBS-ZV-1406	16 to 14	6	.30	.25	.85	100	14.24	11.13	8.90
	31N133	CBS-ZV-1408		8	.30	.25	.85	100			
	31N134	CBS-ZV-1410		10	.30	.25	.85	100			
Type "CBS" Block Spade Tongue Style "DY" Nylon Insulated "Sure-Grip" Barrel	31N2848	CBS-DY-1804	22 to 18	4	.25	.25	.85	100	20.32	15.88	12.70
	31N236	CBS-DY-1806		6	.25	.25	.85	100			
	31N237	CBS-DY-1808		8	.30	.25	.85	100			
	31N238	CBS-DY-1810		10	.30	.25	.85	100			
	31N231	CBS-DY-1406	16 to 14	6	.30	.25	.85	100	20.32	15.88	12.70
	31N232	CBS-DY-1408		8	.30	.25	.85	100			
	31N233	CBS-DY-1410		10	.30	.25	.85	100			
	31N127	CBS-DY-1006	12 to 10	6	.32	.29	1.03	50	12.40	9.69	7.75
	31N234	CBS-DY-1010		10	.32	.29	1.03	50			
Type "CGS" Flanged Block Spade Tongue Style "TO" Non-Insulated Butted Seam Barrel	31N526	CGS-TO-1806	22 to 18	6	.30	.25	.65	100	7.06	5.52	4.41
	31N527	CGS-TO-1808		8	.30	.25	.65	100			
	31N528	CGS-TO-1810		10	.30	.25	.65	100			
	31N529	CGS-TO-1406	16 to 14	6	.30	.25	.65	100	7.06	5.52	4.41
	31N530	CGS-TO-1408		8	.30	.25	.65	100			
	31N531	CGS-TO-1410		10	.30	.25	.65	100			
Type "CGS" Flanged Block Spade Tongue Style "TV" Vinyl Insulated Butted Seam Barrel	31N540	CGS-TV-1806	22 to 18	6	.30	.25	.85	100	10.87	8.50	6.79
	31N541	CGS-TV-1808		8	.30	.25	.85	100			
	31N542	CGS-TV-1810		10	.30	.25	.85	100			
	31N543	CGS-TV-1406	16 to 14	6	.30	.25	.85	100	10.87	8.50	6.79
	31N544	CGS-TV-1408		8	.30	.25	.85	100			
	21N545	CGS-TV-1410		10	.30	.25	.85	100			
Type "CGS" Flanged Block Spade Tongue Style "DY" Nylon Insulated "Sure-Grip" Barrel (Picture same as style "TV" above)	31N150	CGS-DY-1808	22-18	8	.30	.25	.85	100	20.32	15.88	12.70
	31N153	CGS-DY-1408	16-14	8	.30	.25	.85	100			
	31N2849	CLS-TO-1804	22 to 18	4	.25	.25	.68	100	10.24	8.00	6.40
	31N2850	CLS-TO-1806		6	.25	.25	.68	100			
	31N2852	CLS-TO-1808		8	.30	.25	.68	100			
	31N2851	CLS-TO-1810		10	.32	.25	.68	100			
Type "CLS" Snap Spade Tongue Style "TO" Non-Insulated Butted Seam Barrel	31N2854	CLS-TO-1404	16 to 14	4	.25	.25	.68	100	10.24	8.00	6.40
	31N2853	CLS-TO-1406		6	.25	.25	.68	100	10.24	8.00	6.40
	31N2855	CLS-TO-1408		8	.30	.25	.68	100	10.24	8.00	6.40
	31N2856	CLS-TO-1410		10	.32	.25	.68	100	10.24	8.00	6.40
	31N141	CLS-TO-1425		1/4	.43	.40	.90	100	12.29	9.60	7.68
	31N2857	CLS-TO-1006	12 to 10	6	.28	.28	.73	50	6.96	5.44	4.35
	31N2858	CLS-TO-1008		8	.32	.28	.73	50	6.96	5.44	4.35
	31N2859	CLS-TO-1010		10	.32	.28	.73	50	6.96	5.44	4.35
	31N144	CLS-TO-1025		1/4	.43	.44	.94	50	8.56	6.69	5.35

11

VOLTREX brand Solderless Terminals and Connectors

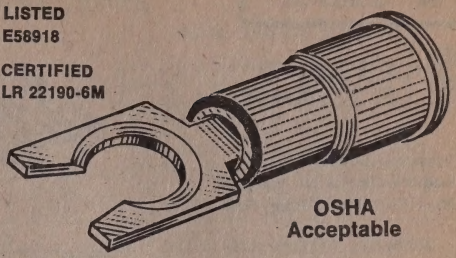
SPC technology

TYPE "CLS" SNAP-SPADE TERMINAL FEATURES:

- MULTIPLE "V" GROOVES FOR MAX. HOLDING POWER AND MIN. RESISTANCE
- WIRE GUIDE BARREL ELIMINATES STRAND HANGUPS
- FUNNELED INSULATION, BEVELLED TERMINAL MOUTH FOR EASY WIRE INSERTION
- NON-SLIP INSULATION FOR EASE OF POSITIONING CRIMPING TOOL
- MAX. CORROSION PROTECTION, INSTALLATION STRENGTH, FLEXING RESISTANCE

LISTED E58918

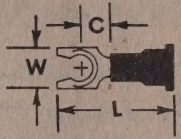
CERTIFIED LR 22190-6M



OSHA Acceptable

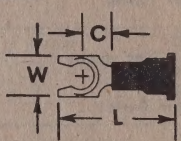
Stock No.	Type	Wire Range	Stud Size	"W"	"C"	"L"	Std. Pkg.	Price Per Pkg. 1-9	10-49	50-99
31N2860	CLS-TV-1804	22	4	.25	.25	.88	100	15.84	12.38	9.90
31N2550	CLS-TV-1806	to	6	.25	.25	.88	100	15.84	12.38	9.90
31N2552	CLS-TV-1808	18	8	.30	.25	.88	100	15.84	12.38	9.90
31N2553	CLS-TV-1810		10	.32	.25	.88	100	15.84	12.38	9.90
31N2861	CLS-TV-1404	16	4	.25	.25	.88	100	15.84	12.38	9.90
31N2554	CLS-TV-1406	to	6	.25	.25	.88	100	15.84	12.38	9.90
31N2556	CLS-TV-1408	14	8	.30	.25	.88	100	15.84	12.38	9.90
31N2557	CLS-TV-1410		10	.32	.25	.88	100	15.84	12.38	9.90
31N2862	CLS-TV-1425		1/4	.43	.40	1.10	100	17.43	13.62	10.89
31N2863	CLS-TV-1006	12	6	.28	.28	1.03	50	10.72	8.38	6.70
31N666	CLS-TV-1008	to	8	.32	.28	1.03	50	10.72	8.38	6.70
31N667	CLS-TV-1010	10	10	.32	.28	1.03	50	10.72	8.38	6.70
31N668	CLS-TV-1025		1/4	.43	.44	1.24	50	12.80	10.00	8.00

Type "CLS" Snap Spade Tongue Style "TV" Vinyl Insulated Butted Seam Barrel



Stock No.	Type	Wire Range	Stud Size	"W"	"C"	"L"	Std. Pkg.	Price Per Pkg. 1-9	10-49	50-99
31N2864	CLS-DY-1804	22	4	.25	.25	.88	100	22.18	17.34	13.86
31N2865	CLS-DY-1806	to	6	.25	.25	.88	100	22.18	17.34	13.86
31N2866	CLS-DY-1808	18	8	.30	.25	.88	100	22.18	17.34	13.86
31N2867	CLS-DY-1810		10	.32	.25	.88	100	22.18	17.34	13.86
31N2868	CLS-DY-1404	16	4	.25	.25	.88	100	22.18	17.34	13.86
31N2869	CLS-DY-1406	to	6	.25	.25	.88	100	22.18	17.34	13.86
31N2870	CLS-DY-1408	14	8	.30	.25	.88	100	22.18	17.34	13.86
31N2871	CLS-DY-1410		10	.32	.25	.88	100	22.18	17.34	13.86
31N126	CLS-D4-1425		1/4	.43	.40	1.10	100	17.42	13.62	10.89
31N2872	CLS-DY-1006	12	6	.28	.28	1.03	50	10.72	8.38	6.70
31N2873	CLS-DY-1008	to	8	.32	.28	1.03	50	10.72	8.38	6.70
31N2874	CLS-DY-1010	10	10	.32	.28	1.03	50	10.72	8.38	6.70
31N235	CLS-DY-1025		1/4	.43	.44	1.24	50	12.80	10.00	8.00

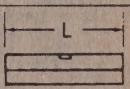
Type "CLS" Snap Spade Tongue Nylon Insulated "Sure Grip" Barrel



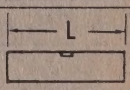
11

Stock No.	Type	Wire Range	"L"	Std. Pkg.	Price Per Pkg. 1-9	10-49	50-99
31N566	CCS-TO-1818	22-18	.56	100	7.40	5.78	4.62
31N567	CCS-TO-1414	16-14	.56	100	7.40	5.78	4.62
31N568	CCS-TO-1010	12-10	.56	50	5.16	4.03	3.22
31N247	CCS-ZO-1818	22-18	.63	100	10.56	8.25	6.60
31N248	CCS-ZO-1414	16-14	.66	100	10.56	8.25	6.60
31N249	CCS-ZO-1010	12-10	.81	50	7.36	5.75	4.60
31N2903	CCS-ZO-0808	8	.84	50	18.00	14.07	11.25
31N2904	CCS-ZO-0606	6	1.04	25	12.56	9.82	7.85
31N2905	CCS-ZO-0404	4	1.15	25	17.88	13.97	11.18
31N589	CCS-TV-1818	22-18	1.00	100	10.42	8.15	6.51
31N590	CCS-TV-1414	16-14	1.00	50	5.21	4.07	3.26
31N591	CCS-TV-1010	12-10	1.04	50	7.56	5.91	4.73
31N250	CCS-ZV-1818	22-18	1.05	100	14.88	11.63	9.30
31N251	CCS-ZV-1414	16-14	1.05	50	7.44	5.82	4.65
31N252	CCS-ZV-1010	12-10	1.20	50	10.80	8.44	6.75
31N2906	CCS-ZV-0808	8	1.54	20	10.44	8.16	6.53
31N2907	CCS-ZV-0606	6	1.69	10	7.29	5.69	4.56
31N2908	CCS-ZV-0404	4	2.15	5	5.19	4.06	3.25
31N2909	CCS-DY-2222	26-22	.88	100	18.56	14.50	11.60
31N2910	CCS-DY-1818	22-18	1.00	100	18.56	14.50	11.60
31N2911	CCS-DY-1414	16-14	1.00	50	9.28	7.25	5.80
31N2912	CCS-DY-1010	12-10	1.15	50	13.68	10.69	8.55
31N163	CCP-ZO-1818	22-18	.32	100	8.96	7.00	5.60
31N164	CCP-ZO-1414	16-14	.32	100	9.44	7.38	5.90
31N165	CCP-ZO-1010	12-10	.34	100	12.64	9.88	7.90
31N260	CCP-ZV-1818	22-18	.67	100	14.56	11.38	9.10
31N261	CCP-ZV-1414	16-14	.67	100	14.56	11.38	9.10

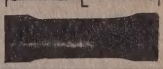
Type "CCS" Butt Splice Style "TO" Non-insulated Butted Seam Barrel



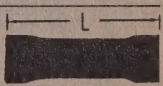
Type "CCS" Butt Splice Style "ZO" Non-insulated Brazed Seam or Seamless Barrel



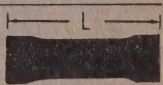
Type "CCS" Butt Splice Style "TV" Vinyl Insulated Butted Seam Barrel



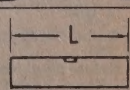
Type "CCS" Butt Splice Style "ZV" Vinyl Insulated Brazed Seam or Seamless Barrel



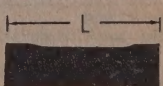
Type "CCS" Butt Splice Style "DY" Nylon Insulated "Sure-Grip" Barrel



Type "CCP" Parallel Splice Style "ZO" Non-insulated Brazed Seam or Seamless Barrel



Type "CCP" Parallel Splice Style "ZV" Vinyl Insulated Brazed Seam or Seamless Barrel



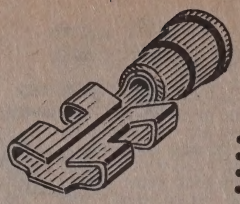
SPC technology

VOLTREX brand Solderless Terminals and Connectors

E58918

CERTIFIED LR 22190-6M

- Improved Conductivity
- Audible Click When Inserted
- More Corrosion/Arcing Resistance



IMPROVED FEMALE QUICK DISCONNECT DESIGN FEATURES:

- Stable Spring Pressure For Multiple Usage
- Accepts & Retains Thicker Male Blades
- Less Metal Fatigue Stabilizes Insertion & Pull-Out Force
- Funnel Barrel Prevents Strand Hangups

	STOCK NO.	TYPE	WIRE RANGE	MATES WITH MALE TAB WIDTH "W"	MATES WITH MALE TAB THICKNESS	"L"	STD. PKG.	PRICE PER PKG. 1-9	10-49	50-99
Type "CFS" Female Quick Disconnect Style "TO" Non-Insulated Butted Seam Barrel .187 / .250 TAB	31N2875	CFS-TO-1818	22—18	.187—.205	.016	.47	100	18.08	14.13	11.30
	31N2513	CFS-TO-1825		.250	.030	.64	100	12.05	9.40	7.50
	30N071	CFS-TO-1412		.110—.125	.016	.54	100	19.20	15.00	12.00
	30N070	CFS-TO-1418	16—14	.187—.205	.016	.47	100	18.08	14.13	11.30
	31N593	CFS-TO-1425		.250	.030	.64	100	12.05	9.40	7.50
	31N2876	CFS-TO-1025	12—10	.250	.030	.64	50	10.96	8.57	6.85
Type "CFS" Female Quick Disconnect Style "DO" Non-Insulated "Sure-Grip" Barrel .110 TAB	31N2627	CFS-DO-1818	22—18	.187—.205	.016	.67	100	36.16	28.26	22.60
	31N2517	CFS-DO-1412	16	.110—.125	.030	.71	100	38.40	30.00	24.00
	31N2630	CFS-DO-1418	to	.187—.205	.016	.67	100	36.16	28.26	22.60
	31N2601	CFS-DO-1425	14	.250	.030	.77	100	24.10	18.80	15.00
	31N2515	CFS-DO-1025	12—10	.250	.030	.85	50	21.92	17.13	13.70
Type "CFS" Female Quick Disconnect Style "TV" Vinyl Insulated Butted Seam Barrel .187 / .250 TAB	31N2877	CFS-TV-1818	22—18	.187—.205	.016	.77	100	19.20	15.00	12.00
	31N2510	CFS-TV-1825		.250	.030	.86	100	19.20	15.00	12.00
	30N073	CFS-TV-1412		.110—.125	.016	.80	100	19.20	15.00	12.00
	30N072	CFS-TV-1418	16—14	.187—.205	.016	.77	100	19.20	15.00	12.00
	31N595	CFS-TV-1425		.250	.030	.86	100	19.20	15.00	12.00
	31N2512	CFS-TV-1025	12—10	.250	.030	.95	50	12.08	9.44	7.55
Type "CFS" Female Quick Disconnect Style "DY" Nylon Insulated "Sure-Grip" Barrel .110 TAB	31N2617	CFS-DY-1818	22—18	.187—.205	.016	.77	100	23.40	18.28	14.65
	31N110_	CFS-DY-1825		.250	.030	.86	100	21.42	16.75	13.70
	31N2625	CFS-DY-1412	16	.110—.125	.030	.80	100	23.40	18.28	14.65
	31N2622	CFS-DY-1418	to	.187—.205	.016	.77	100	23.40	18.28	14.65
	31N175	CFS-DY-1425	14	.250	.030	.86	100	21.42	16.75	13.70
	31N2878	CFS-DY-1025	12—10	.250	.030	.96	50	14.00	10.95	8.75
Type "CMS" Male Quick Disconnect Style "TO" Non-Insulated Butted Seam Barrel	31N2879	CMS-TO-1818	22—18	.187	.016	.50	100	12.96	10.13	8.10
	31N2880	CMS-TO-1825		.250	.030	.73	100	12.96	10.13	8.10
	31N2881	CMS-TO-1418	16—14	.187	.016	.50	100	12.96	10.13	8.10
	31N592	CMS-TO-1425		.250	.030	.73	100	12.96	10.13	8.10
	31N2882	CMS-TO-1025	12—10	.250	.030	.75	50	6.48	5.07	4.05
Type "CMS" Male Quick Disconnect Style "TV" Vinyl Insulated Butted Seam Barrel	31N2883	CMS-TV-1818	12—18	.187	.016	.79	100	20.80	16.25	13.00
	31N2884	CMS-TV-1825		.250	.030	.93	100	20.80	16.25	13.00
	31N2885	CMS-TV-1418	16—14	.187	.016	.79	100	20.80	16.25	13.00
	31N594	CMS-TV-1425		.250	.030	.93	100	20.80	16.25	13.00
	31N2637	CMS-TV-1025	12—10	.250	.030	1.05	50	12.16	9.50	7.60
Type "CMS" Male Quick Disconnect Style "DY" Nylon Insulated "Sure-Grip" Barrel	31N2886	CMS-DY-1818	12—18	.187	.016	.79	100	22.08	17.25	13.80
	31N2887	CMS-DY-1825		.250	.030	.93	100	22.08	17.25	13.80
	31N2888	CMS-DY-1418	16—14	.187	.016	.79	100	22.08	17.25	13.80
	31N2889	CMS-DY-1425		.250	.030	.93	100	22.08	17.25	13.80
	31N2890	CMS-DY-1025	12—10	.250	.030	1.05	50	14.18	11.08	8.85

	STOCK NO.	TYPE	WIRE RANGE	MATES WITH MALE TAB WIDTH "W"	MATES WITH MALE TAB THICKNESS	"L"	MATES WITH FULLY INSULATED CAT NO.	STD. PKG.	PRICE PER PKG. 1-9	10-49	50-99
Type "CFS" Female Quick Disconnect Style "TF" Fully Nylon Insulated Butted Seam Barrel .187 / .250 TAB	31N2891	CFS-TF-2012	26—20	.110—.125	.016	.69	—	100	22.08	17.25	13.80
	31N2892	CFS-TF-1818	22—18	.187—.205	.016	.78	CMS-TF or DF-1818	100	22.08	17.25	13.80
	31N2638	CFS-TF-1825		.250	.030	.89	CMS-TF or DF-1825	100	22.08	17.25	13.80
	31N2893	CFS-TF-1418	16—14	.187—.205	.016	.78	CMS-TF or DF-1418	100	22.08	17.25	13.80
	16N1119	CFS-TF-1425		.250	.030	.89	CMS-TF or DF-1425	50	11.04	8.63	6.90
	31N2639	CFS-TF-1025	12—10	.250	.030	.99	CMS-TF or DF-1025	50	14.18	11.08	8.85
Type "CFS" Female Quick Disconnect Style "DF" Nylon Insulated "Sure-Grip" Barrel .110 TAB	16N1120	CFS-DF-2012	26—20	.110—.125	.016	.69	—	100	29.81	23.29	18.63
	31N2894	CFS-DF-1818	22—18	.187—.205	.016	.78	CMS-TF or DF-1818	100	22.08	17.25	13.80
	31N2640	CFS-DF-1825		.250	.030	.89	CMS-TF or DF-1825	100	29.81	23.29	18.63
	16N1122	CFS-DF-1418	16—14	.187—.205	.016	.78	CMS-TF or DF-1418	100	29.81	23.29	18.63
	16N1123	CFS-DF-1425		.250	.030	.89	CMS-TF or DF-1425	50	14.91	11.65	9.32
	31N2641	CFS-DF-1025	12—10	.250	.030	.99	CMS-TF or DF-1025	50	19.14	14.95	11.95
Type "CMS" Male Quick Disconnect Style "TF" Fully Nylon Insulated Butted Seam Barrel	31N2895	CMS-TF-1818	22—18	.187	.016	.85	CFS-TF or DF-1818	100	22.08	17.25	13.80
	31N2642	CMS-TF-1825		.250	.030	.95	CFS-TF or DF-1825	50	11.04	8.63	6.90
	31N2896	CMS-TF-1418	16—14	.187	.016	.85	CFS-TF or DF-1418	100	22.08	17.25	13.80
	16N1125	CMS-TF-1425		.250	.030	.95	CFS-TF or DF-1425	50	11.04	8.63	6.90
	31N2643	CMS-TF-1025	12—10	.250	.030	1.05	CFS-TF or DF-1025	25	7.09	5.54	4.43
Type "CMS" Male Quick Disconnect Style "DF" Fully Nylon Insulated "Sure-Grip" Barrel	31N2897	CMS-DF-1818	22—18	.187	.016	.85	CFS-TF or DF-1818	100	29.81	23.29	18.63
	31N2644	CMS-DF-1825		.250	.030	.95	CFS-TF or DF-1825	50	14.91	11.65	9.32
	31N2898	CMS-DF-1418	16—14	.187	.016	.85	CFS-TF or DF-1418	100	29.81	23.29	18.63
	16N1126	CMS-DF-1425		.250	.030	.95	CFS-TF or DF-1425	50	14.91	11.65	9.32
	31N2645	CMS-DF-1025	12—10	.250	.030	1.05	CFS-TF or DF-1025	25	9.58	7.48	5.98

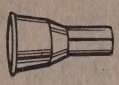
VOLTREX brand Solderless Terminals and Connectors

SPC technology

SPECIAL PURPOSE CONNECTORS

INSULATED WIRE NUTS

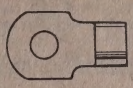
Crimp-type wire nuts have Nylon insulation. Simply insert the two wires to be connected, and crimp. **Pkg. of 50.**



Stk No.	Wire	1-19	20-49	50-199
31N239	22-18	1.88	1.44	1.37
31N240	16-10	3.19	2.45	2.32

BLOCK RING FLAG TERMINAL

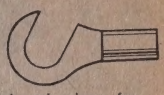
For right angle applications. Simply insert wire in barrel and crimp. For wire sizes from #16 to #14. Stud size, #6. Non-insul. **Pkg. of 100.**



Stk. No.	1-9	10-49	50-99
31N241	4.83	4.46	4.26

HOOK TONGUE TERMINAL

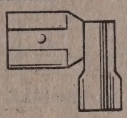
Non-insulated crimp-type terminal with familiar hook tongue terminal. For wire sizes from #22 to #18, Stud size, #6. Simply insert wire in barrel and crimp, for a strong, secure connection. **Pkg. of 100.**



Stk. No.	1-9	10-49	50-99
30N626	3.05	2.16	1.69

QUICK DISCONNECT FEMALE FLAG WITH SURE-GRIP BARREL

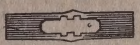
For right angle applications. For #18-24 wire. Crimp wire and insulation. Non-insulated. Accepts male quick-disconnect terminals. .250 x .030. **Pkg. of 100.**



Stk. No.	1-9	10-49	50-99
31N2600	5.92	4.54	4.33

INSULATED MALE DOUBLE QUICK-DISCONNECT

Has ¼" male terminals on both ends. Accepts female quick-disconnects. Vinyl sleeve. **Pkg. of 25.**



Stk. No.	1-9	10-49	50-99
31N2518	1.90	1.46	1.39

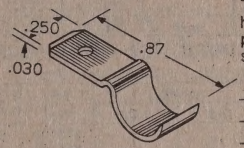
QUICK DISCONNECT ADAPTER

Three-way adapter consists of two male tabs and one female tab. The male tabs are in an over-and-under arrangement. Accepts two ¼" females and one ¼" male. **Pkg. of 100.**

Stk. No.	1-9	10-49	50-99
31N2519	10.84	9.54	8.25

MALE FUSE CLIP ADAPTOR

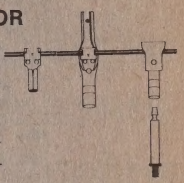
Ideal when fuse clip connections are not easily accessible. Instant electrical connection for add-on accessories. Sturdy brass construction. Beveled edges for easier insertion. Excellent conductivity. Easy fuse removal. **Std. Pkg. 100.**



Stock No.	1-9	10-49	50-99
16N1096	4.33	3.72	3.25

"T" TAP CONNECTOR

Totally insulated connector. Crimps to any hot wire. Other end has insulated crimp plug for connection of 16-14 wire. Vinyl insulator boot covers entire T-tap brass clip.

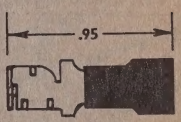


Stock No.	1-24	25-49	50-99	100-Up
16N1093	.25	.22	.19	.17

SELF-MATING SWING LOCK QUICK DISCONNECT

Place the tabs of two type CSL swing lock disconnects at right angles then swing them in line to mate and lock them in place. "TV" are vinyl insulated butted seam barrels; "DY" are nylon insulated "sure-grip". **Pkg. of 100.**

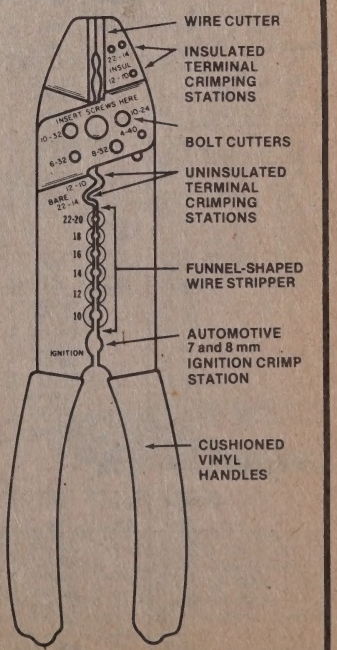
Stk. No.	Type	Wire	PER PKG. 1-9	10-40	50-99
31N2899	CSL-TV-1825	22-18	23.97	18.73	14.98
31N2900	CSL-TV-1425	16-14	23.97	18.73	14.98
31N2901	CSL-DY-1825	22-18	34.24	26.75	21.40
31N2902	CSL-DY-1425	16-14	34.24	26.75	21.40



11

VOLTREX MULTI-PURPOSE CRIMP TOOL

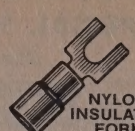
- **Funnel-shaped wire stripper with knife edge assures clean crimp—No rotational movement needed.**
- **5 bolt cutting station for the most popular bolt sizes.**
- **Insulated terminal crimp stations in the nose for easy access and fast action.**
- **Cushioned vinyl handles reduce hand fatigue.**
- **Critical positioning of crimping stations gives high strength-to-weight ratio.**
- **Insulated and non-insulated terminals and connectors and ignition parts crimped easily.**
- **Wire cutter designed into tip for ease of handling.**
- **Made with heat-treated alloy steel for durability.**



HANDLES 6 MOST COMMON WIRING FUNCTIONS

8403-001 is a compact, high-quality crimping tool designed to handle the six most common electrical wiring functions with ease and reliability. Features: wire cutter, insulated terminal crimping stations, bolt cutters, uninsulated terminal crimping stations, funnel-shaped wire stripper, automotive 7 and 8 mm ignition crimp station.
35N1267. NET **13.80**

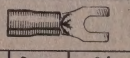
Thomas & Betts Standard Stakon Terminals



STANDARD VINYL SELF-INSULATED RING TERMINALS

Brazed Seam, Serrated Barrel

Wire Size	Screw Size	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-Up	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-9	Per Pkg. 10-Up
22-16	4	65F701	18RA-4	100	11.75	9.40	31F107	RA77	1000	62.88	52.40	38.20
22-16	6	65F702	18RA-6	100			31F108	RA857	1000			
22-16	8	65F703	18RA-8	100			31F109	RA867	1000			
18-14	6	65F704	14RB-6	100			31F113	RB857	1000			
18-14	8	65F705	14RB-8	100			31F114	RB867	1000			
18-14	10	65F706	14RB-10	100			31F115	RB877	1000			
12-10	8	65F707	10RC-8	50	7.63	6.10	31F2702	RC777	500	40.26	33.55	24.45
12-10	10	65F708	10RC-10	50			31F119	RC367	500			
12-10	¼"	65F709	10RC-14	50	9.00	7.20	31F120	RC717	500	44.94	37.45	27.35



STANDARD VINYL SELF-INSULATED FORK TERMINALS

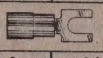
Brazed Seam, Serrated Barrel

Wire Size	Screw Size	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-Up	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-9	Per Pkg. 10-Up
22-16	6	65F710	18RA-6F	100	11.75	9.40	31F129	RA1167	1000	62.88	52.40	38.20
22-16	8	65F711	18RA-8F	100			31F130	RA1147	1000			
22-16	10	65F712	18RA-10F	100			31F131	RA1157	1000			
18-14	6	65F713	14RB-6F	100			31F132	RB647	1000			
18-14	8	65F714	14RB-8F	100			31F133	RB657	1000			
18-14	10	65F715	14RB-10F	100			31F134	RB297	1000			
12-10	10	65F716	10RC-10F	50	7.63	6.10	31F136	RC1157	500	40.26	33.55	24.45

NYLON SELF-INSULATED RING TERMINALS

Military Barrel with Insulation Grip

Wire Size	Screw Size	MS 25036 Dash No.	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-Up	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-9	Per Pkg. 10-Up
26-22	2	-143	65F717	RZ22-2	100	16.88	13.50	31F100	RZ23	1000	95.28	79.40	57.90
26-22	4	-144	65F718	RZ22-4	100			31F101	RZ43	1000			
22-16	4	-148	65F719	RA18-4	100			31F105	RA323	1000			
22-16	6	-102	65F720	RA18-6	100			31F219	RA853	1000	96.36	80.30	58.30
22-16	8	-149	65F721	RA18-8	100			31F220	RA863	1000			
18-14	6	-107	65F722	RB14-6	100			31F223	RB853	1000			
18-14	8	-153	65F723	RB14-8	100			31F224	RB863	1000			
18-14	10	-108	65F724	RB14-10	100			31F225	RB873	1000			
12-10	8	-156	65F725	RC10-8	50	10.25	8.20	31F228	RC863	500	59.58	49.65	36.10
12-10	10	-112	65F726	RC10-10	50			31F229	RC363	500			
12-10	¼"	-157	65F727	RC10-14	50	11.13	8.90	31F230	RC713	500	60.12	50.10	36.60



NYLON SELF-INSULATED FORK TERMINALS

Military Barrel with Insulation Grip

Wire Size	Screw Size	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-Up	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-9	Per Pkg. 10-Up
22-16	6	65F728	RA18-6F	100	16.88	13.50	31F236	RA1103	1000	96.36	80.30	58.30
22-16	8	65F729	RA18-8F	100			31F237	RA1123	1000			
22-16	10	65F730	RA18-10F	100			31F238	RA1153	1000			
18-14	6	65F731	RB14-6F	100			31F231	RB1113	1000			
18-14	8	65F732	RB14-8F	100			31F232	RB1123	1000			
18-14	10	65F733	RB14-10F	100			31F233	RB1153	1000			
12-10	8	65F734	RC10-8F	50	10.25	8.20	31F2687	RC1123	500	59.58	49.65	36.10
12-10	10	65F735	RC10-10F	50			31F234	RC1153	500			
12-10	¼"	31F235	RC10-14F	50	11.13	8.90	31F2688	RC1163	500	60.12	50.10	36.60

STANDARD NON-INSULATED RING TERMINALS

Brazed Seam

Wire Size	Screw Size	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-Up	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-9	Per Pkg. 10-Up
22-16	6	65F736	A18-6	100	7.13	5.70	31F200	A85	1000	40.44	33.70	24.70
22-16	8	65F737	A18-8	100			31F201	A86	1000			
22-16	10	65F738	A18-10	100			31F202	A87	1000			
18-14	6	65F739	B14-6	100			31F2712	B-133	1000			
18-14	8	65F740	B14-8	100			31F205	B86	1000			
18-14	10	65F741	B14-10	100			31F206	B87	1000			
12-10	8	65F742	C10-8	50	5.07	4.05	31F209	C77	500	29.34	24.45	17.80
12-10	10	65F743	C10-10	50			31F210	C26	500			
12-10	¼"	65F744	C10-14	50	5.75	4.60	31F211	C71	500	33.60	28.00	21.40

STANDARD NON-INSULATED FORK TERMINALS

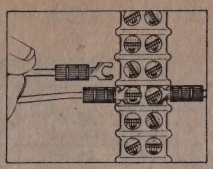
Brazed Seam

Wire Size	Screw Size	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-Up	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-9	Per Pkg. 10-Up
22-16	6	65F745	A18-6F	100	7.13	5.70	31F214	A116	1000	40.44	33.70	24.70
22-16	8	65F746	A18-8F	100			31F138	A114	1000			
22-16	10	65F747	A18-10F	100			31F215	A29	1000	54.00		
18-14	6	65F748	B14-6F	100			31F216	B64	1000	40.44	33.70	24.70
18-14	8	65F749	B14-8F	100			31F140	B65	1000			
18-14	10	65F750	B14-10F	100			31F217	B115	1000			
12-10	8	65F751	C10-8F	50	5.07	4.05	31F143	C114	500	29.34	24.45	17.80
12-10	10	65F752	C10-10F	50			31F218	C115	500			
12-10	¼"	65F753	C10-14F	50	5.75	4.60	31F144	C116	500	33.60	28.00	20.25

Thomas & Betts Terminals and Connectors

MINI-LOCKING INSULATED FORK

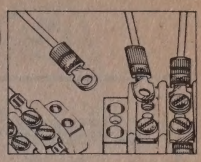
Designed to prevent overlapping of terminals in compact terminal strips and closely mounted studs. Snaps on to stay, does not slip while terminal screw is tightened. Stud size stamped on for easy identification.



Stk. No.	Type	Screw Size	Wire Size	Pkg. of	Net Price Per Pkg. 1-4	5-9	10-Up
31F2664	RV2207	4	26-24	1000	54.12	45.10	33.10
31F2665	RV2217	6	26-24	1000			
31F2666	RV2237	8	26-24	1000			
31F2667	RAV2217	6	22-16	1000	54.00	45.00	33.10
31F2668	RAV2237	8	22-16	1000			
31F2669	RAV2257	10	22-16	1000			
31F2670	RAV2197	5	22-16	1000			
31F2671	RBV2217	6	18-14	1000			
31F2672	RBV2237	8	18-14	1000			
31F2673	RBV2257	10	18-14	1000			
31F2674	RCV2217	6	12-10	500	35.10	29.25	21.40
31F2675	RCV2237	8	12-10	500			
31F2676	RCV2257	10	12-10	500			
31F2677	RCV2267	¼	12-10	500	44.22	36.85	27.00

INSULATED MINI-RINGS

Designed to prevent overlapping with compact terminal strips and closely mounted studs. Anti-rotational design eliminates movement of the terminal as hold-down screw or nut is tightened. Vinyl insulated.



Stk. No.	Type	Screw Size	Wire Size	Pkg. of	Net Price per Pkg. 1-4	5-9	10-Up
31F2689	RV547	4	26-24	1000	51.00	42.50	31.00
31F2690	RV567	6	26-24	1000			
31F2691	RV587	8	26-24	1000			
31F2692	RA567	6	22-16	1000	50.88	42.40	31.00
31F2693	RA587	8	22-16	1000			
31F2694	RA5107	10	22-16	1000			
31F2695	RB567	6	18-14	1000			
31F2696	RB587	8	18-14	1000			
31F2697	RB5107	10	18-14	1000			
31F2698	RC567	6	12-10	500	33.42	27.85	20.40
31F2699	RC587	8	12-10	500			
31F2700	RC5107	10	12-10	500			
31F2701	RC5147	¼	12-10	500	41.82	34.85	25.50

UNINSULATED MINI-LOCKING FORKS

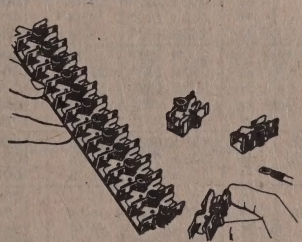
Stk. No.	Type	Screw Size	Wire Size	Pkg. of	Net Price per Pkg. 1-4	5-9	10-Up
31F2678	AV220	4	22-16	1000	31.08	25.90	18.90
31F2679	AV221	6	22-16	1000			
31F2680	AV223	8	22-16	1000			
31F2681	BV221	6	18-14	1000			
31F2682	BV223	8	18-14	1000			
31F2683	BV225	10	18-14	1000			
31F2684	CV223	8	12-10	500	22.56	18.80	13.70
31F2685	CV225	10	12-10	500			
31F2686	CV226	¼	12-10	500	28.26	23.55	17.25

UNINSULATED MINI-RING

Stk. No.	Type	Screw Size	Wire Size	Pkg. of	Net Price per Pkg. 1-4	5-9	10-Up
31F2703	A547	4	22-16	1000	28.92	24.10	17.60
31F2704	A567	6	22-16	1000			
31F2705	A587	8	22-16	1000			
31F2706	B567	6	18-14	1000			
31F2707	B587	8	18-14	1000			
31F2708	B5107	10	18-14	1000			
31F2709	C587	8	12-10	500	21.12	17.60	12.85
31F2710	C5107	10	12-10	500			
31F2711	C5147	¼	12-10	500	26.58	22.15	16.15

SECTIONAL MODULAR DESIGN TERMINAL BLOCKS

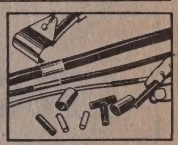
One circuit snap-in stacking block. Has 6-.250 x .032" male tab disconnects per circuit. Min. of 18 ckt. per 12½". No channel required, closed-back construction. Meets NEMA, UL and CSA 300V requirements for industrial control equipment. ¾"H x 1 1/16"W x 13/16"T.



Stock No.	Type	Description	Pkg. 100 Net
31F2547	MTB-1	.250 x .032 Tab, Block	43.20

THIN WALL HEAT SHRINK INSULATORS

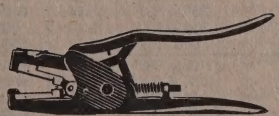
Slip over wires, taper pins, connectors, terminals and splices. Useable in cold or in high temperatures. Semi-rigid insulation provides a positive strain relief at flex point. Provides a vapor-proof bond that protects the conductor from abrasion, chemicals, dust, oil, gas and moisture.



Stock No.	Type	Description	Color	Pkg. of	Price per Pkg. 1-4	5-9
65F754	N187-1	22-18 AWG Terminal	Green	1000	34.80	29.00
65F755	N187-2	22-18 AWG Splice	Green	1000	82.20	68.50
65F756	N250-1	16-14 AWG Terminal	Grey	1000	61.20	51.00
65F757	N250-2	16-14 AWG Splice	Grey	1000	98.40	82.00
65F758	N375-1	12-8 AWG Terminal	Brown	1000	102.00	78.00
65F759	N375-2	12-8 AWG Splice	Brown	500	170.40	142.00

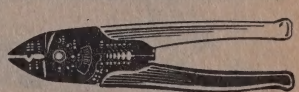
WIRE STRIPPERS AND TY-RAP TOOLS

ABMK-1



ABMK-3

WT1 WT2



WT2000

Type ABMK-1 Self-adjusting, ranges from 30 AWG to 12 AWG. Strips stranded or solid, and aluminum or copper.
31F2606. Net **35.00**

Type ABMK-3 Self-adjusting for heavy wire: 18 AWG to 10 AWG. Strips stranded or solid, and aluminum or copper.
65F762. Net **45.20**

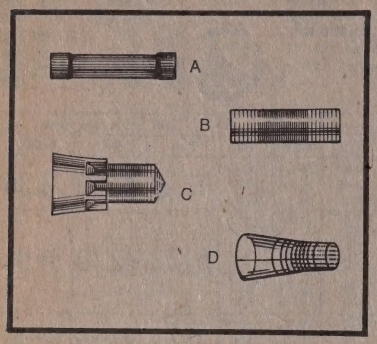
Type WT-1 Wire wrapping tool. Lightweight, pocket sized. Installs .091" to .184" self-locking cable ties.
31F2639. Net **7.50**

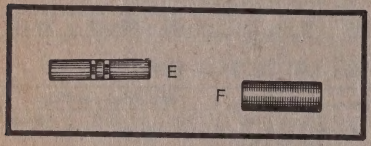
Type WT-2 Wire wrapping tool. Lightweight pocket sized. Installs .184" to .301" self-locking cable ties.
34F1256. Net **9.50**

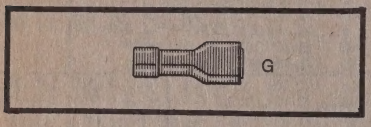
Type WT-2000 All purpose crimping tool. Color coded crimp indicator. One nest for insulated; one nest for non-insulated. Crimps from 22 AWG to 10 AWG. Tool is also a wire cutter and stripper. Plus it cuts bolts and chases threads. Spring loaded for comfort.
34F1259. Net **11.10**

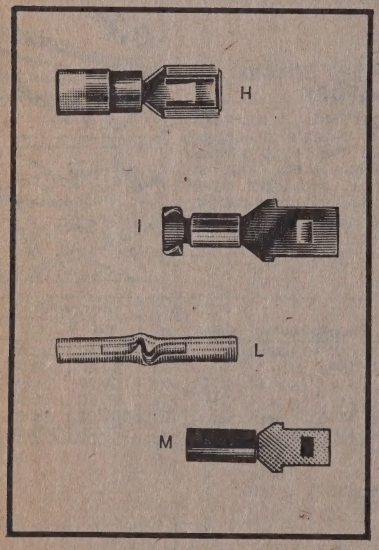
11

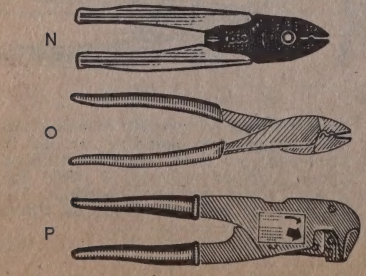
Thomas & Betts STA-KONS and Tools











INSULATED SPLICES

Stock No.	Type	Fig.	Wire Range	Insul. Mat.	PRICE PER PACKAGE Std. Pkg.	1-4	5-9	10 & Up
31F250	RAA-217	A	22-18	Vinyl	1000	80.40	67.00	51.30
31F251	RBB -217	A	16-14	Vinyl	1000	80.40	67.00	51.30
31F252	RCC-217	A	12-10	Vinyl	500	60.84	50.70	38.95
31F260	RAA-24	B	22-18	Nylon	1000	67.20	56.00	43.00
31F261	RBB -25	B	20-16	Nylon	1000	67.20	56.00	43.00
31F2725	RCC-26	B	18-12	Nylon	500	45.06	37.55	28.80
31F239	RB-4	C	2#16/2#18	Nylon	1000	45.00	37.50	28.80
31F240	RC-6	C	2#12/4#18	Nylon	500	38.22	31.85	24.45
34F1257	PT2B	D	2#10/1#12	Nylon	1000	7.68	6.00	4.80
3451258	PT3B	D	2# 8/1#18	Nylon	500	11.36	8.88	7.10

NON-INSULATED SPLICES

Stock No.	Type	Fig.	Wire Range	PRICE PER PACKAGE Std. Pkg.	1-4	5-9	10 & Up
31F247	AA2	E	22-18	1000	52.92	44.10	34.00
31F248	BB2	E	16-14	1000	52.92	44.10	34.00
31F249	CC2	E	12-10	500	38.28	31.90	24.55
31F164	B1B	F	18-16	1000	37.68	31.40	24.00
31F165	C1C	F	14-12	500	22.50	18.75	14.40

FULLY INSULATED FEMALE DISCONNECTS

Stock No.	Type	Tab Size	Fig.	Wire Range	PRICE PER PACKAGE Std. Pkg.	1-4	5-9	10 & Up
31F2726	RA2573	2.50 x .032″	G	22-18	1000	108.48	90.40	69.50
31F2727	RB2573	2.50 x .032″	G	16-14	1000	108.48	90.40	69.50
31F2729	RC2573	2.50 x .032″	G	12-10	500	83.52	69.60	53.60

FEMALE AND MALE SELF-INSULATED DISCONNECTS

Stock No.	Type	Fig.	Tab Size	Wire Range	PRICE PER PACKAGE Std. Pkg.	1-4	5-9	10 & Up
31F2518	*RBB250	L	.250 x .032″	Coupler	1000	90.96	75.80	58.30
31F2519	FTA250	K	.250 x .032″	Adapter	1000	130.08	108.40	95.40
31F110	*RA250	H	.250 x .032″	22-18	1000	106.68	88.90	68.40
31F175	*RB250	H	.250 x .032″	16-14	1000	106.68	88.90	68.40
31F098	RB2517	M	.250 x .032″	16-14	1000	70.20	58.50	44.90
31F2637	RC2517	M	.250 x .032″	12-10	500	86.46	72.05	68.75
31F2510	*RA257	H	.250 x .032″	22-18	1000	89.88	74.90	57.60
31F2511	*RB257	H	.250 x .032″	16-14	1000	89.88	74.90	57.60
31F2512	*RC257	H	.250 x .032″	12-10	500	70.92	59.10	45.45
31F2616	RA187	H	.187 x .032″	22-18	1000	130.32	108.60	83.50
31F2617	RA187-020	H	.187 x .032″	22-18	1000	130.32	108.60	83.50
31F2619	RA205-020	H	.205 x .020″	22-18	1000	130.32	108.60	83.50
31F2620	RA10	H	.110 x .032″	22-18	1000	140.76	117.30	90.00
31F2621	RB187	H	.187 x .032″	16-14	1000	130.32	108.60	83.50
31F2622	RB187-020	H	.187 x .020″	16-14	1000	130.32	108.60	83.50
31F2623	RB205	H	.205 x .032″	16-14	1000	130.32	108.60	83.50
31F2625	RB10	H	.110 x .032″	16-14	1000	140.76	117.30	90.00

FEMALE AND MALE NON-INSULATED DISCONNECTS

Stock No.	Type	Fig.	Tab Size	Wire Range	PRICE PER PACKAGE Std. Pkg.	1-4	5-9	10 & Up
31F2635	B251	M	.250 x .032″	16-14	1000	39.84	33.20	25.50
31F2513	*A-250	M	.250 x .032″	22-18	1000	50.76	42.30	32.50
31F2514	*B-250	H	.250 x .032″	16-14	1000	50.76	42.30	32.50
31F2515	*C-250	H	.250 x .032″	12-10	500	59.25	58.05	44.45
31F2516	A-10	H	.110 x .032″	22-18	1000	104.88	87.40	66.90
31F2517	B-10	H	.110 x .032″	16-14	1000	104.88	87.40	66.90
31F2600	B252G	J	.250 x .032″	16-14	1000	71.04	59.20	45.40
31F2601	*B250G	H	.250 x .032″	16-14	1000	61.44	51.20	39.40
31F2602	B251G	I	.250 x .032″	16-14	1000	55.92	46.60	35.80

*U/L Component Listing.

INSTALLING TOOLS

Used for installing STA-KON both insulated and non-insulated solderless disconnects, splices and terminals onto wire. (†) Indicates SURE-STAKE Ratchet Action Tool which assures reliable, uniform crimp every time.

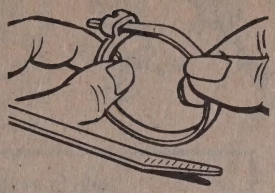
Stock No.	Type	Fig.	For Use With STA-KON Type	Net Each
34F1259	WT2000	N	A, B, C, AB, PT, RA, RB, RC	11.10
31F265	WT111M	O	A, B, PT, C	11.30
31F266	†WT145C	P	RA, RB, RC, RAA, RBB, RCC	90.00
31F267	†WT130A	P	A, B, C	72.00

Ty-Rap Cable Ties, Straps and Clamps

SELF LOCKING TY-RAP TIES

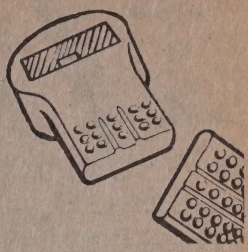
- **Quick application**
- **Self oriented**
- **Minimum insertion force**

Can be applied quickly. Easy to handle. Self-oriented to the tying direction. Tail slips into head with minimum insertion force.



- **Wide cross section**
- **Stippled finish back**
- **Non-slip, wide bearing surface**

Wide cross section and stippled finish back provides a non-slip, wide bearing surface resulting in fewer ties per foot. Protects wire insulation from thinning.



Bundle Range	Unlocking Strength (Min.)	Stock No.	Type	Pkg. of	Per Pkg. 1-9	Per Pkg. 10-Up	Stock No.	Type	Pkg. of	Price Per Pkg. 1-9	Price Per Pkg. 10-24	Price Per Pkg. 25-49	Price Per Pkg. 50-99
1/16" x 5/8"	18 lbs.	31F2658	TY523M	100	3.75	3.00	31F2654	TY23M	1000	19.00	17.50	16.30	15.20
1/16" x 2"	18 lbs.	31F2713	TY5232M	100	4.25	3.40	31F2650	TY232M	1000	22.84	21.30	19.85	18.49
1/16" x 4"	18 lbs.	31F2714	TY5234M	100	7.13	5.70	31F2651	TY234M	1000	38.33	35.75	33.30	31.04
1/16" x 1 1/4"	40 lbs.	31F2659	TY524M	100	4.25	3.40	31F2524	TY24M	1000	24.40	22.75	21.20	19.75
1/16" x 2"	40 lbs.	31F2715	TY5242M	100	5.13	4.10	31F2652	TY242M	1000	26.60	24.80	23.10	21.54
1/16" x 3"	40 lbs.	31F2716	TY526M	100	8.75	7.00	31F2605	TY26M	1000	52.80	51.00	48.90	45.80
1/16" x 4"	40 lbs.	31F2717	TY5244M	100	11.13	8.90	31F2653	TY244M	1000	66.25	62.93	57.12	51.92
1/16" x 1 3/4"	50 lbs.	31F2660	TY525M	100	5.38	4.30	31F269	TY25M	1000	29.40	27.40	25.55	23.80
1/16" x 4"	50 lbs.	31F2718	TY528M	100	12.38	9.90	31F2502	TY28M	1000	66.78	63.44	60.08	57.02
3/16" x 3 1/2"	120 lbs.	31F2719	TY527M	50	17.63	14.10	31F2501	TY27M	500	58.25	55.65	53.03	50.30
1 1/2" x 9"	120 lbs.	31F2720	TY529M	50	36.38	29.10	31F2721	TY29M	500	122.60	116.48	105.88	97.40

SELF LOCKING TY-RAP CABLE STRAPS

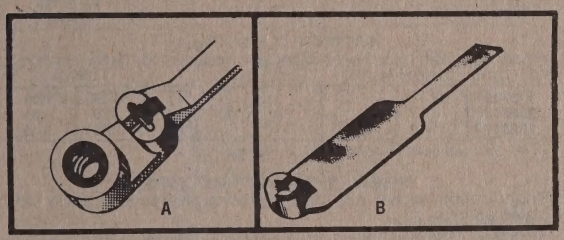


Fig.	Bundle Range	Unlocking Strength (Min.)	Screw Size	Stock No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-Up
A	1/16" x 5/8"	18 lbs.	4	31F2722	TY533M	100	6.25	5.00
A	1/16" x 1 1/8"	40 lbs.	10	31F2661	TY534M	100	7.25	5.80
A	1/16" x 1 3/4"	50 lbs.	4	31F2662	TY535M	100	8.13	6.50

TY-RAP PREMOUNTABLE ADHESIVE CLAMPS

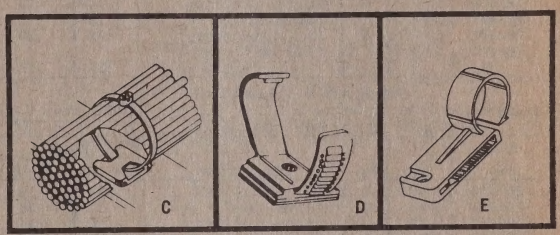


Fig.	Bundle Range	Stock No.	Type	Price Per 100 100-400	Price Per 100 500-900	Price Per 100 1M-Up
C	Up to 50 lb. Tie	31F2613	TC342A	17.56	15.68	14.43
D	1/16" x 1/16"	31F2656	TC354A	20.26	17.72	16.32

SELF LOCKING IDENTIFICATION TIES

Fig.	Bundle Range	Unlocking Strength (Min.)	Stock No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-Up
B	5/8" x 1 3/4"	50 lbs.	31F2663	TY546M	100	15.63	12.50
B	3/16" x 5/8"	18 lbs.	31F2724	*TY551M	100	7.75	6.20

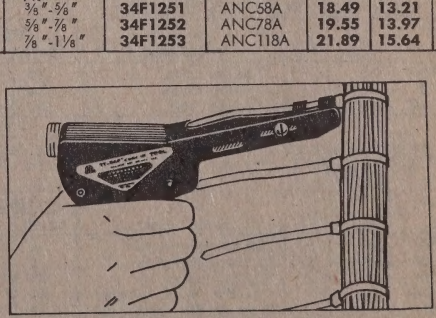
ADJUSTABLE ADHESIVE CLAMPS

Fig.	Bundle Range	Stock No.	Type	Price Per 100 1-4	Price Per 100 5-9	Price Per 100 10-49
E	3/16"-3/8"	34F1250	ANC38A	17.26	12.33	9.25
E	3/8"-5/8"	34F1251	ANC58A	18.49	13.21	9.91
E	5/8"-7/8"	34F1252	ANC78A	19.55	13.97	10.48
E	7/8"-1 1/8"	34F1253	ANC118A	21.89	15.64	11.73

TY-RAP INSTALLING HAND TOOL

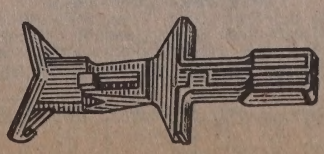
- **Ties to preset tension**
- **Cuts off excess tail**
- **Low insertion force design**
- **Insures uniform tension**

Model WT193. Quickly cinches up tie to preset tension, locks and cuts off excess tail. Low insertion force design allows tapered tip of Ty-Rap slip into head easily. Insures uniform tension on all ties.
31F2657. NET **48.40**
Model WT197. For .301" tie bodywidth.
34F1254. NET **84.70**



COMPACT CABLE INSTALLATION TOOLS

Lightweight, hand-operated cable tying tools install cable ties up to .301 in. wide and .080 in. thick. High impact plastic and steel withstands shock and rough handling. Symmetrical design for both left and right hand operators. Tie cinched up with squeeze action. Excess tail cut away when twisted 180 degrees. Specially designed pawl cuts away tail if tension limit exceeded. Suited for spot-tying applications.
WT1. For tie widths from .091" to .187"
31F2639. NET **6.99**
WT2. For tie width of .301".
34F1256. NET **8.99**



Mueller Clips

MINI-GATOR CLIPS

Miniaturized. For No. 20 wire or smaller, provides quick, strong connection even in smallest areas. Solder connectors. Easy removed. 1 3/32" length, 3/16" jaw spread. Shpg. wt. ¼ lb. per 100.

Stock No.	Type	Fig.	Description	EACH 10-90	EACH 100-Up
28F528	30	A	Steel Cad. Plated	.12	.10
28F529	30C	A	Copper	.14	.11

MICRO-GATOR CLIPS

Designed for printed circuits and tight spots. Tip is no bigger than the head of a pin yet will stand up straight on the smallest terminals. Uses No. 20 or smaller wire. Length, 1 3/32". Jaw spread, 1/32". Tips, 1/32" across Solder connectors. Shpg. wt., ¼ lb. per 100.

Stock No.	Type	Fig.	Description	EACH 10-90	EACH 100-Up
28F496	34	B	Cad. Plated Steel	.10	.08
28F497	34C	B	Copper	.12	.09

2" ALLIGATOR CLIPS

28F500	60	C	†Solder connection	.14	.12
28F501	60-S	C	†Screw connection	.16	.13
28F502	60-CS	C	* Screw connection	.24	.20
28F464	60PR-2	C	†Adapted for phone Tip or test prod tip	.21	.17

INSULATED ALLIGATOR CLIPS

Insulating sleeves on barrel, Fig. D or skin tight flexible insulation, Fig. E. Barrel takes wire or banana plug. Fig. D: 2 1/32"; Fig. E: 2⅛".

Stock No.	Type	Fig.	Description	EACH 10-90	EACH 100-Up
28F503	60-HS	D	†Screw conn. Red	.22	.18
28F504	60-HS	D	†Screw conn. Black	.22	.18
28F505	60CHS	D	* Screw conn. Red	.30	.24
28F506	60CHS	D	* Screw conn. Black	.30	.24
Clip 60-S or 60-CS with skin-tight two piece flexible vinyl cover.					
28F533	63	E	†Screw conn. Black	.32	.26
28F534	63	E	†Screw conn. Red	.32	.26
28F535	63C	E	* Screw conn. Black	.36	.29
28F536	63C	E	* Screw conn. Red	.36	.29

2' INSULATION PIERCING ALLIGATOR CLIP

Like 60S with Beryllium copper needle in one jaw for electrical contact thru insulation. Ideal for test leads etc.

28F469	60NS	C	†Screw connection	.30	.24

SERIES 70 CLIPS

Designed similar to No. 30 mini-gator clip but with dimenions of popular No. 60 alligator. In either *solid copper or †cadmium plated steel. Meshing teeth and slim jaws. 1 1/16" long.

Stock No.	Type	Fig.	Description	EACH 10-90	EACH 100-Up
28F530	70	F	†Solder Conn.	.12	.10
28F531	70S	F	†Solder Conn.	.14	.11
28F532	70CS	F	* Screw Conn.	.22	.18

CROCODILE CLIPS

Nesting teeth give solid contact along entire length of jaw. Jaws open 5/16". Ship. wt.: 1½, 2 & 2½ lbs. per 100. Sizes Fig. G—2⅛", Fig. H—2⅝", Fig. J—2¼".

Stock No.	Type	Fig.	Description	EACH 10-90	EACH 100-Up
28F507	85	G	†Screw connection	.16	.13
28F508	85-C	G	* Screw connection	.30	.24
28F509	85-T	H	†Tip Clip phone tip	.41	.33
28F510	50-C	J	* Needle clip, screw conn.	.42	.34
28F511	51-C	J	* Less needle, screw conn.	.30	.24

"PEE WEE" CLIPS—Fig. L

Type 45. Steel, cadmium plated. A very small clip for general test purposes. Jaw teeth mesh. Shipping weight: 1 lb. per 100.
Type 45C. Solid copper, phosphor bronze spring, brass screw connection. No heating from hysteresis effect. 1¼ lbs. per 100.

Stock No.	Type	Amp.	Size	Open	EACH 10-90	EACH 100-Up
28F513	45†	5	1½"	5/16"	.14	.11
28F514	45C*	10	1½"	¼"	.24	.19

Sold in multiples of 10 only

3-SIDED MESH TEETH CLIPS—Fig. K

Stock No.	Type	Amp.	Size	Open	EACH 10-90	EACH 100-Up
28F523	27†	20	2 7/16"	5/8"	.25	.20
28F524	27C*	40	2 7/16"	5/8"	.38	.30
28F515	48B†	10	2"	½"	.20	.16
28F538	48C*	20	2"	½"	.27	.22

HEAVY DUTY SOLID COPPER CLIPS

Type 25C—Fig. K 6¾ lbs. per 100. **Type 21C**—Fig. L is 18 lbs. per 100, **Type 11C**—Fig. L 41 lbs. per 100, **Type 33C**—Fig. L 82 lbs. per 100.

28F519	25C*	75	3"	¾"	.64	.51
28F520††	21C*	100	4½"	1 1/16"	1.54	1.23
28F521††	11C*	200	6"	1⅝"	2.98	2.38
28F522	33C*	300	7¾"	2¼"	5.45	4.35

(††) Shipped half marked (†), and half plain.

BATTERY CLIPS—Fig. L

Heavy duty lead plated clips especially designed for battery connection, or for general testing.

28F516††	24A**	25	2⅞"	¾"	.38	.31
28F517††	21A**	50	4"	1 1/16"	.70	.56
28F518††	11A**	100	6"	1⅝"	1.83	1.46

(††) Shipped half marked (†), and half plain.

PLIER—TYPE BATTERY CLIPS

Bright copper plated with vinyl insulating sleeves and heavy duty plated springs.
Type 41. For fast chargers, battery booster cables.
Type 46. For small overnight chargers, and battery power pickup.

Stk. No.	Type	Color	Fig.	Amp.	Size	Open	NET
28F468	46A	Red	N	50	3"	1⅛"	.34
28F467	46A	Black	N	50	3"	1⅛"	.34
28F465	41A	Red	N	100	6"	1 9/16"	1.05
28F466	41A	Black	N	100	6"	1 9/16"	1.05

FLEXIBLE INSULATORS FOR CLIPS LISTED ABOVE

Fig. M—Protect against electric shock and short circuit. All insulators made of vinyl.

Stock No.	Type	Color	For Clip	EACH 10-90	EACH 100-Up
28F476	47	Red	45, 45C	.11	.09
28F477	47	Black	45, 45C	.11	.09
28F478	49	Red	48B-C, 50-51C	.19	.15
28F479	49	Black	48B-C, 50-51C	.19	.15
28F482	26	Red	24A, 25, 25C	.37	.30
28F483	26	Black	24A, 25, 25C	.37	.30
28F484	23	Red	21A, 21C	.53	.42
28F485	23	Black	21A, 21C	.53	.42
28F472	32	Red	30, 30C	.06	.05
28F473	32	Black	30, 30C	.06	.05
28F498	36	Black	34, 34C	.06	.05
28F499	36	Red	34, 34C	.06	.05
28F474	72	Red	70, 70S, 70CS	.08	.06
28F475	72	Black	70, 70S, 70CS	.08	.06
28F486	29	Red	27, 27C	.24	.20
28F487	29	Black	27, 27C	.24	.20
28F488	13	Red	11C, 11A	1.07	.86
28F489	13	Black	11C, 11A	1.07	.86
28F490	87	Red	85, 85C,85T	.10	.08
28F491	87	Black	85, 85C, 85T	.10	.08
28F492	62	Red	60, 60CS, 60S	.08	.06
28F493	62	Black	60, 60CS, 60S	.08	.06

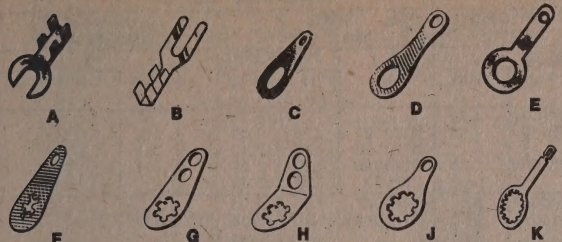
KEY TO CLIP CONSTRUCTION MATERIAL

*** solid copper, ** lead-plated steel, † cadmium-plated steel**

AMERLOK™ brand Hardware

SPC technology

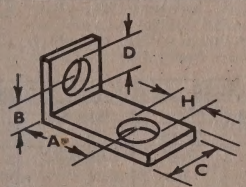
TINNED BRASS SOLDERING LUGS



Packages of 100

Stk. No.	Screw Size	Length	Fig.	Per Pkg.
32F1300	No. 6	5/8"	A	2.35
31F2076	No. 4	17/32"	C	2.87
32F1303	No. 6	17/32"	C	1.70
32F1304	No. 8	5/8"	C	2.25
32F1306	No. 8	7/8"	D	2.25
32F1307	No. 10	7/8"	D	2.63
32F1301	No. 6	9/16"	E	1.75
32F1302	No. 6	11/16"	E	2.33
31F2074	No. 8	13/16"	E	2.35
31F2075	No. 10	51/64"	E	2.40
32F1308	No. 6	5/8"	F	2.38
32F1309	No. 8	5/8"	F	3.22
28F1850	No. 6	23/32"	G	2.79
28F1851	No. 8	23/32"	G	3.09
28F1852	No. 6	41/64"	H	2.59
28F1853	No. 8	41/64"	H	2.59
28F1854	1/4"	13/16"	J	2.89
28F1855	3/8"	1 5/32"	K	4.12

ANGLE BRACKETS



Packages of 100

Stk. No.	A	B	C	D	H	Per Pkg.
31F2152	1 5/64"	9/32"	9/32"	.144"	.125"	3.80
31F2153	3/32"	13/32"	9/32"	.160"	.160" x .250"	3.00
31F2154	1 5/32"	1 5/32"	3/8"	.144"	.144"	3.27
28F1856	1 9/64"	2 1/64"	1/2"	.165"	6-32 tap.	6.25
28F1857	3/16"	1/4"	5/16"	.144"	6-32 tap.	7.00
28F1858	1/4"	1 5/64"	5/16"	.135"	6-32 tap.	6.25

METAL CABLE CLAMPS

Stk. No.	Type	Dia. of Arc	1-24	25-49	50-99	100-249
29F627	A	1/8"				
29F628	B	5/16"				
29F629	C	5/16"	.22	.19	.16	.14
29F630	D	5/16"				
29F631	E	1/2"				
29F632	F	5/8"				

ADHESIVE MOUNTED LOCKING CABLE CLIP

Easily mounted, neat appearing fastening device. Exclusive patented lock/release design allows easy insertion of cable and positive holding action. Long aging adhesive backing on clip holds to almost any clean surface. Average pull-off strength of 12 pounds. High-impact stable PVC temp. range −20° to +180°F.

Stock No.	I.D.	Width	Length	Boxes of 100
32F682	3/4"	1.5"	1.5"	40.05
32F684	1/2"	1"	1.25"	21.52
32F685	3/8"	1"	1"	18.68
32F686	1/4"	1"	1"	16.03
32F687	3/16"	1"	3/4"	14.70
32F688	3/8"	1/2"	1"	13.13
32F689	1/4"	1/2"	1"	11.12
32F690	3/16"	1/2"	3/4"	10.12

RUBBER BUMPERS

For mounting on all types of electronic equipment. Prevents vibration and protects surfaces under equipment.

RECESS SCREW TYPE FIG. A Packages of 100

Stk. No.	Dimensions A	B	C	D	E	Per Pkg.
43F475	1/2"	1/4"	5/32"	1/4"	1/8"	3.65
43F476	3/4"	1/4"	1/8"	1/4"	1/8"	2.15
43F477	5/8"	3/8"	7/32"	1/4"	1/8"	2.15
43F478	3/4"	3/8"	7/32"	1/4"	1/8"	2.25

RECESSED BUMPERS (STEEL WASHER INSETS) FIG. A Packages of 100

Stk. No.	Dimensions A	B	C	D	E	Per Pkg.
32F1331	5/8"	5/8"	7/16"	5/16"	5/32"	11.40
32F1334	15/16"	5/8"	7/16"	7/16"	7/32"	14.20
32F1338	1"	1"	5/8"	5/16"	5/32"	15.17

BUTTON TYPE FIG. B Packages of 100

Stk. No.	Dimensions A	B	C	D	E	Per Pkg.
31F2284	3/8"	3/8"	17/64"	3/16"	.040"	5.00
31F2285	1/2"	7/16"	11/32"	1/4"	.040"	4.70
31F2286	5/8"	9/16"	15/32"	15/16"	.040"	8.80

RUBBER FEET TYPE FIG. C

Stk. No.	O.D.	Height	Per Pkg.
31F2007	1/2"	1/4"	4.13
31F2008	5/8"	5/16"	5.77

RUBBER GROMMETS Packages of 100

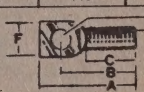
Stk. No.	Chassis Hole	Thickness	I.D.	O.D.	Per Pkg.
31F2000	1/4"	1/16"	1/8"	11/32"	2.13
31F2001	5/16"	1/16"	3/16"	7/16"	3.20
32F1349	5/16"	1/16"	3/16"	1/2"	6.50
31F2002	3/8"	1/16"	1/4"	9/16"	2.85
31F2282	3/8"	1/8"	1/4"	1/2"	4.63
32F1353	3/8"	1/8"	1/4"	5/8"	6.05
32F1354	7/16"	1/16"	5/16"	5/8"	5.85
31F2004	1/2"	1/16"	3/8"	5/8"	5.43
31F2081	9/16"	1/16"	7/16"	3/4"	8.78
31F2003	5/8"	1/16"	1/2"	13/16"	4.90
31F2080	3/4"	1/16"	9/16"	7/8"	7.20
31F2083	7/8"	1/16"	5/8"	1 1/8"	14.20
31F2084	1"	1/16"	1 1/16"	1 5/16"	19.70
32F1364	1 3/4"	1/16"	1 1/2"	2 1/8"	29.42

VINYL GROMMETS

Resistant to temperature, oils, and chemicals. Approximately 100 per package; except (*)-50 per package.

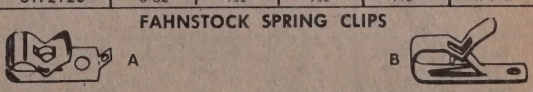
Stk. No.	Chassis Hole	Thickness	I.D.	O.D.	Per Pkg.
30F743	1/4"	1/16"	1/8"	11/32"	2.00
30F744	5/16"	1/16"	3/16"	7/16"	2.25
30F745	3/8"	1/16"	1/4"	9/16"	2.55
30F747	1/2"	1/16"	3/8"	5/8"	2.75
30F748*	5/8"	1/16"	1/2"	13/16"	2.50

SPADE BOLTS FOR MOUNTING SCREWS STEEL-NICKEL PLATED



Stock No.	Tread Size	Overall Length	Overall Width	Screw Length	Boxes of 100
31F2121	6-32	3/4"	1/4"	11/32"	14.63
31F2122	6-32	7/8"	1/4"	13/32"	16.68
31F2123	8-32	15/32"	11/32"	7/16"	17.12

FAHNSTOCK SPRING CLIPS

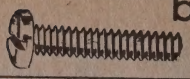


Stock No.	Fig.	Length	Width	Max. Wire	Mtg. Hole	Boxes of 100
32F631	A	1/2"	7/32"	16 GA	#4	3.72
32F632	B	3/4"	5/16"	14 GA	#6	5.40
32F633	B	1"	3/8"	10 GA	#8	8.89

11

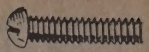
AMERLOK™ brand Fasteners

BINDER HEAD MACHINE SCREW



Screw Size	Lgth.	STEEL Nickel Plated Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up	BRASS Nickel Plated Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up	NYLON Stock No.	Pkg. of 100 1-9
2-56	1/4"	30F695	1.95	1.30				30F1001	4.70
2-56	1/2"	30F696	2.10	1.41				32F656	4.85
2-56	3/4"								
4-40	1/4"	30F698	1.75	1.14				30F1005	5.00
4-40	3/8"								
4-40	1/2"	30F699	2.05	1.35	30F090	3.35	2.46	30F1007	5.00
4-40	3/4"	30F700	2.15	1.47	30F091	3.55	2.60	32F657	5.10
6-32	3/16"	31F2196	2.05	1.36					
6-32	1/4"	31F2197	1.55	1.24	30F710	3.20	2.31	30F1009	4.90
6-32	3/8"	31F2198	1.70	1.36	30F711	3.60	2.66	30F1011	5.00
6-32	1/2"	30F701	1.60	.98	30F712	3.35	2.43	30F1013	5.00
6-32	3/4"	30F703	1.90	1.24	30F713	3.80	2.82	43F479	5.15
6-32	1"								
6-32	1 1/4"								
6-32	2"								
8-32	1/4"	30F704	1.75	1.13					
8-32	3/8"	30F705	1.70	1.06	30F715	4.15	3.10	43F480	5.15
8-32	1/2"	30F706	2.00	1.35	30F716	4.40	3.31	43F481	5.15
8-32	3/4"	30F707	1.90	1.25	30F717	5.10	3.89	30F1023	5.55
8-32	1"								
8-32	1 1/4"								
10-32	1/2"	30F708	2.45	1.70				32F659	6.10
10-32	3/4"	30F709	2.90	2.08					
10-32	1"							32F660	6.10
10-32	1 1/2"								

ROUND HEAD MACHINE SCREW



Screw Size	Lgth.	STEEL Nickel Plated Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up	BRASS Nickel Plated Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up
4-40	1/2"	31F2189	1.70	1.07			
4-40	3/4"	31F2190	1.75	1.13			
6-32	1/2"	31F2086	1.85	1.20			
6-32	3/4"	30F082	1.65	1.05			
6-32	1"	31F2087	1.90	1.25			
6-32	1 1/4"	31F2088	1.95	1.28	31F2050	3.05	2.21
6-32	1 1/2"	31F2091	1.60	.98			
6-32	2"	30F083	1.70	1.10			
8-32	1/2"	31F2092	1.60	1.02			
8-32	3/4"	31F2093	1.70	1.08			
8-32	1"	31F2094	2.10	1.41			
8-32	1 1/4"	31F2192	2.25	1.53	31F2053	5.20	3.97
8-32	1 1/2"	31F2195	3.70	2.76			
8-32	2"	32F627	1.80	1.15			
10-32	1/2"	31F2096	1.70	1.10	30F087	4.90	3.74
10-32	3/4"	31F2097	1.85	1.20	31F2302	5.45	4.19
10-32	1"	31F2098	2.05	1.36	31F2303	5.90	4.55
10-32	1 1/4"	31F2099	2.30	1.60	31F2304	6.25	4.87
10-32	1 1/2"	31F2193	2.80	1.98	31F2057	6.70	5.23
10-32	2"	31F2100	2.05	1.35			
1/4-20	1/2"	30F084	2.40	1.68			
1/4-20	3/4"	31F2101	2.95	2.11	31F2061	7.40	5.81
1/4-20	1"	31F2194	3.45	2.53			

HEX NUTS

Thread	Width	Thickness	STEEL—NICKEL PLATED Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up	BRASS—NICKEL PLATED Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up	NYLON Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up
2-56	5/16	1/16	31F2207	1.80	1.16	31F2214	3.20	2.33	30F1033	5.30	4.05
3-48	5/16	1/16	31F2208	1.90	1.25						
4-36	1/4	3/32	31F2105	2.00	1.33						
4-40	1/4	3/32	31F2106	2.10	1.41	31F2217	3.80	2.82	30F1034	5.30	4.07
6-32	1/4	3/32	31F2107	2.20	1.50	31F2218	4.00	2.99			
6-32	5/16	7/64	31F2209	2.30	1.58	31F2071	4.20	3.16	30F1035	5.30	4.09
8-32	1/4	3/32	31F2108	2.20	1.50	31F2072	4.00	2.99			
8-32	5/16	7/64	31F2210	2.30	1.58	31F2219	4.20	3.16	30F1036	5.35	4.10
8-32	11/32	1/8	32F644	2.38	1.91						
10-32	3/8	1/8	31F2200	2.40	1.66	31F2220	4.40	3.32	30F1037	5.90	4.57
1/4-20	7/16	3/16	31F2211	3.70	2.75						

INTERNAL LOCKWASHERS CADMIUM PLATED STEEL

Screw Size	Stock No.	O.D.	Pkg. of 100 1-Up
No. 2	31F2243	3/16	1.15
No. 4	31F2245	17/64	.95
No. 6	31F2246	9/32	.90
No. 8	31F2247	21/64	.85
No. 10	31F2248	3/8	1.00
1/4"	31F2249	15/32	.95
5/16"	31F2251	11/16	1.55
3/8"	31F2252	25/32	2.17
15/32"	31F2253	19/32	2.68

EXTERNAL LOCK WASHER CADMIUM PLATED STEEL

Stock No.	Pkg. of 100 1-Up
30F644	.90
30F646	.80
30F648	.80
30F448	.80
30F650	.95

SPLIT TYPE LOCKWASHER ZINC PLATED STEEL

Stock No.	Pkg. of 100 1-Up
31F2160	.85
31F2161	.75
31F2162	.80
31F2163	.80

FLAT METAL WASHER NICKEL PLATED STEEL

Screw Size	Stock No.	O.D.	Pkg. of 100 1-Up
No. 4	31F2138	9/32	.65
No. 6	31F2139	3/8	.75
No. 8	31F2140	3/8	.75
No. 10	31F2141	7/16	.75
1/4	32F612	5/8	1.60
3/8			

FLAT FIBRE WASHERS

Stock No.	O.D.	Pkg. of 100 1-Up
30F355	1/4	.85
31F2165	1/4	.76
31F2166	3/8	.95
31F2167	3/8	.85
30F356	1/2	1.10

FLAT NYLON WASHERS

Stock No.	O.D.	Pkg. of 100 1-Up
30F1040	9/32	1.20
30F1041	5/16	1.25
30F1042	3/8	1.80
30F1043	7/16	1.85

EXTRUDED FIBRE WASHERS

Stock No.	O.D.	Pkg. of 100 1-Up
30F357	9/32	2.35
31F2171	5/16	2.18
31F2172	3/8	2.92
31F2173	7/16	2.22
31F2174	1/2	2.38
31F2175	5/8	3.70

AMERLOK™ brand Fasteners and Hardware

SPC technology

FLAT HEAD RACK AND CABINET SCREWS

Stock No.	Screw Size	Length	Boxes of 100 1-9	Boxes of 100 10-Up
31F2176	6-32	½″	1.80	1.16
31F2177	6-32	¾″	1.85	1.21
31F2066	8-32	½″	2.10	1.40
31F2178	8-32	¾″	2.25	1.55
31F2313	10-32	½″	2.00	1.31

SHEET METAL SCREWS SLOTTED HEX HEAD SELF-TAPPING NICKEL PLATED

Stock No.	Screw Size	Length	Boxes of 100 1-9	Boxes of 100 10-Up
30F092	No. 4	⅜″	1.85	1.19
31F2124	No. 4	½″	1.90	1.24
31F2125	No. 6	¼″	1.95	1.28
31F2126	No. 6	⅜″	1.95	1.30
31F2127	No. 6	½″	2.10	1.43
31F2128	No. 6	¾″	2.30	1.60
31F2129	No. 8	⅜″	1.90	1.25
31F2130	No. 8	½″	2.05	1.38
31F2132	No. 10	½″	2.50	1.74
31F2133	No. 10	¾″	2.85	2.04

WASHER HEAD SHEET METAL SCREWS NICKEL PLATED

Stock No.	Screw Size	Length	Boxes of 100 1-9	Boxes of 100 10-Up
32F613	No. 6	⅝″	2.22	1.78
32F614	No. 8	¾″	2.00	1.60
32F615	No. 8	½″	1.68	1.35

ALLEN HEX SET SCREWS HARDENED STEEL-HEADLESS

Stock No.	Screw Size	Length	Boxes of 100 1-9	Boxes of 100 10-Up
32F652	6-32	⅛″	8.42	6.74

CUP FINISHING WASHERS NICKEL-PLATED

Stock No.	Screw Size	O.D.	Boxes of 100 1-Up
31F2142	No. 6	7/16″	.85
31F2143	No. 8	½″	1.00
31F2144	No. 10	9/16″	1.10

KNURLED THUMB NUTS BRASS-NICKEL PLATED

Stock No.	Thread Size	Boxes of 100 1-9	Boxes of 100 10-Up
31F2180	6-32	4.68	3.75

ACORN NUTS BRASS-NICKEL PLATED

31F2102	6-32	10.40	8.30
31F2103	8-32	11.20	8.97
31F087	10-32	12.00	9.63

CONTROL AND SWITCH MOUNTING NUTS STEEL-NICKEL PLATED

31F2114 — 31F608 — 31F2112 — 31F2113

Stock No.	Thread Size	Wd.	Thk.	Boxes of 100 1-9	Boxes of 100 10-Up
32F608	⅜-32	9/16″	3/32″	3.48	2.79
31F2113	15/32-32	9/16″	5/64″	3.68	2.95
31F2114	15/32-32	11/32″	1/16″	5.93	4.75
31F2112	⅜-32	½″	3/32″	3.75	3.00

Selections of the fastest moving hardware items to provide handy kits for service and maintenance work. Individually compartmented, for fast selection, in reusable, plastic boxes with hinged cover and positive clasp. All metal hardware is nickel-plated steel.

REGULAR ROUND HEAD SCREW ASSORTMENT

Qty.	Description	Qty.	Description
35	4-40 x ½″ Machine Screw	21	6 x ½″ Sheet Metal Screw
35	6-32 x ¼″ Machine Screw	35	4-40 x ¼″ Nut
17	6-32 x ¾″ Machine Screw	35	6-32 x ¼″ Nut
17	8-32 x ½″ Machine Screw	35	8-32 x ¼″ Nut

32F051 Model HD-4013 NET.....1.95

BINDER HEAD SCREW ASSORTMENT

Qty.	Description	Qty.	Description
35	4-40 x ½″ Machine Screw	21	6 x ½″ Sheet Metal Screw
35	6-32 x ¼″ Machine Screw	35	4-40 x ¼″ Nut
17	6-32 x ¾″ Machine Screw	35	6-32 x ¼″ Nut
17	8-32 x ½″ Machine Screw	35	8-32 x ¼″ Nut

32F052 Model HD-4018 NET.....1.95

WOOD SCREW ASSORTMENT
Round and Flat Types

Qty.	Description	Qty.	Description
35	4 x ½″ Round Head	12	8 x 1″ Round Head
20	6 x ¾″ Round Head	10	8 x 1¼″ Round Head
12	6 x 1″ Round Head	12	8 x 1″ Flat Head
12	8 x ¾″ Round Head	10	8 x 1¼″ Flat Head

32F054 Model HD-4019 NET.....1.95

HEX HEAD (SLOTTED) SHEET METAL SCREW ASSORTMENT

Quantity	Description	Quantity	Description
22	4 x ⅜″	30	8 x ¼″
22	6 x ¼″	22	8 x ⅜″
22	6 x ½″	9	8 x ½″
9	6 x ¾″	9	8 x ⅝″

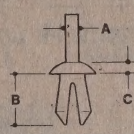
32F053 Model HD-4014 NET.....1.95

HEX WASHER HEAD SHEET METAL SCREW ASSORTMENT

Slotted, Type A. The washer head prevents denting of sheet metal, conceals marks made by previous screws, provides better bearing surface for tight hold, and prevents the screw from sinking into nut driver.

Quantity	Description	Quantity	Description
13	6 x ¼″	13	8 x ¼″
13	6 x ⅜″	13	8 x ⅜″
13	6 x ½″	13	8 x ½″
13	6 x ¾″	13	8 x ⅝″

32F1367 Model HD-4011 NET.....1.95



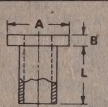
NYLON MOUNTING RIVETS

Type NMR plastic push rivet is the fast method of fastening. Insert rivet and push its post downward to spread the legs for secure assembly. For faster assembly, the NMR-T installation tool holds the rivet for insertion and injects the post with a tap of its plunger head.

Stock No.	Type No.	Post Dia. A	Leg Length B	Head Thick. C	Hole Dia.	Total Material Thickness Range	Pkg. of 100 1-9	Pkg. of 100 10-Up
28F1919	NMR-1	.120″	.450″	.080″	.218″	.093″-.156″	6.00	5.25
28F1920	NMR-2	.125″	.380″	.075″	.187″	.156″-.281″	6.27	5.49
28F1921	NMR-3	.125″	.535″	.075″	.187″	.312″-.440″	11.88	10.40
28F1922	NMR-4	.150″	.620″	.080″	.250″	.281″-.500″	17.48	15.29

LIGHTWEIGHT POLYCARBONATE INSTALLATION TOOL

Stock No.	Type	For Use With	Each
28F1923	NMR-T1	NMR-1, NMR-2, NMR-3	22.50
28F1924	NMR-T4	NMR-4	25.00



SCREW INSULATOR/BUSHING

May be used as screw insulator where high strength non-insulated screws are required. Wide flanges isolate from mounting surfaces. Also satisfy a wide range of bushing applications and because they require no lubrication, can be used as light loading bearings.

Stock No.	Type	Screw Lengths Size	Screw Lengths L	Nominal Dimensions A	Nominal Dimensions B	Nominal Dimensions F	Pkg. of 100 1-9	Pkg. of 100 10-Up
28F1910	SIB-0403	#4	.046	.252	3/64	.140	4.91	4.30
28F1911	SIB-0405	#4	.084	.235	3/64	.145	4.91	4.30
28F1912	SIB-0406	#4	.093	.235	3/64	.145	4.91	4.30
28F1913	SIB-0410	#4	.156	.235	3/64	.145	4.91	4.30
28F1914	SIB-0416	#4	.250	.235	3/64	.145	4.91	4.30
28F1915	SIB-0616	#6	.250	.300	3/64	.170	4.91	4.30
28F1916	SIB-0824	#8	.375	.345	1/16	.205	5.09	4.45
28F1917	SIB-1024	#10	.375	.400	1/16	.260	5.23	4.58
28F1918	SIB-2524	¼″	.375	.535	1/16	.315	5.72	5.00

SNAP BUTTON HOLE PLUGS STEEL-NICKEL PLATED

Covers holes in metal, wood, etc. ⅞″ size fits switch box knockout holes. *Screen type snap-in vent plug.

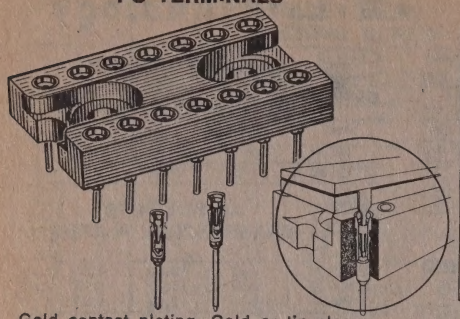
Stock Number	Hole Size	Package of 100 1-9	Package of 100 10-Up
31F085	¼″	3.90	3.12
32F646	5/16″	4.08	3.27
31F2015	⅜″	5.48	4.39
31F2016	½″	6.08	4.87
31F2017	⅝″	7.43	5.95
31F2018	¾″	7.92	6.34
32F648	⅞″	9.77	7.82
31F086	1″	10.32	8.26
32F649	1⅛″	17.43	13.95
32F650	1¼″	11.25	9.00

		1-24	25-49	50-99	100-249
29F641*	1″	.76	.57	.50	.48

AUGAT®

DIP Sockets

PC TERMINALS



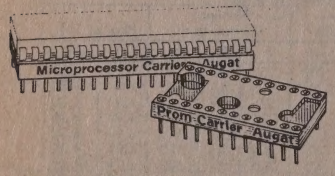
Gold contact plating. Gold or tin sleeve plating. Space between rows: 8, 14, 16, 18, and 20 contacts—7,62″.300″; 22 and 24 contacts—10,16/.400″; 24, 28, 32, 36 and 40 contacts — 15,24/.600″. Insulator: thermoplastic polyester, UL rated 94V-0. Two-piece tapered entry socket terminal-four leaf machined closed entry inner contact and machined outer sleeve. Closed end construction eliminates any solder or flux wicking problems.

GOLD PLATED SLEEVE

Stk. No.	Type	Con-tacts	1-99	100-499	500-999
14F2700	508-AG10D	8	.71	.64	.58
14F2701	514-AG10D	14	1.05	.93	.83
14F2702	516-AG10D	16	1.19	1.05	.94
14F2703	518-AG10D	18	1.52	1.33	1.21
14F2704	520-AG10D	20	1.68	1.48	1.35
14F2705	522-AG10D	22	1.80	1.59	1.43
14F2706	524-AG65D	24	1.97	1.73	1.56
14F2707	524-AG10D	24	2.01	1.79	1.61
14F2708	528-AG10D	28	2.16	2.01	1.81
14F2709	532-AG10D	32	2.52	2.24	2.01
14F2710	536-AG10D	36	2.80	2.47	2.24
14F2711	540-AG10D	40	3.10	2.73	2.46

TIN PLATED SLEEVE

14F2712	508-AG11D	8	.66	.59	.52
13F703	514-AG11D	14	.90	.80	.70
13F704	516-AG11D	16	1.00	.87	.80
13F705	518-AG11D	18	1.27	1.12	1.00
14F2713	520-AG11D	20	1.40	1.24	1.12
14F2714	522-AG11D	22	1.57	1.37	1.22
14F2715	524-AG67D	24	1.72	1.50	1.34
14F2716	524-AG11D	24	1.66	1.48	1.31
14F2717	528-AG11D	28	1.91	1.66	1.50
14F2718	532-AG11D	32	2.14	1.87	1.66
14F2719	536-AG11D	36	2.34	2.05	1.85
14F2720	540-AG11D	40	2.59	2.27	2.03

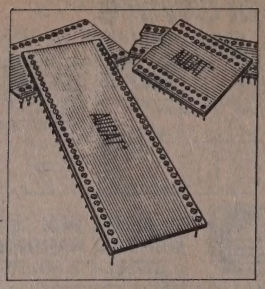


MICROPROCESSOR/PROM CARRIER

Type 524 is PROM carrier. Type•540 is microprocessor carrier. Two-piece, machined socket terminal: Inner contact—beryllium copper, gold- over nickel-plated. Outer sleeve—phosphor bronze, gold-over nickel-plated. Designed to protect fragile leads of expensive microprocessors and PROMs. Mating of carrier to microprocessor forms one unit facilitating mounting onto panels. Meets MIL requirements for shock and vibration. Closed end construction ends solder or flux wicking problems. Low profile.

Stk. No.	Type	Con-tacts	1-99	100-499	500-999
14F2721	524-AG70D	24	2.46	2.19	1.95
14F2722	540-AG70D	40	3.97	3.51	3.10

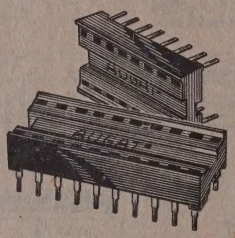
LSI SOCKETS



Two-piece, machined socket terminal: Inner Contact — beryllium copper, gold-over nickel-plated; Outer Sleeve — phosphor bronze, gold- over nickel-plated. Dual-in-line (DIL) and Quad-In-line (QIL) available. Insulator: 062 thick glass epoxy. 093 thick on 264-AG1A.

Stk. No.	Type	Pins	Cntr.	1-99	100-499	500-999
13F175	232-AG1A	32/DIL	.900″	4.41	3.86	3.45
13F176	248-AG1A	48/DIL	.600″	6.15	5.38	4.81
13F177	248-AG2A	48/QIL	....	6.15	5.38	4.81
13F178	264-AG1A	64/DIL	.900″	8.04	7.03	6.27

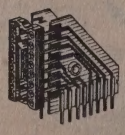
SIDE WIPE LOW PROFILE



Contact: beryllium copper, tin-lead plating. Insulator: thermoplastic polyester, UL rated 94V-0. Side wipe contact, designed to meet MIL-S-83734. LSI 22 through 40 contact socket models have open design insulator.

Stk. No.	Type	Con-tacts	1-99	100-499	500-999
13F179	208-AG39D	8	.20	.19	.17
13F180	214-AG39D	14	.24	.23	.21
13F181	216-AG39D	16	.28	.26	.24
13F182	218-AG39D	18	.31	.30	.27
13F183	220-AG39D	20	.35	.33	.30
13F184	222-AG39D	22	.38	.36	.33
13F185	224-AG39D	24	.32	.39	.36
13F186	228-AG39D	28	.48	.46	.42
13F187	240-AG39D	40	.69	.65	.60

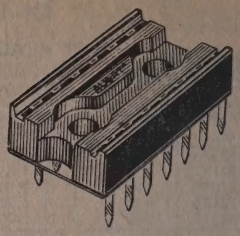
GANGED UNITS



Two-piece, machined socket terminal: Inner cntact — beryllium copper, gold-over nickel-plated; Outer sleeve—brass, tin-plated. Board: glass epoxy, tin-plated copper circuitry. Terminal: phosphor bronze, solder-coated. Spacer: delrin. Permits gang mounting on PC board—.400″ centers or greater.

Stk. No.	Type	Con-tacts	1-99	100-499	500-999
14F2723	514-AG21D	14	3.99	3.52	3.14
14F2724	516-AG21D	16	4.29	3.78	3.39

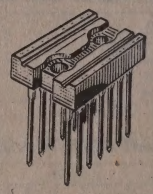
LOW PROFILE



Terminal styles: Style A — any hole size down to 0.63/.025 diameter, Style B — recommended mounting hole 0.89±0.05/.035±.002 diameter for good retention in PC board during wave soldering. Stands 4.14/.163 above PC board (IC seating plane). 308-318 are DIP; 322-340 are LSI.

Stk. No.	Type	Term. Style	Con-tacts	1-99	100-499	500-999
13F188	308-AG40D	A	8	.45	.40	.35
13F189	314-AG40D	A	14	.70	.63	.55
13F190	316-AG40D	A	16	.81	.72	.63
13F191	318-AG40D	A	18	.91	.81	.70
13F192	322-AG40D	A	22	1.10	.99	.86
13F193	324-AG40D	A	24	1.20	1.08	.94
13F194	328-AG40D	A	28	1.40	1.25	1.09
13F195	340-AG40D	A	40	2.00	1.79	1.56
13F196	308-AG38D	B	8	.45	.40	.35
13F197	314-AG38D	B	14	.70	.63	.55
13F198	316-AG38D	B	16	.81	.72	.63
13F199	318-AG38D	B	18	.91	.81	.70
13F200	322-AG38D	B	22	1.10	.99	.86
13F201	324-AG38D	B	24	1.20	1.08	.94
13F202	328-AG38D	B	28	1.40	1.25	1.09
13F203	340-AG38D	B	40	2.00	1.79	1.56

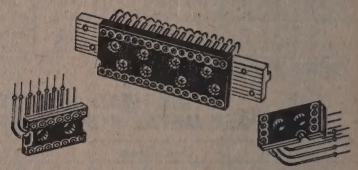
WIRE-WRAP



Contact: Copper alloy 725. Contact area only, gold-over nickel plated. 0.91 ± 0.03/.36 ± .001″ mounting hole. Oper. temp: —55 to +125°C. Insulator: UL rated 94V-0 thermoplastic polyester.

Stk. No.	Type	Con-tacts	Term. Levels	1-99	100-499	500-999
13F204	314-AG35F	14	3	.52	.46	.41
13F205	314-AG36F	14	2	.52	.46	.41
13F206	316-AG35F	16	3	.60	.52	.47
13F207	316-AG36F	16	2	.60	.52	.47

LED SOCKETS



RA=right angle mounting; H=horizontal mounting; PC=printed circuit board mtg; WW = wire wrapping; and SP = solder pocket. UL rated 94V-0 socket, vinyl extrusion. Gold- over nickel-plated copper inner contact.

Stk. No.	Type	Con-tacts	Desc.	1-99	100-499
14F2725	508-AG8D	8	RA/PC	1.57	1.38
14F2726	508-AG4F	8	H/WW	.93	.81
14F2727	508-AG4A	8	H/SP	1.00	.87
14F2728	514-AG7D	14	RA/PC	2.16	1.89
13F703	514-AG11D	14	H/PC	.90	.80
14F2729	514-AG11F	14	H/WW	1.13	.99
14F2730	516-AG7D	16	RA/PC	2.47	2.19
13F704	516-AG11D	16	H/PC	1.00	.87
14F2731	516-AG11F	16	H/WW	1.26	1.11

12

IC Packaging Panels, Racks and Hardware

AUGAT®

MINI COMPUTER INTERFACE IC SOCKET BOARDS

Type 8136-LG411 has 110 patterns (16-pin). **Type 8136-LG412** is universal–having continuous rows of contacts for any size DIP package. Designed for use with DEC PDP8 computers. Board is 1/16" thick glass epoxy, tin-plated both sides.

Stk. No.	Type	1-4	5-9
14F2732	8136-LG411	270.25	242.50
14F2733	8136-LG412	277.25	248.75

R SERIES BOARDS

Board Rack

Accepts 14- and 16-lead dual in-line ICs, 60 patterns standard. Universal style 20 rows of 50-contacts accepts any combination 6- thru 40-lead dual in-line ICs.

14- AND 16-CONTACT

Stk. No.	Type	Skt. per Pattern	1-4	5-9
14F2796	8136-RG1	14	129.50	116.50
14F2797	8136-RG2	14V+2G	136.50	122.50
14F2798	8136-RG3	16	106.00	106.00
14F2799	8136-RG4	16V+2G	112.59	112.59

UNIVERSAL

Stk. No.	Type	V & G Conn.	1-4	5-9
14F2825	8136-URG1	Skt. Term.	118.50	118.50
14F2826	8136-URG49	Sleeves	160.00	144.00

EXTENDER CARD

Stk. No.	Type	Desc.	EACH 1-4	EACH 5-9
14F2824	8136-138G1	For 1/8" R Series	61.75	55.50

CONNECTOR

Stk. No.	Type	Conn.	1-4	5-9
14F2823	14005-1P1	1/8"	16.32	14.58

RACK ASSEMBLIES

Accepts 1/8" thick boards on 30,48/1.200 centers. Edge connector type.

FOR RELAY RACK MOUNTING

Stk. No.	Type	Description	1-4	5-9
14F2800	8160-EG10	Back Panel Only	290.00	259.25
14F2801	8170-RG1	Rack w/Bk. Pan.	336.25	300.50
14F2802	8170-RG3	Rack Only	51.40	45.75

FOR ENCLOSURE MOUNTING

Stk. No.	Type	Description	1-4	5-9
14F2803	8170-RG2	Rack w/Bk. Pan.	336.25	300.50
14F2804	8170-RG4	Rack only	51.50	45.75

M SERIES HIGH DENSITY SOCKET BOARDS

Panels are 1/16" thick double-sided glass-epoxy with Vcc and Gnd planes connected to wire wrap socket terminals. Terminals, female contacts, I/O pins and outer sleeves are gold-plated.

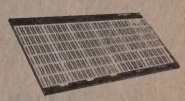
M SERIES RACK ASSEMBLY AND ACCESSORIES

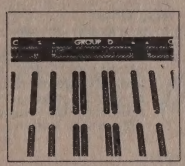
Stk. No.	Type	Description	1-4	5-9
14F2780	8160-EG20	Back Panel Only	137.25	122.50
14F2781	8170-MG1	Rack w/Bk. Pan.	191.75	171.50
14F2782	8170-MG2	Rack Only	54.50	48.75
14F2827	14005-17P3	Connector	5.45	4.90
14F2743	8136-MG13	Extender Card	32.00	28.50

Stk. No.	Type	Skts. per Pattern	EACH 1-4	EACH 5-9
14F2734	8136-MG15	Univ.	92.00	82.75
14F2736	8136-MG10	14+2	45.00	40.50
14F2737	8136-MG6	14+2	56.00	49.75
14F2738	8136-MG2	14+2	65.00	58.50
14F2739	8136-MG12	16+2	47.25	42.50
14F2740	8136-MG8	16+2	58.75	52.75
14F2741	8136-MG4	16+2	52.50	52.50
14F2742	8136-UMG1	Univ.	56.00	56.00
14F2735	8136-UMG3	Univ.	100.25	90.00

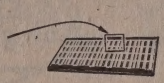
P SERIES SOCKET TERMINAL BOARDS

Accepts 14- and 16-lead dual in-line ICs. Double-sided board with power and ground planes connected to two contacts in each pattern. V and G positions are sleeves (no inner contact) for soldering in capacitors or other components. Board is 1/8" thick glass epoxy. Inner contact, outer sleeve and pins are gold over nickel-plated.





LSI BOARD



Panel accepts 24 pin Dual in-line ICs. Double-sided with voltage and ground planes connected to pin 12 and 24 in each.

Stk. No.	Type	No. of Pat.	EACH 1-4	EACH 5-9
14F2790	8136-PG142-12	12	43.75	39.25
14F2791	8136-PG142-24	24	83.50	74.75
14F2792	8136-PG142-36	36	122.50	110.25
14F2793	8136-PG142-48	48	162.25	145.50
14F2794	8136-PG142-60	60	201.50	181.00
14F2795	8136-PG142-72	72	240.75	216.50

DRAWER ASSEMBLY

Full Drawer 8170-DG1/2

Half Drawer 8170-DG4/5

Accept 2 or 4 board frames as listed. Comes with combination of: fan cutout rear plate, perforated front plate, rear blank plate, front blank plate.

Stk. No.	Type	Frames	Plates	1-4	5-9
14F2784	8170-DG1	4	fan/front	71.00	63.25
14F2785	8170-DG2	4	rear/front	64.25	57.50
14F2786	8170-DG4	2	fan/front	59.25	51.50
14F2787	8170-DG5	2	rear/front	54.25	48.75

U SERIES UNIVERSAL SOCKET BOARDS

V & G sleeves. UG1: Socket terminal I.O. accepts three 14-pin plugs per nine-row section. UG6: Feed-thru pin I.O. accepts two 26-contact plugs per 9-rows. UG119: Hi-density socket terminal I.O. accepts three 28-pin plugs per 9-rows.

Stk. No.	Type	Rows	1-4	5-9
14F2805	8136-UG1-9	9	44.25	44.25
14F2806	8136-UG1-18	18	89.25	89.25
14F2807	8136-UG1-27	27	134.00	134.00
14F2808	8136-UG1-36	36	178.25	178.25
14F2809	8136-UG1-45	45	222.50	222.50
14F2810	8136-UG1-54	54	267.75	267.75
14F2811	8136-UG6-9	9	44.25	44.25
14F2812	8136-UG6-18	18	87.75	87.75
14F2813	8136-UG6-27	27	132.25	132.25

Stk. No.	Type	Rows	1-4	5-9
14F2814	8136-UG6-36	36	175.50	175.50
14F2815	8136-UG6-45	45	219.75	219.75
14F2816	8136-UG6-54	54	263.50	263.50
14F2817	8136-UG119-9	9	62.00	56.00
14F2818	8136-UG119-18	18	124.25	111.75
14F2819	8136-UG119-27	27	186.25	167.75
14F2820	8136-UG119-36	36	248.50	223.50
14F2821	8136-UG119-45	45	310.50	279.50
14F2822	8136-UG119-54	54	372.75	334.50

16 SOCKET TERMINALS PER PATTERN

Stk. No.	Type	No. of Pat.	EACH 1-4	EACH 5-9
14F2744	8136-PG5-30	30	46.00	46.00
14F2745	8136-PG5-60	60	90.00	90.00
14F2746	8136-PG5-90	90	134.00	134.00
14F2747	8136-PG5-120	120	179.00	179.00
14F2748	8136-PG5-150	150	223.00	223.00
14F2749	8136-PG5-180	180	266.75	266.75
14F2750	8136-PG20-30	30	45.00	45.00
14F2751	8136-PG20-60	60	88.50	88.50
14F2752	8136-PG20-90	90	132.75	132.75
14F2753	8136-PG20-120	120	176.25	176.25
14F2754	8136-PG20-150	150	219.50	219.50
14F2755	8136-PG20-180	180	263.00	263.00
14F2756	8136-PG190-30	30	62.50	56.25
14F2757	8136-PG190-60	60	125.00	112.00
14F2758	8136-PG190-90	90	187.75	170.50
14F2759	8136-PG190-120	120	250.25	224.50
14F2760	8136-PG190-150	150	313.00	280.75
14F2761	8136-PG190-180	180	375.25	336.75

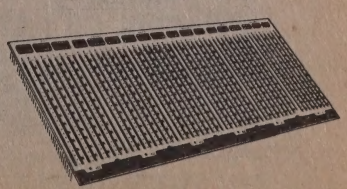
16+2 SOCKETS PER PATTERN—V&G SLEEVES

14F2762	8136-PG13-30	30	49.50	49.50
14F2763	8136-PG13-60	60	96.50	96.50
14F2764	8136-PG13-90	90	144.25	144.25
14F2765	8136-PG13-120	120	191.00	191.00
14F2766	8136-PG13-150	150	239.25	239.25
14F2767	8136-PG13-180	180	285.50	285.50
14F2768	8136-PG21-30	30	48.50	48.50
14F2769	8136-PG21-60	60	95.00	95.00
14F2770	8136-PG21-90	90	141.75	141.75
14F2771	8136-PG21-120	120	188.00	188.00
14F2772	8136-PG21-150	150	235.00	235.00
14F2773	8136-PG21-180	180	280.50	280.50
14F2774	8136-PG191-30	30	67.00	60.25
14F2775	8136-PG191-60	60	133.50	120.25
14F2776	8136-PG191-90	90	201.25	180.25
14F2777	8136-PG191-120	120	267.75	240.25
14F2778	8136-PG191-150	150	334.75	300.25
14F2779	8136-PG191-180	180	401.75	360.50

BOARD FRAMES

Accepts any board series with max. length 411,48/16.200 and maximum width shown.

Stk. No.	Type	Max. Width	1-4	5-9
14F2788	8170-14G1	175,26/6.900	22.28	19.93
14F2789	8170-14G2	190,50/7.500	22.28	19.93

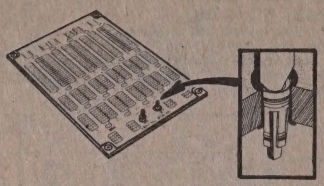


NOTE: Drawer assemblies listed under P series also accommodate U series.

12

AUGAT® IC Packaging Panels, Racks and Accessories

HOLTITE® PRINTED WIRING CONTACTS



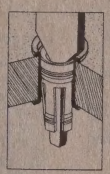
BREADBOARD

Forty 16-pin patterns. Dimensions (LxW): 9.0 x 6.5 inches. Wire included. Voltage and ground planes or decoupling capacitor connections provided by 80 contact positions. 1/8" thick.

Stk. No.	Type	Description	1-4	5-9
14F2886	8136-HB1-40	Breadboard	112.25	101.00

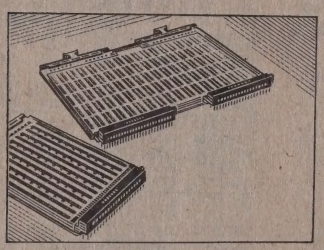
PRINTED WIRING CONTACTS

Holtite contacts press-fit into plated-thru holes using existing space within board and making plated-thru holes into sockets. Features: lowest socket profile, max. heat dissipation, 30,000 contact installations per hour, solderless gas tight insertion. Gold over nickel-plated beryllium contacts available in small, large and modified large.



Stk. No.	Type	Description	100-499	500-999
14F2869	8134-HC-5P2	Small	.07	.05
14F2870	8134-HC-6P2	Large	.09	.09
14F2871	8134-HC-8P2	Mod. lg.	.09	.09

V SERIES BOARDS 14 AND 16 CONTACT AND UNIVERSAL



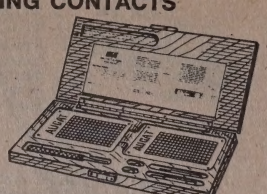
- **Gold-plated Contacts**
- **V & G Sleeves**
- **1/16" thick glass epoxy**

Types 8136-VG22/24 are single sized with 35 patterns per board, requiring one 64-pin connector. **Types 8136-VG42/44** are single sized 35 patterns per board, requiring one 96-pin connector. **Types 8136-VG28/30** are double sized with 85 patterns per board, requiring two 64-pin connectors. **Type 8136-VG48/50** are double sized with 85 patterns per board, requiring two 96-pin connectors.

Stk. No.	Type	Terms. per Pat. (V+G)	EACH 1-4	EACH 5-9
14F2828	8136-VG22	14+2	84.25	75.75
14F2829	8136-VG24	16+2	90.25	81.00
14F2830	8136-VG42	14+2	91.75	82.50
14F2831	8136-VG44	16+2	97.75	87.75
14F2832	8136-VG28	14+2	179.25	161.25
14F2833	8136-VG30	16+2	195.50	175.75
14F2834	8136-VG48	14+2	194.50	175.00
14F2835	8136-VG50	16+2	210.50	189.25

Universal

Stk. No.	Type	No. of Rows	1-4	5-9
14F2836	8136-UVG1	12	83.50	75.25
14F2837	8136-UVG2	28	182.50	165.00



HOLTITE® PROTOTYPING KIT

With gold-plated contacts. Includes: card with 1008 small contacts and one with 196 large contacts; combination loading tool and no-go gauge for small contacts and one for large contacts; seating tool for small contacts and one for large contacts; spring-loaded seating tool handle. handle.

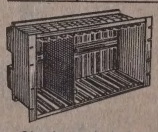
Stk. No.	Type	Cont. Pltg.	1-Up
14F2868	398-HK-001	Gold	94.50

HOLTITE® CONTACT SOCKET STRIP

Gold-plated contacts packaged 5,000 per reel. All standard DIP socket patterns, mounted on disposable mylar carrier.

Stk. No.	Type	Cont. per Pat.	EACH 1-4	EACH 5-9
.300" Row Spacing				
14F2872	322-HCS-5P2-300	Univ.		
14F2873	322-HCS-5P2-308	8		
14F2874	322-HCS-5P2-314	14		
14F2875	322-HCS-5P2-316	16	150.00	127.00
14F2876	322-HCS-5P2-318	18		
14F2877	322-HCS-5P2-320	20		
.400" Row Spacing				
14F2878	322-HCS-5P2-400	Univ.		
14F2879	322-HCS-5P2-422	22	150.00	127.00
14F2888	322-HCS-5P2-424	24		
.600" Row Spacing				
14F2880	322-HCS-5P2-600	Univ.		
14F2881	322-HCS-5P2-624	24		
14F2882	322-HCS-5P2-628	28	150.00	127.00
14F2883	322-HCS-5P2-632	32		
14F2884	322-HCS-5P2-636	36		
14F2885	322-HCS-5P2-640	40		

V SERIES RACK ASSEMBLIES



Single rack (takes one panel) and double rack (takes two panels) available. *64-pin connector. **96-pin connector.

Stk. No.	Type	Description	1-4	5-9
14F2847	8160-EG57*	Back Panel	273.75	246.25
14F2848	8160-EG56**	Back Panel	365.75	328.75
14F2849	8170-VG2*	Rack & Pan.	321.75	287.50
14F2850	8170-VG3**	Rack & Pan.	300.25	268.50
14F2851	8170-VG5*.	Rack/2 Pan.	481.75	430.00
14F2852	8170-VG6**	Rack/2 Pan.	610.00	545.25
14F2853	8170-VG1	Sin. Rack	77.25	69.00
14F2854	8170-VG4	Dbl. Rack	97.75	87.25

EXTENDER CARD

For V Series. *Single Size. **Double Size.

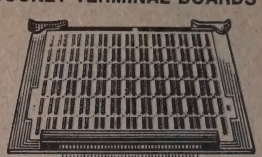
Stk. No.	Type	Pins	1-4	5-9
14F2838	8136-VG31*	64	63.75	57.50
14F2839	8136-VG33*	96	103.75	93.50
14F2840	8136-VG32**	64	114.25	102.75
14F2841	8136-VG34**	96	178.25	160.50

MATING CONNECTORS

Right Angle Connectors For V Series. *Male, 3-level. **Female, 3-level. †Printed Circuit.

Stk. No.	Type	Pins	1-4	5-9
14F2842	14005-64P3*	64	11.93	10.31
14F2843	14005-64R3**	64	11.12	9.61
14F2845	14005-96P3*	96	17.12	14.80
14F2846	14005-96R3**	96	16.63	14.31
14F2844	14005-64PC*†	64	10.04	8.64

W SERIES SOCKET TERMINAL BOARDS



Pattern style accepts 14- and 16-lead dual in-line ICs with (*) 60 or (*) 72 patterns. Universal style, 20 rows of 50 or 58 contacts, accepts any combination of 6- through 40-lead dual in-line ICs. Comes with gold sleeve plating. Also available with tin sleeve plating in 2-level terminal length. Contact your Newark Distributor.

Stk. No.	Type	Terms. per Pattern	1-4	5-9
14F2855	8136-WG1*	14	133.50	119.50
14F2856	8136-WG2*	14+2 (V&G)	141.50	126.50
14F2857	8136-WG201**	14	150.00	134.25
14F2858	8136-WG202**	14+2 (V&G)	159.50	143.00
14F2859	8136-WG3*	16	144.75	130.00
14F2860	8136-WG4*	16+2 (V&G)	151.75	136.50
14F2861	8136-WG203**	16	163.75	147.25
14F2862	8136-WG204**	16+2 (V&G)	173.50	155.50

Universal

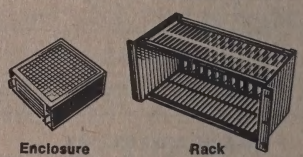
Stk. No.	Type	Skt. Term. per Row	1-4	5-9
14F2889	8136-UWG1	50	169.50	143.50
14F2890	8136-UWG12	58	178.25	159.75

EXTENDER CARD

For W series. 1/8" extender card. 120 contacts, 3 rows of 40.

Stk. No.	Type	Desc.	1-4	5-9
14F2891	8136-WG53	1/8" Card	122.75	110.00

RACK ASSEMBLY

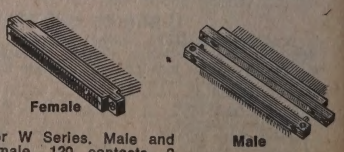


Enclosure Rack

Pin and Socket Connector type for W Series. *For 19" relay rack mounting. **For enclosure mounting. †For enclosure or relay rack mounting.

Stk. No.	Type	Description	1-4	5-9
14F2863	8160-WG1†	Back Panel	326.00	291.50
14F2864	8170-RG7*	Rack & Pan.	336.25	300.50
14F2865	8170-RG3*	Rack	51.50	45.75
14F2866	8170-RG6**	Rack & Pan.	336.25	300.50
14F2867	8170-RG4**	Rack	51.50	45.75
14F2887	8170-EG1	Enclosure	193.00	171.75

MATING CONNECTORS



Female Male

For W Series. Male and female. 120 contacts, 3 rows of 40.

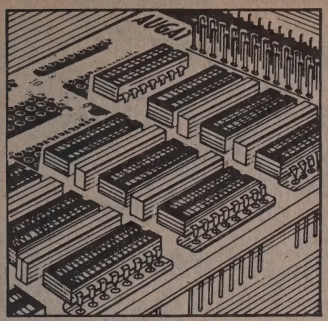
Stk. No.	Type	Desc.	1-4	5-9
14F2892	14005-13P1	Male	27.60	24.72
14F2893	14005-14P1	Female	20.44	18.28

12

Modular Packaging Systems

AUGAT®

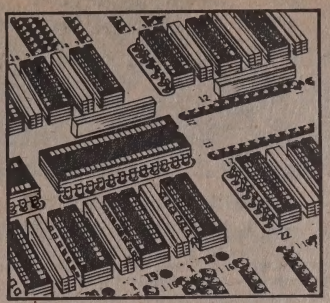
ECL LOGIC BOARD



⅛" thick glass epoxy board, 2 oz. copper circuitry, (3-layers). Tin plated. Gold-plated contacts and sleeves. Features SIP resistor network termination. Accommodates ECL 16-pin DIL ICs. With 2-level wrap terminals.

Stk. No.	Type	Pat.	1-4	5-9
14F2894	8136-ECL21-30-2	30	98.00	88.25
14F2895	8136-ECL21-60-2	60	191.75	171.75
14F2896	8136-ECL21-90-2	90	284.50	255.75
14F2897	8136-ECL21-120-2	120	378.00	339.50
14F2898	8136-ECL21-150-2	150	471.00	422.00
14F2899	8136-ECL21-180-2	180	564.75	506.75

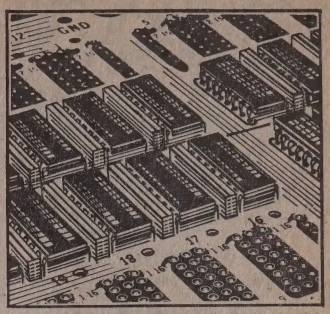
ECL-ALU LOGIC BOARD



Similar to ECL21 boards. Accommodates combination of 16- and 24-pin ECL logic. Gold-plated contacts and sleeves. Includes −5.2V, −2.0V and GND busses for logic power and terminating resistor networks. With 2-level wrap terminals.

Stk. No.	Type	Pat.	1-4	5-9
14F2900	8136-ECL25-27-2	27	87.50	79.50
14F2901	8136-ECL25-54-2	54	169.50	151.75
14F2902	8136-ECL25-81-2	81	254.00	228.00
14F2903	8136-ECL25-108-2	108	333.75	299.75
14F2904	8136-ECL25-135-2	135	421.25	378.25
14F2905	8136-ECL25-162-2	162	503.50	452.25

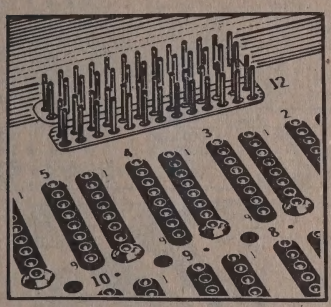
ECL/TTL TRANSLATOR BOARD



Similar to ECL25 and ECL21 boards. Accommodates ECL/TTL and TTL/ECL translators, and ECL logic. Gold-plated contacts and sleeves. 2-level wrap terminals. Busses +5.0V, −5.2V, −2.0V and GND.

Stk. No.	Type	Pat.	1-4	5-9
14F2906	8136-ECL26-30-2	30	94.25	84.50
14F2907	8136-ECL26-60-2	60	184.75	165.25
14F2908	8136-ECL26-90-2	90	274.00	246.75
14F2909	8136-ECL26-120-2	120	360.75	323.75
14F2910	8136-ECL26-150-2	150	453.50	407.75
14F2911	8136-ECL26-180-2	180	545.50	488.75

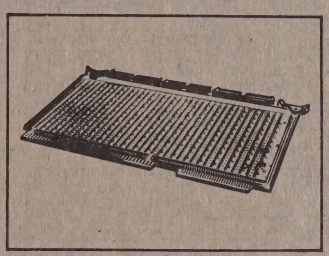
SCHOTTKY TTL BOARD



Gold-plated contacts and sleeves. 2-level wrap terminals. 8 & 16 Voltage and Ground Connections. **Type SCH1** has feed-thru pins—2 Sets: 2 Rows of 13, 52 total. **Type SCH5** has socket terminals—2 Rows of 32.

52 Feed-Thru Pins				
Stk. No.	Type	Pat.	1-4	5-9
14F2912	8136-SCH1-30-2	30	69.50	62.00
14F2913	8136-SCH1-60-2	60	132.50	119.00
14F2914	8136-SCH1-90-2	90	198.75	178.25
14F2915	8136-SCH1-120-2	120	261.00	233.75
14F2916	8136-SCH1-150-2	150	326.75	293.25
14F2917	8136-SCH1-180-2	180	393.75	353.00
64 Socket Terminals				
14F2918	8136-SCH5-30-2	30	66.75	60.00
14F2919	8136-SCH5-60-2	60	133.50	119.25
14F2920	8136-SCH5-90-2	90	199.75	179.00
14F2921	8136-SCH5-120-2	120	266.75	239.00
14F2922	8136-SCH5-150-2	150	331.25	297.00
14F2923	8136-SCH5-180-2	180	400.25	358.50

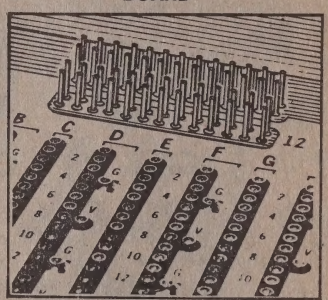
INTEL SBC 80/10 BOARD



Planar power distribution with proper edge connector pin outs for VCC and GND. Universal style, 36 rows of 50 contacts on .300" spacing, accepts any combination of 2- thru 40-lead components. Double-sided board with power and ground planes connected to additional sleeves (no inner contact) outside of contact row (for decoupling). Two-piece, tapered-entry socket terminal features a four-leaf, machined (neither stamped nor formed), closed-entry inner contact and machined outer sleeve. Wire-wrap terminals. Gold-plated contact and sleeve. Board: 1/16" glass epoxy, 2 oz. copper circuitry, tin-plated both sides. Connector pads, gold- over nickel plated. 94V-0 UL rated insulator.

Stk. No.	Type	No. of Rows	1-4	5-9
14F2930	8136-UG159-2	36	288.25	259.50

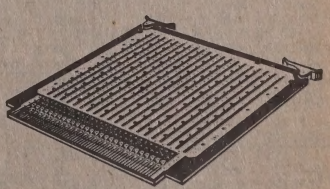
UNIVERSAL SCHOTTKY TTL BOARD



For Schottky 54S/74S logic, Universal Series. VCC layered between 2 GND planes. ⅛" thick glass epoxy. Gold-plated contact and sleeve. 2-level wire wrap terminals. Accepts decoupling caps.

Stk. No.	Type	Pat.	1-4	5-9
14F2926	8136-SCH4-9	9	71.25	63.75
14F2927	8136-SCH4-18	18	142.25	128.00
14F2928	8136-SCH4-27	27	204.50	191.75
14F2929	8136-SCH4-54	54	427.75	383.50

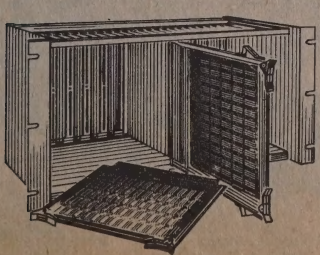
PLUG-IN SCHOTTKY TTL



For Schottky 54S/74S logic. 3-level wire-wrap, gold-plated contact and sleeve. **8136-SCH3-60** has 60 patterns. Pin 8 soldered to top and bottom GND planes, pin-16 to middle VCC plane. **8136-SCH14** is universal style with 20 rows of 50 contacts. Pin V to middle VCC plane, Pin G to both GND planes.

Stk. No.	Type	Pat.	1-4	5-9
14F2924	8136-SCH3	16-Pin	173.50	155.25
14F2925	8136-SCH14	Univ.	186.00	166.50

R SERIES SYSTEM FOR ECL

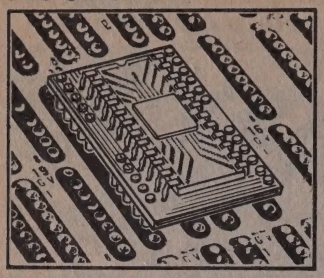


Modular Packaging System For ECL Logic. **8170-RG74** Cage Assembly with back panel, accepts 13 ECL, TTL and Schottky boards, 780 ICs. Layered back panel busses 3 voltages and ground to each connector. **8136-ECL66-2** ECL Plug-in board, 60 patterns with SIP resistor network positions. **8136-ECL67-2** ECL/TTL Translator Plug in board, 24 translator pos. and 36 ECL gate positions. **8136-ECL49** Controlled Impedance Extender Card (approx. 100 ohms).

Stk. No.	Type	Description	1-4	5-9
14F2931	8170-RG74	Cage Asmbly.	402.50	361.75
14F2932	8136-ECL66-2	ECL Plug Bd.	217.75	196.50
14F2933	8136-ECL67-2	ECL/TTL Bd.	232.25	209.50
14F2934	8136-ECL49	Extender Cd.	113.25	101.50

12

Adaptors, Flat Cables, Header Assemblies

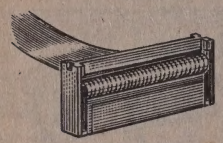


LSI ADAPTOR PLUGS

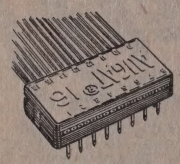
Interpose LSI packages to 14- and 16-pin IC patterned and (†)Universal style boards. 20 thru 40 (as listed) lead LSI devices on (*).300″, (**).400″ and (***).600″ spacing. 1/16″ thick glass epoxy board.

Stk. No.	Type	Max. No. Leads	1-99	100-499
14F2949	620-HG16	20*	4.72	3.99
14F2950	622-HG16	22**	4.81	4.09
14F2951	622-HG17†	22**	4.45	3.79
14F2952	624-HG17†	24**	4.78	4.06
14F2953	624-HG18	24**	4.45	4.60
14F2954	624-HG16	24***	5.18	4.60
14F2955	628-HG16	28***	5.91	5.29
14F2956	640-HG16	40***	8.20	7.35

FLAT CABLE PLUGS



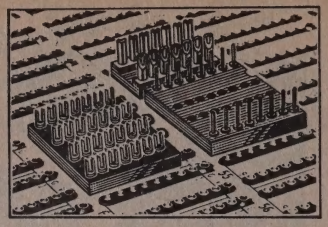
Female Flat Cable Plugs



Male Flat Cable Plugs

Plug assemblies ordered as single-ended with -1 as type number suffix, or double-ended with -2 as type number suffix. 12″ cable length except (*)24″ cable length. Plugs and strain reliefs for plugs may be ordered separately.

Stk. No.	Type	Contacts	1-99	100-499
Female				
56F1221	4P20-1R12-1	20	3.73	3.27
56F1222	4P20-1R12-2	20	6.67	5.84
56F1220	4P20-1	Plug only	2.32	2.03
56F1232	4P20-2P1	Str. Rel.	.38	.34
56F1224	4P26-1R12-1	26	5.60	4.90
56F1225	4P26-1R12-2	26	10.68	9.53
56F1223	4P26-1	Plug only	3.04	2.66
56F1233	4P26-2P1	Str. Rel.	.38	.34
56F1227	4P40-1R12-1	40	6.85	5.99
56F1228	4P40-1R12-2	40	12.50	10.92
56F1226	4P40-1	Plug only	4.64	4.05
56F1234	4P40-2P1	Str. Rel.	.38	.34
56F1230	4P50-1R12-1	50	8.40	7.35
56F1231	4P50-1R12-2	50	15.36	13.44
56F1229	4P50-1	Plug only	5.81	5.06
56F1235	4P50-2P1	Str. Rel.	.38	.34
Male				
56F1211	2P14-1R12-1	14	1.83	1.60
56F1212	2P14-1R24-1*	14	2.05	1.79
56F1213	2P14-1R12-2	14	3.34	2.93
56F1214	2P14-1R24-2*	14	3.57	3.12
56F1210	2P14-1	Plug only	1.23	1.08
56F1216	2P16-1R12-1	16	2.08	1.82
56F1217	2P16-1R24-1*	16	2.34	2.04
56F1218	2P16-1R12-2	16	3.82	3.35
56F1219	2P16-1R24-2*	16	4.08	3.57
56F1215	2P16-1	Plug only	1.41	1.23



ADAPTOR PLUG ASSEMBLIES

Used for interposing discrete components. Slotted pin style except (*)round and (**) solder pocket pin styles. Insulating material either UL rated 94V-0 thermoplastic polyester or glass-filled nylon.

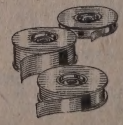
Stk. No.	Type	Pins	1-99	100-499
UL RATED 94V-0 THERMOPLASTIC POLYESTER				
.300″ Between Rows				
14F2935	614-AG1*	14	1.61	1.43
14F2936	614-BG1**	14	1.67	1.47
14F2937	614-CG1	14	1.67	1.47
14F2938	616-AG1*	16	1.81	1.60
14F2939	616-BG1**	16	1.87	1.66
14F2940	616-CG1	16	1.87	1.66
.800″ Between Rows				
14F2941	614-CG2	14	1.81	1.60
14F2942	616-CG2	16	2.02	1.79
Double Pattern—.300″ Between Rows				
14F2943	628-CG1	28	3.12	2.75
14F2944	632-CG1	32	3.56	3.14
Universal Style—.600″ Between Rows				
56F1245	614-CG3	14	1.85	1.63
56F1246	616-CG3	16	2.05	1.80
Flat Plugs & Covers—.300″ B/T Rows				
14F2945	614-DG5	14	.67	.60
14F2946	616-DG5	16	.69	.61
14F2947	614-2P1	(14) cover	.22	.19
14F2948	616-2P1	(16) cover	.32	.28
GLASS-FILLED NYLON INSULATOR				
.300″ Between Rows				
56F1239	614-AG16*	14	1.61	1.43
56F1240	614-BG16**	14	1.67	1.47
56F1241	614-CG16	14	1.67	1.47
56F1242	616-AG16*	16	1.81	1.60
56F1243	616-BG16**	16	1.87	1.66
56F1244	616-CG16	16	1.87	1.66

CROSSOVER HEADERS

Mates with standard .025 contact ribbon cable connectors. Thermoplastic latches provided for polarity and retention of connector in header.

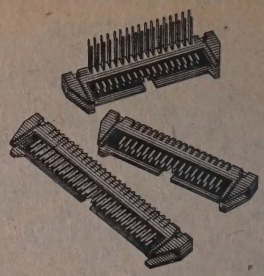
Stk. No.	Type	Pins	1-99	100-499
14F2981	110-20003-201	20	8.77	7.67
14F2982	110-26003-201	26	9.25	8.09
14F2983	110-34003-201	34	9.25	8.09
14F2984	110-40003-201	40	9.25	8.09
14F2985	110-50003-201	50	10.20	8.93

FLAT CABLE REELS



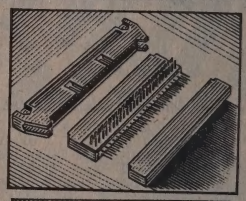
28 AWG stranded wire with PVC insulation. 14, 16, 20, 26, 40 and 50 conductors on .050″ spacing. 100 foot roll. Grooves allow plug for top or bottom of cable.

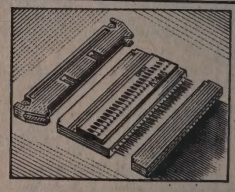
Stk. No.	Type	No. Conds.	1-4	5-9
56F1236	14010-1P8	14	31.99	26.96
56F1237	14010-3P8	16	36.38	31.24
56F1238	14010-5P8	20	44.06	39.14
56F1247	14010-2P8	26	53.23	47.34
56F1248	14010-6P8	40	88.13	78.27
56F1249	14010-7P8	50	110.17	97.84



HEADER ASSEMBLIES

Stk. No.	Type	Pins	1-99	100-499
Wire Wrap St. Bronze Pins (*)Double—Nylon Insul.				
14F2973	5P26-1	26	2.20	1.97
14F2974	5P26-10	26	2.20	1.97
14F2975	5P34-1	34	2.92	2.57
14F2976	5P34-10	34	2.92	2.57
14F2977	5P40-1	40	3.62	3.20
14F2978	5P40-10	40	3.62	3.20
14F2979	5P26-3*	26	4.14	3.52
14F2980	5P26-11*	26	4.14	3.52
W.W. Rt. Angle Brass Pins—94V-0 Insul.				
14F2965	110-20001-602	20	3.92	3.43
14F2966	110-26001-602	26	4.76	4.17
14F2967	110-40001-602	40	6.40	5.60
14F2968	110-50001-602	50	7.43	6.51
W.W. St. Brass Pins—94V-0 Insul.				
14F2969	110-20001-601	20	3.92	3.43
14F2970	110-26001-601	26	4.76	4.17
14F2971	110-40001-601	40	6.40	5.60
14F2972	110-50001-601	50	7.43	6.51
P.C. Rt. Angle Brass Pins—94V-0 Insul.				
14F2957	110-20001-102	20	1.44	1.26
14F2958	110-26001-102	26	1.86	1.62
14F2959	110-40001-102	40	2.74	2.39
14F2960	110-50001-102	50	3.26	2.86
P.C. St. Brass Pins—94V-0 Insul.				
14F2961	110-20001-101	20	1.44	1.26
14F2962	110-26001-101	26	1.86	1.62
14F2963	110-40001-101	40	2.74	2.39
14F2964	110-50001-101	50	3.26	2.86





INTRA-CONNECTOR & INTRA-SWITCH

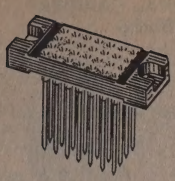
Insulator is glass-filled polyester. Contacts are nickel-silver alloy 770. Mates with standard dual-row female flat cable plugs and header assemblies.

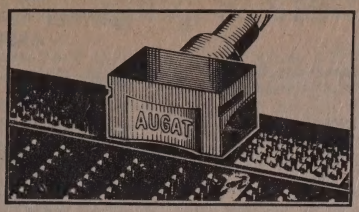
Stk. No.	Type	Contacts	1-99	100-499
INTRA-CONNECTOR				
14F2986	110-20006-301	20	6.10	5.35
14F2987	110-26006-301	26	7.00	6.15
14F2988	110-34006-301	34	8.20	7.20
14F2989	110-40006-301	40	9.15	8.00
14F2990	110-50006-301	50	10.65	9.35
INTRA-SWITCH				
14F2991	110-20005-301	20	12.20	10.65
14F2992	110-26005-301	26	14.00	12.25
14F2993	110-34005-301	34	16.44	14.40
14F2994	110-40005-301	40	18.25	16.00
14F2995	110-50005-301	50	21.30	18.65

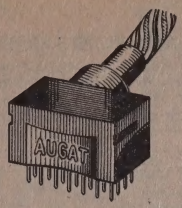
12

Plug Assemblies and Accessories

AUGAT®





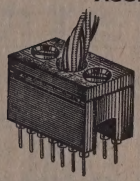


HIGH-DENSITY SOCKETS

28 contacts. Greater I/O density, visual polarization. Insulator: UL rated 94V-0 thermoplastic polyester. Terminals: gold-over nickel-plated brass. Female contact: beryllium copper, gold- over nickel-plated.

Stk. No.	Type	Sleeve Plating	1-99	100-499	500-999
Wire Wrap, 3-level and (*) 2-level					
65F1552	528-AG24F	Gold	3.42	2.99	2.68
65F1553	528-AG25F	Tin	3.11	2.71	2.43
65F1554	528-AG26F	Gold	3.42	2.99	2.68
65F1555	528-AG27F	Tin	3.11	2.77	2.43
Printed Circuit					
65F1556	528-AG28D	Gold	2.33	2.04	1.83
65F1557	528-AG29D	Tin	2.13	1.87	1.66

INTER-FACING PLUG ASSEMBLIES



Plug assemblies or plugs alone made of UL rated 94V-O. #26 AWG stranded tin-plated copper wire, teflon insulated. Pins are gold-plated bronze. Type numbers beginning 1P14 are 14-pin, 1P16 are 16-pin; -3T= .018 pin diameter, -4T=.023 pin diameter; 12 = 12″ length; -1= single ended, -2 = double ended. Standard crimp type connection pins except (*) solder pocket.

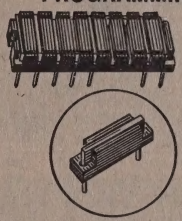
Stk. No.	Type	Desc.	1-99	100-499	500-999
65F1560	1P14-3T12-1	14-pin	5.11	4.63	3.86
65F1561	1P14-3T12-2	14-pin	8.76	7.46	7.04
65F1562	1P14-4T12-1	14-pin	5.11	4.63	3.86
65F1563	1P14-4T12-2	14-pin	8.76	7.46	7.04
65F1558	1P14-1*	Plug	1.73	1.52	1.34
65F1559	1P14-3	Plug	1.54	1.36	1.19
65F1566	1P16-3T12-1	16-pin	6.08	5.07	4.78
65F1567	1P16-3T12-2	16-pin	10.24	8.72	8.22
65F1568	1P16-4T12-1	16-pin	6.08	5.07	4.78
65F1569	1P16-4T12-2	16-pin	10.24	8.72	8.22
65F1564	1P16-1*	Plug	2.04	1.83	1.57
65F1565	1P16-3	Plug	1.84	1.61	1.42

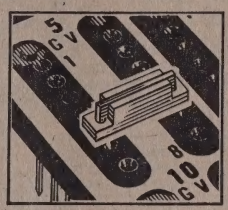
HIGH DENSITY PLUGS

28-pin plug assembly is compatible with I.C. socket panels or can be used for bulkhead mounting. Single and double ended plug assemblies as listed in 12″ and 24″ wire lengths. Gold-plated pins. Contact Newark for price quotes on larger quantities.

Stj. No.	Type	Description	1-99
Plug Assemblies			
65F1550	9P28-2S12-1	12″ wire/sgl.	12.30
65F1551	9P28-2S24-2	24″ wire/dbl.	22.27
Plug Components			
65F1546	8136-742P1	Hood	.66
65F1547	9P28-2G1	Base w/pins	3.09
65F1548	8136-741P2	Base (only)	.09
65F1549	8136-32P6	Pin (only)	.08

PROGRAMMING JUMPER PLUG

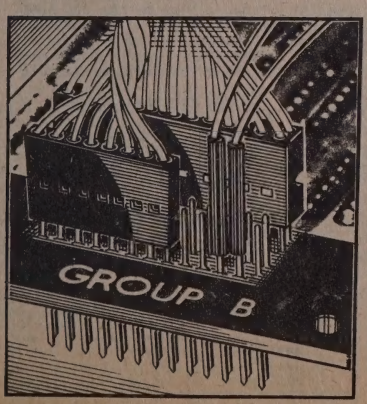




Jumper Pin Assembly spans 7.62mm/.300″ centers to connect opposing contacts in IC patterns. Insulator (available separately in 1 or 9 units) is thermoplastic polyester, UL rated 94V-0. Pins are phosphor bronze, gold over nickel-plated.

Stk. No.	Type	No. of Units	1-99	100-499	500-999
65F1584	8136-475G1	1	.35	.29	.27
65F1585	8136-475G2	2	.36	.31	.28
65F1586	8136-475G3	3	.40	.36	.31
65F1587	8136-475G4	4	.48	.42	.37
65F1588	8136-475G7	7	.67	.56	.52
65F1589	8136-475G8	8	.71	.65	.56
65F1590	8136-475G9	9	.79	.69	.62
65F1591	8136-477P1	1 (insul.)	.05	.05	.04
65F1592	8136-652P5	9 (insul.)	.09	.08	.07

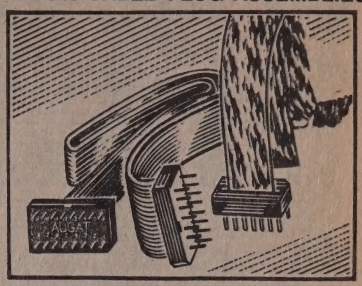
FEMALE I/O PLUG ASSEMBLIES



Female I/O plugs, (*) insulators, separate contacts, contact assemblies with 12- and 24-inch wire, single- and double-ended, and 2-contact jumper assemblies with 12-, 24-, and 36-inch wire. 12 in type number means 12″, 24 is 24″, and 36 is 36″ wire length; -2 suffix in type number denotes double-ended, otherwise assume single-ended. Contact Newark for price quotes on larger quantities.

Stk. No.	Type	Description	1-99
65F1570	6P8-1T12-1	8 con.	2.67
65F1571	6P8-1T12-2	8 con.	4.57
65F1572	6P26-1T12-1	26 cln.	8.24
65F1573	6P26-1T12-2	26 con.	14.00
65F1574	14008-5P1*	8 con.	.70
65F1575	14008-5P2*	26 con.	1.89
65F1576	14008-6P1	sep. con.	.12
65F1577	14008-6G1-12	con. assy.	.35
65F1578	14008-6G1-24	con. assy.	.37
65F1579	14008-6G1-12-2	con. assy.	.61
65F1580	14008-6G1-24-2	con. assy.	.66
65F1581	6P1-1T12-2	jum. assy.	.77
65F1582	6P1-1T24-2	jum. assy.	.79
65F1583	6P1-1T36-2	jum. assy.	.82

RIBBON CABLE PLUG ASSEMBLIES



Type numbers beginning 7P14 are 14-pin, 7P16 are 16-pin; -2T=twisted pair, -3T= flat cable; 12=12″lgth., 24=24″; -1=single ended, -2=double ended.

Stk. No.	Type	Pins	1-99	100-499	500-999
65F1530	7P14-2T12-1	14	5.48	4.81	4.29
65F1538	7P16-2T12-1	16	5.61	4.88	4.31
65F1531	7P14-2T24-1	14	5.78	5.07	4.51
65F1539	7P16-2T24-1	16	6.00	5.24	4.63
65F1534	7P14-2T12-2	14	10.47	9.17	8.19
65F1542	7P16-2T12-2	16	10.58	9.28	8.29
65F1535	7P14-2T24-2	14	19.76	9.42	8.41
65F1543	7P16-2T24-2	16	10.88	9.54	8.53
65F1532	7P14-3T12-1	14	2.47	2.17	1.93
65F1540	7P16-3T12-1	16	3.01	2.64	2.35
65F1533	7P14-3T24-1	14	2.89	2.52	2.26
65F1541	7P16-3T24-1	16	3.52	3.08	2.75
65F1536	7P14-3T12-2	14	4.34	3.81	3.41
65F1544	7P16-3T12-2	16	5.31	4.65	4.16
65F1537	7P14-3T24-2	14	4.74	4.14	3.69
65F1545	7P16-3T24-2	16	5.80	5.10	4.55

TOOL ACCESSORIES

T2P/4P-1 T114-1 T4P2050-1 T8136-6 8136-23G

SOCKET TERMINAL REPLACEMENT KITS

Type 8136-23G4 2-level wrap, gold/gold.
65F1593. NET **7.84**
Type 8136-23G1 3-level wrap. gold/gold.
65F1594. NET **7.84**

CIRCUIT PAD REMOVAL TOOL

65F1595. Type T8136-6. **NET**..... **32.96**

DIP EXTRACTOR TOOL

65F1596. Type 114-1. **NET**..... **.66**

DIP INSERTION TOOLS

Type T8136-7 Accepts 14 & 16 leads on .300″ centers.
65F1597. NET **13.58**
Type T8136-8 accepts 24 & 28 leads on .600″ centers.
65F1598. NET **16.28**
Type T8136-12 accepts 32-40 leads on .600″ centers.
65F1599. NET **16.28**

DIP WITHDRAWAL TOOLS

Type T8136-13 accepts up to 20 leads on .300″ centers.
65F1600. NET **14.85**
Type T8136-14 accepts 24-40 leads on .600″ centers.
65F1601. NET **17.60**

ASSEMBLY TOOLS FOR MALE 2P PLUGS

Type T2P1416-1 hand tool.
65F1602. NET **99.00**
Type T2P/4P-1 bench press.
65F1605. NET **250.00**
Type T2P1416-2 base plate for bench press.
65F1603. NET **25.00**

ASSEMBLY TOOLS FOR FEMALE 4P PLUGS

Type T4P2050-1 hand tool.
65F1604. NET **160.00**
Type T2P/4P-1 bench press.
65F1605. NET **250.00**
Type T4P2050-2 base plate for bench press.
65F1606. NET **25.00**

12

AUGAT®

Contacts, Fiberoptics, Component Sockets

SOCKET AND PLUG TERMINALS

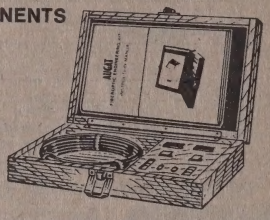
Socket Terminal. Outer sleeve: brass—gold-over nickel-plated or (*)tin- over copper-plated. Inner Contact: gold- over nickel-plated beryllium copper.

Plug Terminal. Gold- over nickel-plated brass or phosphor bronze.

Socket Terminals				EACH		
Stk. No.	Type	Lgth.	Contact	1-99	100-499	500-999
65F1898	LSG-1FG1-1	.703″	Copper	.20	.18	.14
65F1899	LSG-1FG1-14*	.703″	Copper	.16	.14	.11
65F1900	LSG-1AG2-1	.290″	Copper	.15	.13	.11
65F1901	LSG-1AG2-14*	.290″	Copper	.13	.11	.09
Plug Terminals						
65F1607	314-17P2	.670″	Bronze	.06	.05	.05
65F1608	8128-17P2	.672″	Brass	.09	.07	.07
65F1609	8128-23P2	.798″	Brass	.12	.10	.09
65F1610	8128-41P2	.477″	Bronze	.08	.07	.06
65F1611	8128-39P2	.416″	Bronze	.10	.09	.08
65F1612	8150-6P10	.923″	Bronze	.06	.05	.05

FIBEROPTIC KITS AND COMPONENTS

Kit 698-0K-001 contains 5 meter cable, emitter w/infrared-emitting diode, detector w/photo- and temp-referenced diodes, teflon sockets for emitter and detector, bracket and instruction manual (each available separately below). **Kit 698-0K-002** is same as above plus TTL-compatible preamplifier, and TTL-compatible emitter driver (both available separately as listed). Cable splice, 10 meter cable, ferrule O-ring seal, and bulkhead O-ring seal are additional optional components.



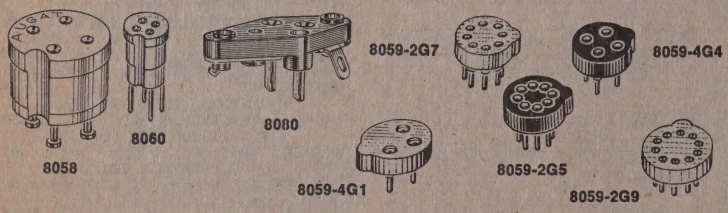
Stk. No.	Type	Description	1-4	5-9
65F1628	698-0K-001	Kit	107.46	107.46
65F1629	698-010G500	5m. Cable	51.73	44.82
65F1630	698-013EG1	Emitter	50.65	43.90
65F1631	698-014DG1	Detector	24.08	20.30
65F1634	698-1M	Instructions	5.40	5.40

Stk. No.	Type	Description	1-99	100-499
65F1860	8060-1G5	Socket	.90	.78
65F1633	698-024P2	Bracket	.70	.61

Stk. No.	Type	Description	1-4	5-9
65F1635	698-0K-002	Complete Kit	205.20	205.20
65F1636	698-020DG1	TTL Preamp.	93.85	83.16
65F1637	698-021EG1	TTL Driver	49.73	43.15
65F1639	698-010G1000	10m. cable	77.65	71.50

Stk. No.	Type	Description	1-99	100-499
65F1638	698-002P2	Cbl. Splice	.98	.86
65F1640	698-007P1	Ferr. O-Ring	.50	.44
65F1641	698-007P2	Bkhd. O-Ring	.56	.49

MISCELLANEOUS COMPONENT SOCKETS



Miniature Transistor Sockets with 3 or 4 contacts come in 3 termination styles: turret, solder pocket, and printed circuit. Those with type numbers beginning 8058 have a pin circle diameter of .200″ (5,08mm), and 8060 have diameter of .100″ (2,54mm).

Power Transistor Sockets for TO-3 outline come with one or two solder lugs. They come with electro tin contact plating and black phenolic insulation, silver contact plating and diallyl phthalate insulation, or gold-nickel contact plating and black phenolic insulation.

Transistor and IC Sockets come with red, blue, green, orange, or yellow insulators and with 3, 4, 8, or 10 contacts. They have gold-plated contacts and sleeves.

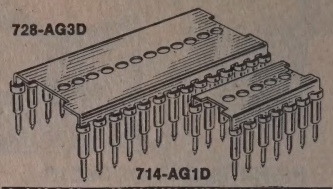
Miniature Transistor Sockets

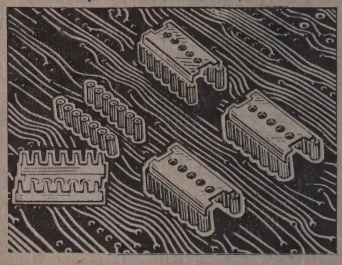
Stk. No.	Type	Description	1-99	100-499
65F1642	8058-45G1	Tur/3 cont.	.90	.78
65F1643	8058-45G2	Tur/4 cont.	1.09	.95
65F1644	8058-1G25	Tur/3 cont.	.90	.78
65F1645	8058-1G26	Tur/4 cont.	1.09	.96
65F1646	8058-1G29	SP/3 cont.	.90	.78
65F1647	8058-1G30	SP/4 cont.	1.09	.96
65F1648	8058-1G23	PC/3 cont.	.90	.78
65F1649	8058-1G24	PC/4 cont.	1.09	.96
65F1860	8060-1G5	SP/3 cont.	.90	.78
65F1861	8060-1G6	SP/4 cont.	1.10	.97
65F1862	8060-1G9	Tur/3 cont.	.90	.78
65F1863	8060-1G10	Tur/4 cont.	1.10	.97
65F1864	8060-1G11	PC/3 cont.	.90	.78
65F1865	8060-1G12	PC/4 cont.	1.10	.97
65F1866	8060-1G7	PC/3 cont.	.93	.82

Miniature Transistor Sockets (cont'd)

Stk. No.	Type	Description	1-99	100-499
65F1867	8060-1G8	PC/4 cont.	1.12	1.00
65F1868	8060-1G3	PC/3 cont.	.93	.82
65F1869	8060-1G4	PC/4 cont.	1.12	1.00
Power Transistor Sockets				
65F1870	8080-1G1	E.T./2 lug	.67	.58
65F1871	8080-1G2	Sil./2 lug	.69	.62
65F1872	8080-1G3	E.T./1 lug	.67	.58
65F1873	8080-1G4	Sil./1 lug	.69	.62
65F1874	8080-1G7	G-N/2 lug	.70	.62
Transistor and IC Sockets				
65F1875	8059-4G1	Red/3 cont.	.52	.46
65F1876	8059-2G1	Red/3 cont.	.52	.46
65F1877	8059-4G4	Blu/4 cont.	.66	.58
65F1878	8059-2G3	Blu/4 cont.	.66	.57
65F1879	8059-2G5	Grn/8 cont.	1.14	1.06
65F1880	8059-2G7	Org/8 cont.	1.14	1.06
65F1881	8059-2G9	Yel./10 con.	1.41	1.22

SOCKET TERMINAL CARRIER ASSEMBLIES

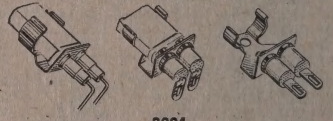




Aluminum carrier provides patterns of lead sockets for easy group insertion into PC board. Remove after wave soldering and dispose. .300″ spacing standard, (*).400″ spacing, (†).600″ spacing. Gold-plated contacts and sleeves.

Stk. No.	Type	Contacts	1-99	100-499
65F1613	706-AG1D	6	.46	.41
65F1614	708-AG1D	8	.58	.50
65F1615	714-AG1D	14	.91	.81
65F1616	716-AG1D	16	1.04	.90
65F1617	718-AG1D	18	1.16	1.03
65F1618	720-AG1D	20	1.29	1.13
65F1621	722-AG1D*	22	1.43	1.23
65F1620	724-AG1D	24	1.53	1.34
65F1619	722-AG21D	22	1.43	1.23
65F1622	724-AG21D*	24	1.53	1.34
65F1623	724-AG3D†	24	1.53	1.34
65F1624	728-AG3D†	28	1.80	1.57
65F1625	732-AG3D†	32	2.03	1.79
65F1626	736-AG3D†	36	2.28	2.00
65F1627	740-AG3D†	40	2.52	2.21

CRYSTAL SOCKET ASSEMBLIES



Standard. P.C. mounting with or without Anti-Rotate tabs. Copper holding clips. Gold-plated (*)copper or (**)bronze contacts. **Sub-Miniature.** Horizontal Mounting (HM) or Printed Circuit (PC) mounting with or without Anti-Rotate tabs. (#) Gold-plated contacts w/copper holding clip and teflon insulator or (##) cadmium-plated w/steel holding clip and nylon insulator. Type suffix -5 denotes MIL STD 242E.

Crystal Socket Assemblies

Stk. No.	Type	Description	1-99	1-499
65F1882	8000-DG1*	PC w/A-R tab	1.68	1.62
65F1883	8000-DG2-5*	PC w/oA-R tab	1.68	1.62
65F1884	8000-DG3**	PC w/A-R tab	1.43	1.36
65F1885	8000-DG4**	PC w/oA-R tab	1.43	1.36
Sub-Miniature Crystal Socket Assemblies				
65F1886	8004-1G16#	HM w/A-R tab	1.36	1.27
65F1887	8004-1G17#	HM w/oA-R tab	1.36	1.27
65F1888	8004-1G23-5#	HM w/oA-R tab	1.64	1.56
65F1889	8004-1G1#	HM w/A-R tab	1.06	.98
65F1890	8004-1G5##	HM w/A-R tab	.62	.54
65F1891	8004-1G2#	HM w/oA-R tab	1.06	.89
65F1892	8004-1G21-5#	HM w/oA-R tab	1.06	.98
65F1893	8004-1G6##	HM w/oA-R tab	.62	.54
65F1894	8004-1G3#	PC w/A-R tab	1.06	.98
65F1895	8004-1G7##	PC w/A-R tab	.62	.54
65F1896	8004-1G4#	PC w/oA-R tab	1.06	.98
65F1897	8004-1G8##	PC w/oA-R tab	.62	.54

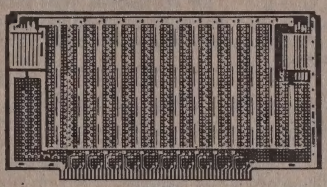
Microprocessor Interfacing Boards and Packaging Systems

Vector

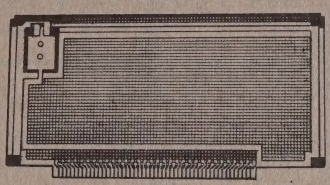
Using the boards, enclosures, and connectors listed below, users can build custom interface special circuits, and expand memories for systems using the S-100 bus, SBC80/10 or 20, or DEC, LSI11, PCP8 or 11, bus and Heath H-11 bus. Maximum flexibility is provided by the card designs offered with overall hole patterns for user mounting of DIP sockets and circuit components. Card interconnections can be easily made with conventional soldering and wire wrapping tools.

S-100 BUS PLUGBOARDS. 8800 Series boards listed below fit Altair 8800, IMSAI, and other microcomputers using the S-100 bus. All models listed are 5.313 in. high by 10.0 in. wide, by 0.0625 in. thick made from glass epoxy composite material and have 100 nickel plated gold flashed contacts on 0.125 in. centers. An overall pattern of 0.042 in. diameter holes on a 0.1 in. grid permits installing sockets and components wherever required. Buses and pads are tinned for easy solder connections. For fastest circuit construction wire wrapping is generally recommended except as noted.

Type 8800V. Front and back power and ground planes, one heat sink; mounts 52-16 pin DIPs, or 26-24 pin DIPs, or 10-40 lead DIPs plus 8-24 pin DIPs plus 4 power regulators.
38F1132. NET.....19.95

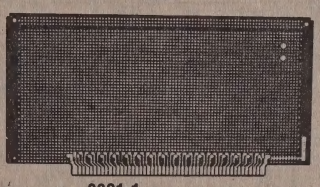

8800V

Type 8801. "Pad Per Hole" board has individual tinned pads around most holes for tack soldering sockets or components. Includes one heat sink.
65F690 NET.....19.95

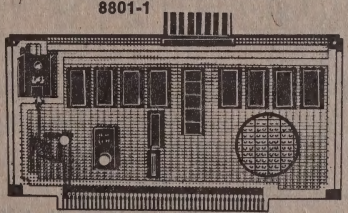

8801

Type 8801-1. Bare board with contacts for maximum flexibility.
65F691. NET.....14.95

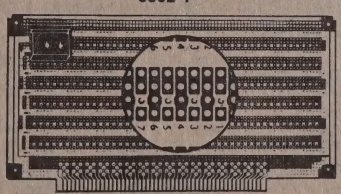
Type 8802-1. Main area of board filled with rectangular tinned pads around pairs of holes. Large peripheral buses and two rows of pads at top for ribbon. I.O. connectors best for solder construction.
65F692. NET.....21.95


8801-1

Type 8804. "Any Dip" bus pattern on front and back accepts DIPs with leads spaced 0.1 in. by 0.3 in., 0.4 in., or 0.9 in. Holds 70-16 pin DIPs or any combination of devices.
65F693. NET.....21.95


8802-1

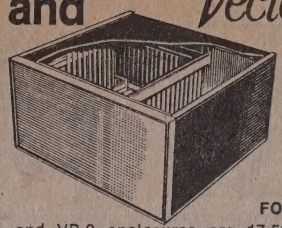
Type 4608 and 4608-1 Plugboards. Compatible with above systems. Furnished with overall pattern of 0.042″ diameter holes on 0.1″ grid for mounting DIP sockets and discrete components. Set of etched contacts with 86 fingers on 0.156″ centers. Incorporates one 60-, two 50- and one 26 etched connector with fingers on 0.1″ centers for use with flat cable connectors. Measures 12″x6.75″x .0625″. Etched circuit fingers are nickel plated & gold flashed.


8804

Type 4608. Has dual network of solder plated power buses on wiring side route power from dual TO-220 regulator pads to DIP positions. DIP with lead spacing of 0.1″ by 0.3″, 0.4″, 0.6″ and 0.9″ are accomodated. Pads from one regulator side are connected to buses; the others are unassigned.

Type 4608-1. Same size and etched connector patterns as 4608, but is supplied without pads or buses for maximum flexibility in circuit and component layout.

Stk. No.	Type	Description	EACH		
			1-4	5-9	10-24
65F695	4608	Plugboard	45.00	40.50	36.00
65F696	4608-1	Plugboard	34.00	30.60	27.20

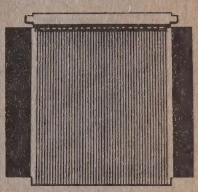


ENCLOSURES FOR 8800 SERIES

VP-1 and VP-2 enclosures are 17.58 inches wide, by 17.1 inches deep by 9.01 inches high and furnished assembled. Blue vinyl top, bottom and side aluminum covers slide off for access to interior. Front and back panels remove. Heavy chassis mounting plate is included for power supplies. Connectors or a motherboard mount on adjustable struts. Accessory back is listed which has 10 DB-25 type connector cutouts. Model VP1 case is arranged for cards to mount from side to side. VP2 case mounts cards from front to back.

Stk. No.	Type	Descript.	1-4	5-24	25 & Up
79W130	VP1	Case	163.00	146.70	138.55
79W131	VP2	Case	159.00	143.10	135.15
79W132	BP17-9	Rear Panel	9.95	8.96	8.46

Type 3690-12. S-100 board extender lifts operating cards above chassis. Has 100 etched centers and mounted connector at top to accept board being tested.
65F694. NET.....25.00

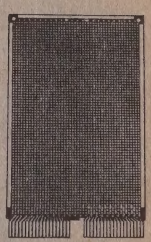

3690-12

Type 4350: Compatible with TI 980 series computer. Will hold 63 (14- or 16-pin DIPs) over power and ground buses; 6 (24-pin) and 45 (14- or 16-pin DIPs); or 40-pin DIPs anywhere by cutting one etched lead per location. Back-to-back tinned buses provide distributed decoupling capacitance. An extra zig-zag power bus on each side of board. Mating Connectors: **R680-1; R680,** lower priced version, numbering does not match 4350.

Stk. No.	Type	1-4	5-9	10-24
38F1133	4350	17.95	16.16	14.36

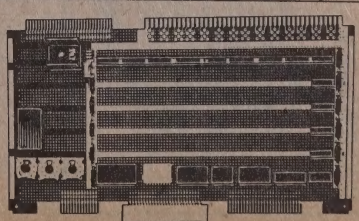
4350

Type 4607. Plugboard measures 5.19 inches wide by 8.43 inches high by 1/16 in. thick and has two sets of nickel plated gold flashed 18/36 etched contacts on 0.125 in. centers. Plugboard body has overall grid of 0.040 diameter holes on a 0.1 in grid for maximum layout flexibility of sockets and components. Solder tail or wrap post sockets. Solder or wire wrappable pins readily fit the pre-punched holes. Board material is FR4 epoxy glass G-10 laminate. Mating connector R680.
65F697. NET.....19.95


4607

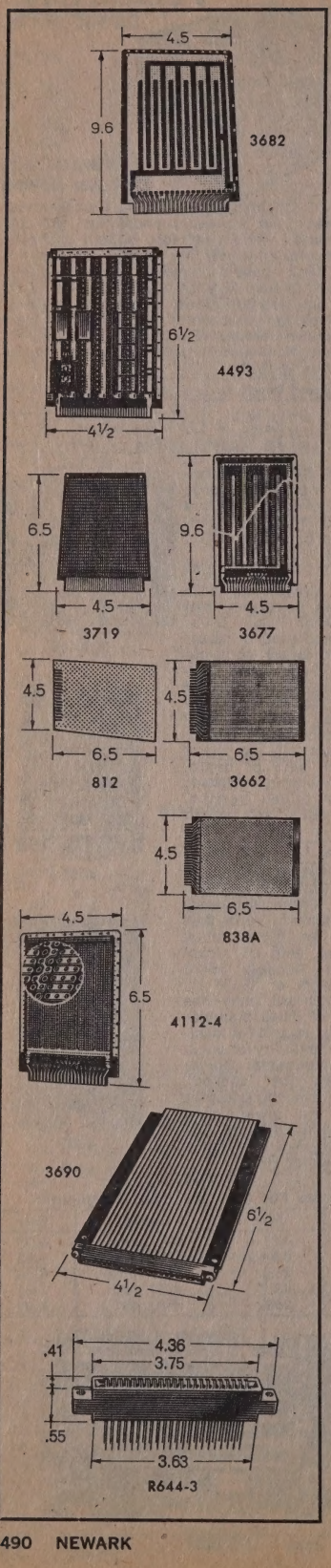
Receptacles For Microprocessor Plugboards

Stk. No.	Type	Plugbd.	Each
65F698	R681-1	8800 Series	6.52
65F699	R681-2	8800 Series	8.85
65F700	R681	8800 Series	8.20
38F1142	R680-1	4350, 4607	7.73
38F1141	R680	4350, 4607	6.22


4608

Plugbords and Connectors

Plugbords listed with the "WE" suffix indicates that the board material is FR-4 grade glass epoxy per MIL-P-18177. Boards without the "WE" suffix are FR4 type glass composite material. All plugbords are 1/16" thick and have nickel gold plated contacts. On boards with buses and/or pads, solder tinning is provided for faster and easier connections.



DIP PLUG-IN BOARDS FOR WIRE WRAP CONSTRUCTION

Boards listed have .042" dia. holes on 0.1" grid and Models 4493 and 4494 accept DIP's with leads spaced .1 by .3", .4", .6", or .9", without overlapping bus lines.

Stock No.	Type	Size	No Contacts and Spacing		Ground Plane	Mating Connector Soldertail	Mating Connector WW Tail	1-19	20-99	100-199
38F1369	3682	4.5 x 9.6	44	.156"	No	R644	R664-3	10.97	9.88	8.76
38F1370	3682-2	4.5 x 6.5	44	.156"	No	R644	R644-3	9.81	8.82	8.23
38F1371	3682-4	4.5 x 6.5	44	.156"	Yes	R644	R644-3	10.69	9.62	8.98
38F1130	4066-5	4.5 x 4.5	72	.100"	Yes	.....	R636-1	12.23	11.01	10.28
38F1131	4066-4	4.5 x 6.5	72	.100"	Yes	.....	R636-1	13.60	12.24	11.42
38F1099	3795-1	2.73 x 4.5	44	.156"	No	.....	R644-2	6.42	5.78	5.39
34F1230	3682WE-2	4½ x 6½	44	.156"	No	R644	R644-3	11.47	10.32	9.63
34F1231	4493	4½ x 6½	72	.100"	Yes	R636-2	R636-1	14.95	13.46	11.96
34F1232	4494	4½ x 6½	44	.156"	Yes	R644	R644-3	14.95	13.46	11.96

DIP PLUGBORDS WITH ETCHED MATRIX

Boards listed have .042" dia. holes on .1" grid and etched vertical lines (X) or horizontal (Y) lines on one or both sides. Models will hold 12, 14, or 16 pin DIPs, or more by cutting strips to make additional pads.

Stock No.	Type	Size	Matrix	No. Contacts	Mating Connector WW Tail	1-19	20-99	100-199
38F1094	3719-2	4.5 x 6.5	Y	72	R636-1	10.50	9.45	8.82
38F1095	3719-3	4.5 x 6.5	X-Y	72	R636-1	11.48	10.34	9.65

DIP PLUG-IN BORDS—NO MATRIX OR ETCHED BUSES

Maximum component layout flexibility is provided by these boards with an overall grid of .042" diameter holes on .1" grid and no etched bus pattern or pads except at the contact tab termination.

Stock No.	Type	Size	No. Contacts	Spacing	Ground Plane	Mating Connector Soldertail	Mating Connector WW Tail	1-19	20-99	100-199
38F1103	3719-1	4.5 x 6.5	72	.100	.....	.....	R636-1	9.08	8.17	7.62
38F1104	3719-4	4.5 x 9.6	72	.100	.....	.....	R636-1	11.20	10.08	9.42
38F1366	3662	4.5 x 6.5	44	.156	.....	R644	R644-3	7.65	6.89	6.43
38F1105	3662-2	4.5 x 9.6	44	.156	.....	R644	R644-3	11.45	10.30	9.61
38F1106	848PWE	4.5 x 6.5	35	.100	.....	R635	.....	10.05	9.04	8.44
38F1135	3673	7.88 x 9.6	80	.125	.....	.....	R680/R680-1	15.29	13.76	12.83
38F1134	3662-5	4.5 x 4.5	44	.156	.....	R644	R644-3	6.88	6.20	5.78
38F1136	3719-5	4.5 x 4.5	72	.100	.....	.....	R636-1	8.03	7.23	6.74
34F1233	3662WE	4½ x6½	44	.156	.....	R644	R644-3	8.15	7.34	6.85
34F1234	3662WE-2	4½ x9.6	44	.156	.....	R644	R644-3	11.45	10.31	9.62
34F1235	3719WE-1	4½ x6½	72	.100	.....	R636-2	R636-1	9.58	8.62	8.05
34F1236	3719WE-4	4½ x9.6	72	.100	.....	R636-2	R636-1	11.90	10.71	10.00

DIP PLUG-IN BORDS FOR SOLDER CONSTRUCTION

38F1368	3677-2	4.5 x 6.5	44	.156	No	R644	R644-3	9.74	8.78	8.19
38F1367	3677	4.5 x 9.6	44	.156	No	R644	R644-3	10.90	9.82	9.17
34F1237	3677WE	4.5 x 9.6	44	.156	No	R644	R644-3	11.60	10.44	9.74
34F1238	3677WE-2	4.5 x 6.5	44	.156	No	R644	R644-3	10.24	9.22	8.60
38F1138	4112-4	4.5 x 6.5	44	.156	Yes	R644	R644-3	13.60	12.24	11.42
38F1137	4112-5	4.5 x 4.5	44	.156	Yes	R644	R644-3	12.23	11.01	10.28
34F1239	4112WE-4	4.5 x 6.5	44	.156	Yes	R644	R644-3	14.10	12.69	11.84

CARD EXTENDERS

Allow extension of operating cards beyond cages for tests. Quality epoxy glass or glass composite, with nickel plated gold flashed plug tips and high quality top mounted connector.

Stk. No.	Type	Size	Contacts	Spacing	Net
34F1240	3690	6.5H x 4.5W	44	.156	12.00
34F1241	3690-2	11.0H x 4.5W	72	.100	16.75
34F1242	3690-6	11.0H x 4.5W	44	.156	14.90

PLUG-BORDS WITH HOLES ON ALTERNATE CENTERS

Contacts etched on .156 in. centers or installed Elco Varicon types. .062" holes on alternate .1" centers. Nickel plated gold contacts.

Stock No.	Type	Size	Contact Type	No. Contacts	Spacing	Connector	1-19	20-99	100-199
38F482	837WE	3 x 4.5	Varicon	12	.2	R612-1	4.14	3.72	3.47
38F483	812WE	4.5 x 6.5	Varicon	16	.2	R616-1	5.63	5.08	4.74
38F395	848WE	4.5 x 6.5	Varicon	35	.1	R635	9.75	8.77	8.17
38F1080	838WE	4.5 x 6.5	Etched	43	.156	R644	6.50	5.89	5.46
38F1081	838WE-1GN	4.5 x 6.5	Etched	43	.156	R644	8.55	7.69	7.18
38F1082	838AWE-1GN	4.5 x 6.5	Etched	22	.156	R644	7.39	6.56	6.22

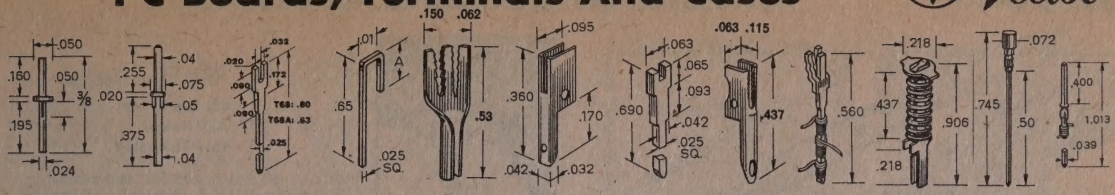
RECEPTACLES FOR VECTOR PLUGBORDS

Stock No.	Type	Contact Tail	O/A Lgth.	Mtg. Hole Ctrs.	1-24	25-49	50-99	100-249
38F397	R612-1	Solder	3.15	2.88	6.88	.....	.....	.....
38F396	R616-1	Solder	3.95	3.68	8.20	.....	.....	.....
38F1107	R635	Solder	4.21	3.93	10.75	.....	.....	.....
38F487	R644	Solder	4.36	4.03	3.32	3.32	2.99	2.58
38F1139	R644-2	WW	3.11	2.85	5.46	4.97	4.48	.....
38F1141	R680	WW	5.85	5.55	6.22	5.28	4.36	.....
38F1142	R680-1	WW	5.85	5.55	7.73	.....	.....	.....
38F1143	R636-1	WW	4.44	4.175	6.96	5.91	4.87	.....

					1-49	50-199	200-499	500-999
38F1140	R644-3	WW	4.36	4.03	4.71	4.24	3.31	.....

PC Boards, Terminals And Cases

Vector



K27 K24 T68 K32 T9.4 T42-1 T44 T28 T49 T30N-2 R32 T46

XXXP PHENOLIC

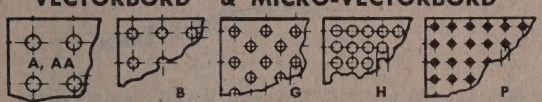
Stock No.	Type	Pattern	Size	1-19	20-99	100-199
38F1325	18A18	A	1/16x4.8x4.8"	.72	.65	.60
38F421	64A18	A	1/16x4 13/16x17"	1.58	1.42	1.32
38F422	64AA18	AA	3/32x4 13/16x17"	2.03	1.83	1.70
38F424	32AA18	AA	3/32x4 13/32x8 1/2"	1.14	1.03	.96
38F420	32AA9	AA	3/32x2.41x8 1/2"	.74	.65	.62
38F460	64AA32	AA	3/32x17x8 1/2"	3.47	3.12	2.91
38F1048	45B30	B	1/16x5.69x8.51"	1.04	.93	.88
38F1049	90B30	B	1/16x5.69x16.97"	2.28	2.00	1.91
38F393	42F22C1*	F	1/16x4 1/2 x8 1/2"	1.10	.99	.92
38F410	64P44XXP	P	6.5x4.5x1/16"	1.49	1.27	1.12
38F411	169P44XXXP	P	17x4.5x1/16"	3.51	2.97	2.63

TERMINAL INSTALLING TOOLS

Stock No.	Type	Use With	Each
34F1211	A13*	T44	2.80
34F1212	A13-1*	T68	3.95
38F1337	P122B*	T9.4	1.73
38F1338	P91A*	T28	1.96
38F1339	P149A*	T42-1	2.49
38F1340	P156*	T49	3.35
38F1341	P92A*	T3ON-2*	.67
38F1382	D9+	R32	3.86
38F412	P133A+	T46	2.89
38F406	D8+	T49	3.86
38F407	D7-2+	K24	7.30

*Manual Insertion Tool. (+) Die Points used with P158 Tool.

VECTORBORD® & MICRO-VECTORBORD®



Phenolic-MIL Spec PBE-P per L-P-513 NEMA gr. FR2. Copper-clad phenolic meets NEMA FR2, 1 oz. Paper Epoxy-MIL Spec P-22324 type PEE NEMA gr. FR3. Copperclad FL-PX per Mil-P-13949 NEMA gr. FR3. Epoxy Glass—for P pattern boards with WE suffix Unclad: MIL Spec MIL-P-18177 type GEE NEMA grades FR4, GLO. Color: Green. Best mechanical characteristics. For other glass epoxy boards—FR4 type, max. temp. 130°C. Color: Blue, best hole quality in epoxy glass; can plate through in clad material. *1 side copper clad. **2 sides copper clad.

EPOXY PAPER

Stock No.	Type	Pattern	Size	1-19	20-99	100-199
38F423	64AA18EP	AA	3/32x4 13/16x17"	3.70	3.33	3.11
38F425	64AA32EP	AA	3/32x17x8 1/2"	6.54	5.89	5.49
38F426	85F24EP	F	1/16x4 13/16x17"	2.74	2.46	2.31
38F1047	85F42EP	F	1/16x8 1/2 x17"	4.75	4.27	3.99
38F427	85G24EP	G	1/16x4 13/16x17"	2.74	2.46	2.31
38F459	85G42EP	G	1/16x17x8 1/2"	4.75	4.27	3.99
38F1372	64P44-EP	P	1/16x4 1/2 x6 1/2"	1.95	1.75	1.64
38F1373	169P44-EP	P	1/16x4 1/2 x17"	4.42	3.99	3.72
38F1374	64P44-EPC1*	P	1/16x4 1/2 x6 1/2"	2.53	2.28	2.12
38F1375	64P44-EPC2**	P	1/16x4 1/2 x6 1/2"	2.70	2.44	2.28

BOARD PATTERNS

Patterns	A, AA	B	F	G	H	P
HOLE SIZE	.093	.062	.062	.062	.062	.042
HOLE CENTERS	.265	.188	.2	.1x.2	.1	.1

MICRO-VECTORBORD TERMINALS

K24 Terminals. Knurled center body flange which holds pins.
K27 Inbord Pin. Fits "P" pattern.
T45-4 Solderless Strip Klip. For IC Breadboarding.
K32 "J" Pin. For use in .042" diameter holes.
T9.4 Zip Terminals. Fits "A" and "AA" pattern.
T42-1 Push-In Terminals. Fits "P" pattern.
T44 & T68 Mini-Wrap Terminals. Press to fit into .042" hole.
T28 Push-In Terminals. Fits "G" and "H" patterns.
T49 Push-In Terminals. Fits "P" pattern.
T30N-2 Solderless Springclip Terminal. Fits "A" or "AA".
R32 Socket Pins. Fits "P" pattern for DIP or transistor leads.
T46 Terminal. .028" Squarewrap posts.

Type	For Hole	O/A Lgth.	Pkg. 50 Stk. No.	Pkg. 50 Pkg.	Pkg. 100 Stk. No.	Pkg. 100 Pkg.	Pkg. 1000 Stk. No.	Pkg. 1000 1-4	Pkg. 1000 5-9
K27C	.025	3/8	38F398	1.09	.....	.....	38F399	17.99	16.17
K24C	.042	.650	38F400	1.49	.....	.....	38F401	16.99	15.31
K32	.042	.650	.....	.....	38F1362	1.75	38F1326	10.89	9.81
T9.4	.093	.546	.....	.....	38F1327	1.75	38F1059	13.05	10.96
T28	.062	.437	.....	.....	38F465	1.50	38F1061	11.00	9.90
T42-1	.042	.360	.....	.....	38F1363	1.50	38F1328	11.00	9.90
T44	.042	1 1/16	.....	.....	38F1364	2.28	38F1329	14.00	12.60
T49	.042	.835	.....	.....	38F1330	3.03	38F1331	17.68	17.68
T3ON-2	.093	.906	.....	.....	38F1332	9.62	38F1065	64.70	60.38
R32	.042	.745	.....	.....	38F1040	14.90	38F1039	107.07	101.64
T46	.042	.74	.....	.....	34F1213	3.42	34F1214	25.41	22.88
T68	.042	.80	.....	.....	34F1215	2.28	34F1216	16.00	14.40
T68A	.042	.63	.....	.....	34F1217	2.28	34F1218	14.00	12.60
T44-1	.042	1 1/16	.....	.....	34F1219	3.50	34F1220	24.00	21.60
T46-1	.042	.74	.....	.....	34F1221	5.73	34F1222	42.13	37.92

NOTE: Types with "-1" endings are Gold alloy all others are tin.

EPOXY GLASS

Stk. No.	Type	Pattern	Size	1-19	20-99	100-199
38F463	64A18WE	A	1/16x4 13/16x17"	4.26	3.83	3.58
38F391	42G22WEC1*	G	1/16x4 1/2 x8 1/2"	3.19	2.88	2.57
38F390	42G22WEC2**	G	1/16x4 1/2 x8 1/2"	3.49	3.13	2.93
38F1050	42G24WE	G	1/16x4.8x8.5"	2.15	1.94	1.81
38F464	85G24WE	G	1/16x4 13/16x17"	4.76	4.27	4.00
38F1051	85G42WE	G	1/16x8.5x17"	6.78	6.10	5.69
38F1053	169P59/032	P	1/32x17x6"	6.05	5.50	5.23
38F1336	85H85WE	H	1/16x8.5x8.5"	5.59	5.04	4.70
38F1383	170H85WE	H	1/16x17x8.5"	10.46	9.40	8.78
38F1019	170H48WE/032	H	17x4 13/16x1/32"	4.28	3.85	3.60
38F1070	170H48WE	H	17x4 13/16x1/16"	5.08	4.58	4.26
38F1384	59P19-032	P	1/32x6x2"	.99	.88	.83
38F1385	59P44-032	P	1/32x6x4 1/2"	1.65	1.52	1.41
38F1386	169P59-047	P	3/64x6x17"	6.33	5.78	5.50
38F1376	64P44	P	6 1/2 x4 1/2 x1/16"	1.70	1.53	1.43
38F1377	169P44	P	17x4 1/2 x1/16"	4.30	3.87	3.61
38F1378	169P44C1*	P	17x4 1/2 x1/16"	5.95	5.36	5.00
38F1379	169P44C2**	P	17x4 1/2 x1/16"	7.25	6.51	6.09
38F408	85H48WE	H	8.5x4.8x1/16"	2.52	2.28	2.11
38F409	169P84	P	17x8.5x1/16"	7.65	6.89	6.43
34F1223	64P44WE	P	1/16x6.5x4.5"	1.97	1.77	1.65
34F1224	84P44WE	P	1/16x8.5x4.5"	2.44	2.20	2.05
34F1225	169P44WEC1*	P	1/16x17x4.5"	6.48	5.83	5.84
34F1226	169P44WE	P	1/16x17x4.5"	4.80	4.32	4.03
34F1227	169P79WE	P	1/16x17x8"	7.60	6.84	6.38
34F1228	169P84WE	P	1/16x17x8.5"	8.60	7.74	7.22
34F1229	169P84WEC1*	P	1/16x17x8.5"	11.30	10.17	9.49

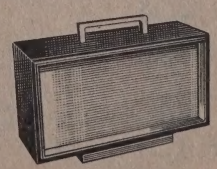
MULTI-MOD CASES

CLEAR ANODIZED ASSEMBLED MULTI MOD CASES

Stock No.	Type	Width Inches	Length Inches	Height Inches	Holds Card or Chassis Plate	Each 1-49	Each 50-199
38F1391	W20-46-31B	2.0	4.61	3.10	4.50 x 2.98	4.25	3.83
38F1392	W20-66-46B	2.0	6.61	4.61	6.50 x 4.50	5.20	4.66
38F1393	W30-66-46B	3.0	6.61	4.61	6.50 x 4.50	6.33	5.71
38F1394	W30-86-46B	3.0	8.61	4.61	8.50 x 4.50	7.06	6.37
38F1395	W45-66-46B	4.5	6.61	4.61	6.50 x 4.40	8.27	7.46
38F1396	W45-86-46B	4.5	8.61	4.61	8.58 x 4.50	9.34	8.45
38F1397	W45-10-46B	4.5	10.0	4.61	9.88 x 4.50	10.93	9.85

DUAL TONED ASSEMBLED MULTI-MOD CASES WITH BEZELS

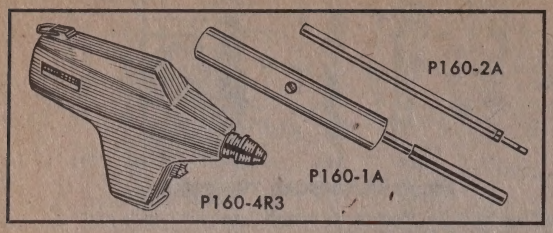
Stock No.	Type	Width In.	Lgth. In.	Ht. In.	Hold Card	Frame Color	Side Panel Finish	Bezel Color	Each 1-49	Each 50-199
38F1398	W20-46-31-1	2.0	4.61	3.10	4.50x2.98	Gold Anod.	Gold Anod.	Alum. Blk.	9.09	8.18



Made from sleek extruded aluminum with four grooved interior surfaces which hold 1/16" circuit card chassis plates without need of additional fasteners. One surface is fastened with four screws. Two side panels may be punched for meters, switches, etc.

12

Circuit Builders Tools



WIRE WRAPPING TOOLS

Type P160-2A manual tool for making solderless wrapped connections. Hardened bit insures long life. Effective radius of .070" permits working on terminals spaced 0.1" apart. Will wrap 0.025"-0.028" sq. Wrap-Posts (standard Vector terminals), and its 0.56" minimum post hole depth permits multi-level wrap capability. Wire sizes range from 26 ga. through 30 ga., with 28 ga. (0.0129" dia.) preferred. Tool may be used for wrapping bare wire point-to-point, or for continuous strapping using bare wire fed through the back of the tool.

Type P160-1A Dual-Way Unwrap Tool slips over terminal and is turned to unwrap wire which was wrapped either right or left.

Type P160-4R convenient right-hand rechargeable Electro-Tool. Lightweight unit (9 oz.) accepts the P160-2A Manual Wrapping tool in its chuck. Sturdy, shock-resistant, high torque P160-4R is shaped in a straight configuration, convenient for working on horizontal as well as vertical panels. Just a touch of the switch on its side with the index finger provides 6 to 8 gas-tight wraps. May be used remotely without cord for many hours without recharging—or may be used with cord to extend its working time.

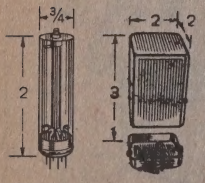
Stk. No.	Type	Description	1-4	5-9
38F367	P160-2A	Manual Wrapping Tool	7.95	7.15
38F368	P160-4R3	Power Wrapper With Recharger	45.68	41.48
38F369	P160-1A	Manual Unwrapping Tool	9.50	.....
38F370	P160-9	Combination Wrap-Unwrap Tool	18.40	.....
38F373	2323A-28-3	50' Wrapping Wire	1.74	.....
38F374	2323A-28-4	50' Wrapping Wire, Kynar Insulated	2.02	.....

12

SPRING IMPACT TOOL & ACCESSORIES

Spring loaded installing tool delivers an adjustable striking force of 18 to 34 lbs. to a terminal anvil or installing die screwed into the end. Ideal for production terminal and wrap-post installation because of the uniform striking pressure resulting in well-seated terminals. Adapts to any drill or arbor press accepting a ½" shank furnished on the P158-1 Adapter.

Stk. No.	Type	Description	Each
38F1380	P158	Spring Impact Insertion Tool	15.75
38F375	P96C-2	Holder To Adapt Die Point	2.63
38F376	P96C-1	Anvil Base	7.70
38F377	P158-1	Holder To Adapt P158	9.19



G2.2-8 C12K1.02

MODULAR PLUG IN UNITS

For building plug in circuits for tube sockets. Furnished with 7 pin miniature, 8 pin octal, or 9 pin noval plug and aluminum covers plus internal mounting structures for some models. Covers attached with side screws.

Stk. No.	Type	Description	1-49	50-199	200-499
38F1109	G2.2-8	⅝" dia. x 2" H. with 7-pin miniature plug, spacers & screws	1.70	1.52	1.19
38F595	C12K1.02	2" sq. x 3" H. 8-pin octal bakelite plug, two .136 diag. opp. holes in base	1.77	1.59	1.24

55X KIT

- **Snap-in Spools**
- **Lightweight**
- **Easy Threading**

Includes all materials for pencil wiring. Kit contains: P178-1 wiring pencil, 400' of 36 gauge tinned solder thru wire, 120' spooled tinned bare 30 gauge wire, Blue Microvectorbord 8" x 4.5" x 1/16" thick, 20 wiring spacers, 100 T42-1 solderable push-in terminals, foam support blocks, terminal installation tool, chisel knife and forming tool. Comes with complete set of instructions.

34F1210. NET **13.90**

Replacement parts for the 55X Kit:

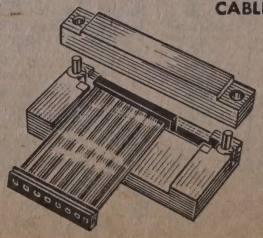
Stk. No.	Type	Description	1-4	5-9
25F790	P178-1	Wiring Pencil with Wire	7.95	7.16
38F381	P179WS3	3.6" plastic wiring spacers. (Pkg./20)	2.40	.....
25F791	W36-4A	Pkg. 2 Green 36 gauge 400' spools.	2.75	.....
25F792	W36-4B	Pkg. 2 Red 36 gauge 400' spools.	2.75	.....
25F793	W36-4C	Pkg. 2 Clear 36 gauge 400' spools.	2.75	.....
34F1209	W32-4B	Pkg. 2 Red 32 gauge 200' spools.	2.75	.....

SLIT-N-WRAP WIRING

Connections made much faster than with conventional tools. Holds 28 gauge insulated wire spools. Gas tight, low resistance, reliable connections are made onto .025" square posts. A special slitter in the tool tip slits open the insulation just before it's wrapped. This eliminates the need for pre-stripped wire and the usual measuring, cutting, and stripping. Bits will make approx. 10,000 wraps before replacement is required. **P180** uses .014" O.D. 28 gauge poly/nylon wire. **P184** uses .023 O.D. 28 gauge Tefzel wire.

Stk. No.	Type	Description	NET
38F385	P160-4T	Electrowrapper w/P180 & recharger.	75.00
38F384	P180	Slit-N-Wrap tool w/2 spools wire.	24.50
34F1200	P180A	Replacement Bit for P180.	12.95
38F379	P183	Chisel Knife & Forming Tool.	1.95
34F1201	P184	Manual tool w/2 spools wire.	29.50
34F1202	P184-4T	Battery powered w/Nicad battery & recharger.	89.50
34F1203	P184-4T1	110V powered tool.	99.50
34F1204	P184A	Replacement Bit for P184.	14.95
38F386	P185	Adapter: mounts P180 in P160-4R	1.25
38F387	W28-2A	100' 28 gauge green insulated wire pkg. 3	2.75
38F388	W28-2B	100' 28 gauge red insulated wire pkg. 3	2.75
38F366	W28-2C	100' 28 gauge clear insulated wire pkg. 3	2.75
38F389	W28-2D	100' 28 gauge blue insulated wire pkg. 3	2.75
34F1205	W28-6A	50' 28 gauge green Tefzel wire pkg. 2	4.18
34F1206	W28-6B	50' 28 gauge red Tefzel wire pkg. 2	4.18
34F1207	W28-6E	50' 28 gauge white Tefzel wire pkg. 2	4.18
34F1208	W28-6F	50' 28 gauge yellow Tefzel wire pkg. 2	4.18

UNIVERSAL RIBBON CABLE IDC



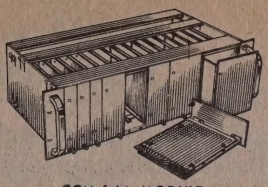
Type P187 Insulation Displacement Connector Terminating Device. Fixture terminates female IDC plugs made by Vector, Alpha, Amp, Ansley, Berg, CW, JAE, 3M, SAE in seconds. (Excluding Alpha and CW strain relief cover type plugs and Berg Type 65484 with strain relief).

35F025. NET **29.50**

Vector-Pak Packaging System

Vector

MODEL CCM-14A

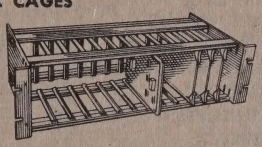


CCM-14A MODULE CAGE ASSEMBLY

Mounts intermixed circuit sizes without any guide adjustment. Card mount front panels are multiples of 1", and easily detachable for punching switch and indicator light holes in the flat. Four sizes of L-brackets may be intermixed in any order in rack mounted card cage and are provided with single jack screw for positive retention and easy installation and removal of card. Size 5¼"H x 19"W. For 4½" x 6½" cards.

Stk. No.	Type	Description	Each
38F1110	CCM-14A	Fully assembled cage, accepts modules below	50.04
38F1111	CM45A65-1	Module with 1" wide front panel	4.77
38F1112	CM45A65-2	Module with 2" wide front panel	5.47
38F1113	CM45A65-3	Module with 3" wide front panel	5.65
38F1114	CM45A65-4	Module with 4" wide front panel	6.03

MODEL CCK CAGES



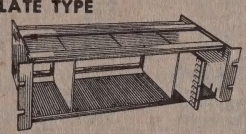
Discrete guide, all aluminum for 19" rack mtg. Supplied assembled, hold 1/16" thick, 3-4½" wide, 6.5" or 9.6" long cards. Have 21 pairs of alum. riveted guides, except types with "P" in number which have ABS plastic guides.

Stock No.	Type	Size (H"xW"xD")	EACH
38F1180	CCK13	5¼ x 19 x 9	37.48
65F1066	CCK13P	5¼ x 19 x 9	37.48
38F1116	CCK17	8¾ x 19 x 12	54.45
65F1067	CCK17P	8¾ x 19 x 12	54.45

ACCESSORIES

Stk. No.	Type	Description	Each
38F1117	HA-12	Handles for all above cages (Pkg. of 2)	3.95
38F1118	FP52-2	Filler panels for 5¼" high cages	.92
38F1119	FP87-2	Filler panels for 8¾" high cages	1.53

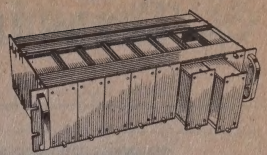
CONTINUOUS PLATE TYPE



For maximum card density and position flexibility. Extruded aluminum plates with 0.075" wide, 0.10" deep grooves on 0.150" centers are riveted to heavy aluminum cross pieces. Comes assembled.

Stock No.	Type	Size (H"xW"xD")	EACH
38F1179	CCK3	5¼ x 19 x 9	35.92
65F1065	CCK4	5¼ x 19 x 12	42.41

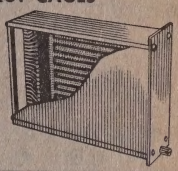
STRUT MODULE CAGES



Vector Strut module cages provide an easy way to rack mount modular aluminum cases containing circuit boards. Cages are all anodized aluminum with heavy side walls, extruded cross members and are shipped completely assembled with installed guides, ready to accept eight 2 inch or ten 1.6 inch wide aluminum EFP cases described below. Special extruded cross members at rear have preloaded 4-40 nuts for connector mounting and adjust 1.75" laterally and 1.70" vertically to accept different length connectors.

Stk. No.	Type	Description	Each
38F1356	CMA3A20	5¼"H x 19"W x 8.9" Dp assmbld. cage for 8 2"W x 6.6"L modules	62.56
38F1358	CMA3A16	5¼"H x 19"W x 8.9" Dp assmbld. cage for 10 1.6"W x 6.6"L modules	67.91
38F1184	CMA4A20	5¼"H x 19"W x 12" Dp assmbld. cage for 8 2"W x 9.7"L modules	63.99

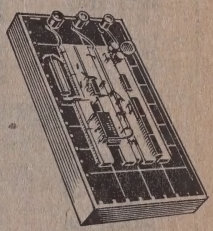
EFP MODULES FOR VECTOR STRUT CAGES



Modules accommodate 4.5"W x 6.5" or 9.6"L, or 7.98"W x 11.3"L circuit cards completely inside which mount in .150" spaced extruded grooves running lengthwise in cases. 1.6"W modules have 6 circuit card grooves; 2"W modules have 9 grooves. Module front panels are .080" thick and furnished with captive 10-32 thumb screw. Provide about 80 db of shielding.

Stock No.	Type	Description	Each
38F1185	EFP164-A6.6	Case, 1.6" wide by 6.6" long accommodates cards 4½" wide by 6½" long within unit. Fits CMA3-16.	7.57
38F1361	EFP204-A6.6	Case 2" wide by 6.6" long. Accommodates cards 4½" wide by 6½" long within unit. Fits CMA3-20.	7.79
38F1186	EFP204-A9.7	Case 2" wide by 9.7" long. Accommodates cards 4½" wide by 9.6" long within unit. Fits CMA4-20.	8.93
38F1360	EFP104-A6.6	Case 1.0" wide x 6.6" long x 4.6" high for max. card size 4½" x 6½" x 1/16".	7.39
38F1120	EFP208-A11.5	Case, 2"W x 11.5"L x 8.1"H. Accommodates cards 7.98"W x 11.31"L within unit. Fits CMA8-20.	14.76

51X KLIP-BLOK KIT. Accepts up to 12 DIPs, has 970 tie points. Has 4½" x 8" x 1/16" glass epoxy premarked Micro-Vectorbord® base, eight 24-quad (T66-96) Klip-Bloks, four 48-contact Klip-Buses installed. 3 5-way binding posts at one end. Incl. stick-on MS9A and MS10A DIP contact Marker Strips, T49-1 Adapter Pins for Klip-Bloks/Strips.
38F1123. NET **29.50**



12

PHOTO SENSITIZED BOARD

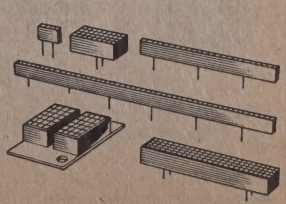
Model 32X-1 Kit contains 1 bare and 1 sensitized 4½" x 6½", 1 oz. copperclad one side, 1/16 inch thick phenolic board, etching tray, ferric chloride etchant, developer, glass exposure plate, mask cutting film, tape, brush, razor knife, set of 4 sheets rub/transfer art work, layout paper, instruction sheets.
00Z029. NET **11.50**
Model 32XA-1 Kit has total of seven 1 oz. copperclad phenolic boards; 3 boards sensitized one side, two bare boards, 2 boards sensitized 2 sides and larger assortment of other materials described in 32X-1 kit above.
00Z014. NET **28.00**

POSITIVE PHOTO SENSITIZED COPPER-CLAD BOARD

KLIP-BLOKS, KLIP-STRIPS, AND KLIP-BUSES FOR BREADBOARDING

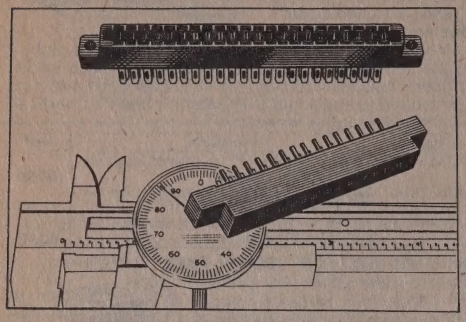
Simple insertion of components into spring clip units, make interconnections w. ordinary wire. Have 4 connected tie points (quads). Klip-Strips & Buses have quads in strips of various lengths, 4-48 tie points w. insulated casings. Klip-Bloks have nylon shell encased quads. All are spaced on 0.1" grids for IC breadboarding. Use 22 ga. wire for strapping. **Sold in Standard Packages Only.**

Stk. No.	Type	Description	Fig.	Std. Pkg.	Per Pkg.
38F1325	T45-4	Klip-Strip w/mtg. pins	A	100	12.60
38F1124	T45-24	Klip-Bus	B	2	1.77
38F1125	T45-48	Klip-Bus	C	2	2.50
38F1381	P-154-1	Insertion/removal tool for above Klip units	....	1	4.75
38F1126	T66-32	Klip-Blok (8-quad)	D	16	17.81
38F1127	T66-96	Klip-Blok (24-quad)	E	8	21.42
38F1128	P92B	Removal Prod for Bloks	....	1	.80
38F1129	T49-1	Adapter Pins for leads to .050"	....	100	3.73
38F1090	570G-1	Solderless Breadboard Socket (2 8-quad Klip-Bloks) for 14 or 16-pin DIP	....	1	3.00



Texas Instruments

.156" x .200", .125" x .250", & .100" x .200" Edgeboard Connectors



Edgeboard Connectors Featuring Gold Inlay Contacts

- Designed for electrical and mechanical "Mil-Spec" performance.
- 75 microinch gold inlay provides the most dependable, cost efficient contact possible.
- Functional/dimensional interchangeability—an industry standard.
- Contacts located on .156" x .200", .125" x .250", and .100" x .200" grid spacings.

NOTE:

1. Bifurcated contacts.
2. Preloaded cantilever spring design.
3. Contacts user removable.
4. Solder standoffs.
5. Chamfered card slot.
6. .128" clearance hole.
7. Between contact polarizing keys available.
8. Threaded inserts for mounting holes optional

MATERIALS:

A. BODY—Thermoplastic polyester, glass-filled, meeting UL Spec 94V-O.
B. CONTACT—Copper-nickel-tin alloy, CA 725.
C. FINISH—75 microinches gold (min.) on solder tail and solder eye designs and 50 microinches (min.) on wire wrap all over a nickel diffusion barrier.

*—Insulator with flush mounting ears
**—Insulator with raised ears—avail. with .125" x .250" and .100" x .200" grid spacing only.

POLARIZING KEYS

Stock No.	Description	Price per 100
47F2496	For .100/.125 center series R1164-02	3.00

Stock No.	Description	Price per 100
47F2496	For .156 center series R1164-01	3.00

.156" x .200" GRID SPACING:

(TI Solder Tail Number)*	Stock Number	(TI Solder Eye Number)**	Stock Number	Positions/ Contacts*	Net Each 1-9	10-24	25-49	50-99
H411121-10	40F4050	H411131-10	40F4055	10/20	1.25	1.23	1.21	1.17
H411121-12	40F4060	H411131-12	40F4062	12/24	1.47	1.44	1.41	1.33
H411121-15	40F4051	H411131-15	40F4056	15/30	1.82	1.78	1.73	1.59
H411121-18	40F4052	H411131-18	40F4057	18/36	2.17	2.08	1.94	1.73
H411121-22	40F4053	H411131-22	40F4058	22/44	2.63	2.47	2.24	1.92
H411121-25	40F4054	H411131-25	40F4059	25/50	2.97	2.76	2.46	2.05
H411121-28	40F4061	H411131-28	40F4063	28/56	3.33	3.09	2.76	2.30

.125" x .25 " GRID SPACING:

(TI Solder Tail Number)*	Stock Number	(TI Wire Wrap Number)**	Stock Number	Positions/ Contacts*	Net Each 1-9	10-24	25-49	50-99
H431121-22	47F2461	-	-	22/44	4.74	3.34	3.18	3.03
H431121-28	47F2462	-	-	28/56	5.58	4.00	3.81	3.64
H431121-31	47F2463	-	-	31/62	6.00	4.33	4.13	3.95
H431121-36	47F2464	-	-	36/72	6.70	4.89	4.66	4.46
H431121-40	47F2465	-	-	40/80	7.25	5.33	5.08	4.86
H431121-44	47F2466	-	-	44/88	7.81	5.77	5.51	5.27
H431121-50	47F2467	-	-	50/100	8.65	6.43	6.14	5.88
-	-	H435111-22	47F2468	22/44	4.79	3.37	3.22	3.07
-	-	H435111-28	47F2469	28/56	5.64	4.04	3.86	3.68
-	-	H435111-31	47F2470	31/62	6.06	4.38	4.18	3.98
-	-	H435111-36	47F2471	36/72	6.77	4.94	4.72	4.49
-	-	H435111-40	47F2472	40/80	7.34	5.38	5.14	4.90
-	-	H435111-44	47F2473	44/88	7.90	5.83	5.57	5.30
-	-	H435111-50	47F2474	50/100	8.75	6.50	6.21	5.91

.100" x .200" GRID SPACING:

(TI Solder Tail Number)*	Stock Number	(TI Wire Wrap Number)**	Stock Number	Positions/ Contacts*	Net Each 1-9	10-24	25-49	50-99
H421121-18	47F2475	-	-	18/36	4.09	2.83	2.76	2.33
H421121-22	47F2476	-	-	22/44	4.64	3.26	3.16	2.66
H421121-25	47F2477	-	-	25/50	5.05	3.59	3.46	2.91
H421121-30	47F2478	-	-	30/60	5.74	4.13	3.96	3.32
H421121-31	47F2479	-	-	31/62	5.87	4.24	4.06	3.41
H421121-36	47F2480	-	-	36/72	6.56	4.78	4.56	3.83
H421121-40	47F2481	-	-	40/80	7.11	5.21	4.96	4.16
H421121-43	47F2482	-	-	43/86	7.52	5.54	5.26	4.42
H421121-50	47F2483	-	-	50/100	8.48	6.30	5.96	5.00
-	-	H425111-18	47F2484	18/36	4.14	2.86	2.78	2.35
-	-	H425111-22	47F2485	22/44	4.69	3.30	3.19	2.69
-	-	H425111-25	47F2486	25/50	5.11	3.63	3.50	2.95
-	-	H425111-30	47F2487	30/60	5.80	4.18	4.00	3.38
-	-	H425111-31	47F2488	31/62	5.94	4.29	4.11	3.46
-	-	H425111-36	47F2489	36/72	6.63	4.84	4.62	3.89
-	-	H425111-40	47F2490	40/80	7.18	5.27	5.02	4.23
-	-	H425111-43	47F2491	43/86	7.60	5.60	5.33	4.49
-	-	H425111-50	47F2492	50/100	8.57	6.37	6.04	5.09

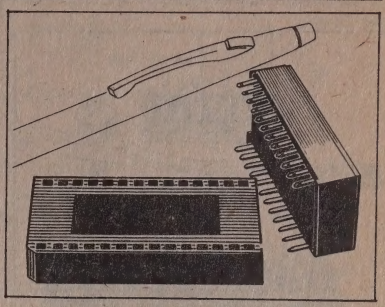
*Other sizes and styles will become available as the year progresses, please consult your local Newark sales office.

Standard Profile Dip IC Sockets

Texas Instruments

Solder Tail Sockets Featuring Edge Grip Design

- Gold inlay or tin plated contacts available.
- Edge grip design generates maximum possible contact pressure.
- Closed entry cover provided to facilitate automatic insertion and protect IC leads.



Stock No.	TI Number	No. of Pins	Dimensions			Net Each			
			Body Length	Row to Row	Max. Body Width	1-99	100-499	500-999	1000-4999
GOLD INLAY									
57F1754	C920800	8	.465	.300	.400	0.30	0.27	0.25	0.23
57F1755	C921400	14	.765	.300	.400	.40	.36	.33	.29
57F1756	C921600	16	.865	.300	.400	.46	.42	.39	.35
57F1757	C921800	18	.965	.300	.400	.51	.48	.45	.41
57F1758	C922000	20	1.065	.300	.400	.97	.64	.58	.53
57F1759	C922400	24	1.280	.600	.700	1.12	.90	.79	.67
57F1760	C922800	28	1.480	.600	.700	1.42	1.11	.95	.81
57F1761	C923600	36	1.880	.600	.700	1.62	1.37	1.22	1.08
57F1787	C924000	40	2.080	.600	.700	1.75	1.48	1.30	1.15
TIN PLATE									
40F4030	C820804	8	.465	.300	.400	0.31	0.29	0.27	0.25
57F1767	C821404	14	.765	.300	.400	.40	.36	.33	.29
57F1768	C821604	16	.865	.300	.400	.46	.42	.39	.35
57F1769	C821804	18	.965	.300	.400	.52	.48	.45	.41
47F2493	C822004	20	1.065	.300	.400	.97	.64	.58	.53
57F1770	C822404	24	1.280	.600	.700	1.09	.88	.77	.65
57F1771	C822804	28	1.480	.600	.700	1.42	1.11	.95	.81
57F1772	C823604	36	1.880	.600	.700	1.62	1.37	1.22	1.08
57F1773	C824004	40	2.080	.600	.700	1.75	1.48	1.30	1.15

NOTE:

1. Solder standoffs standard.
2. Accommodates .015″ thru .021″ rectangular or round leads.
3. Replaceable contacts.
4. Open entry design available: specify **5** instead of **0** for sixth figure in TI part number.

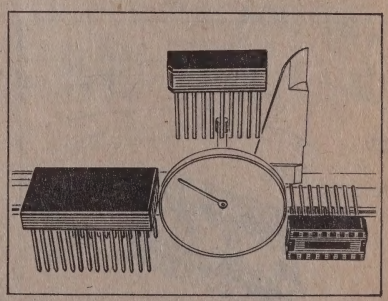
MATERIALS:

A. BODY—Glass filled nylon.
B. CONTACT—Phosphor bronze (tin plate only) or copper nickel alloy (gold inlay only).
C. FINISH—Gold inlay, 75 microinches min. or tin plate, 200 microinches min.

12

Wire Wrap Sockets Featuring Edge Grip Contact Design

- Gold inlay or tin plated contacts available.
- Closed entry cover provided to facilitate automatic insertion and protect IC leads.
- Wire wrap posts held to a true position of .015″ providing a true position of .020″ on boards for efficient automatic wrapping.



Stock No.	TI Number	No. of Pins	Dimensions			Net Each			
			Body Length	Row to Row	Max. Body Width	1-99	100-499	500-999	1000-4999
GOLD INLAY									
57F1774	C910800	8	.465	.300	.400	0.35	0.31	0.27	0.25
57F1775	C911400	14	.765	.300	.400	.60	.54	.49	.42
57F1776	C911600	16	.865	.300	.400	.64	.58	.53	.46
57F1777	C911800	18	.965	.300	.400	.68	.62	.57	.50
47F2494	C912000	20	1.065	.300	.400	1.21	1.01	.86	.76
57F1778	C912400	24	1.280	.600	.700	1.75	1.50	1.25	1.05
40F4031	C912800	28	1.480	.600	.700	2.05	1.65	1.35	1.15
57F1779	C913600	36	1.880	.600	.700	2.35	2.05	1.75	1.55
57F1780	C914000	40	2.080	.600	.700	2.45	2.17	1.94	1.73
TIN PLATE									
57F1745	C810804	8	.465	.300	.400	0.27	0.24	0.21	0.19
57F1746	C811404	14	.765	.300	.400	.50	.44	.39	.35
57F1747	C811604	16	.865	.300	.400	.54	.47	.43	.39
57F1748	C811804	18	.965	.300	.400	.56	.50	.46	.42
57F1749	C812004	20	1.065	.300	.400	.94	.79	.67	.59
57F1750	C812404	24	1.280	.600	.700	1.44	1.22	1.02	.84
57F1751	C812804	28	1.480	.600	.700	1.72	1.34	1.10	.90
57F1752	C813604	36	1.880	.600	.700	1.88	1.64	1.40	1.24
57F1753	C814004	40	2.080	.600	.700	1.96	1.74	1.55	1.38

NOTE:

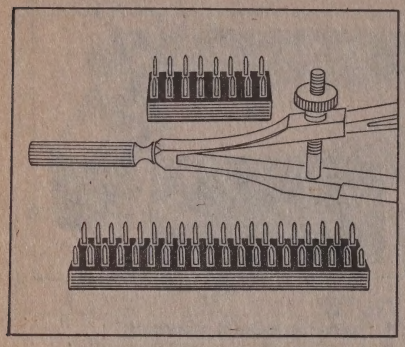
1. Replaceable contacts.
2. Accommodates .015″ thru .021″ rectangular or round leads.
3. Contact is designed and oriented to generate max. possible contact point pressure.
4. Open entry design available: specify **5** instead of **0** for sixth figure in TI part number.

MATERIALS:

A. BODY—Glass filled nylon.
B. CONTACT—Phosphor bronze (tin plate only) or copper nickel alloy (gold inlay only).
C. FINISH—50 microinches min. gold inlay or 200 microinches min. tin plate.

Texas Instruments

Low Profile Dip IC Solder Sockets



Edge Grip Style Contact Available with Gold or Tin Inlay

- Highly innovative edge grip contact design offers excellent oxidation resistance by delivering high contact point pressure.
- Exclusive inlay process puts a very thick layer of precious metal only where you need it.
- Low profile design for high density applications.

Stock No.	TI Number	No. of Pins	Dimensions			Net Each			
			Body Length	Row to Row	Max. Body Width	1-99	100-499	500-999	1000-4999
GOLD INLAY									
57F1781	C930802	8	.400	.300	.400	0.27	0.24	0.22	0.20
57F1782	C931402	14	.700	.300	.400	.33	.30	.27	.24
57F1783	C931602	16	.800	.300	.400	.38	.35	.32	.29
57F1784	C931802	18	.900	.300	.400	.43	.39	.35	.32
57F1739	C932002	20	1.000	.300	.400	.49	.44	.40	.36
57F1740	C932202	22	1.100	.400	.500	.55	.49	.44	.40
57F1785	C932402	24	1.200	.600	.700	.63	.56	.50	.45
57F1741	C932802	28	1.400	.600	.700	.74	.64	.56	.50
57F1742	C934002	40	2.000	.600	.700	.99	.91	.81	.72
TIN INLAY									
57F1792	C840802	8	.400	.300	.400	0.18	0.14	0.12	0.12
57F1793	C841402	14	.700	.300	.400	.21	.17	.14	.14
57F1794	C841602	16	.800	.300	.400	.24	.19	.16	.15
57F1795	C841802	18	.900	.300	.400	.27	.22	.19	.19
57F1743	C842002	20	1.000	.300	.400	.30	.25	.23	.21
57F1796	C842202	22	1.100	.400	.500	.33	.27	.25	.24
57F1797	C842402	24	1.200	.600	.700	.36	.30	.27	.25
57F1798	C842802	28	1.400	.600	.700	.42	.35	.33	.30
57F1744	C844002	40	2.000	.600	.700	.60	.51	.47	.43

NOTE:
1. Anti-wicking feature.
2. May be mounted end-to-end on .100" centers for maximum density.
3. Solder standoffs for easy cleaning.
4. Redundant contacts.

MATERIALS:
A. BODY—Thermoplastic meeting UL Spec 94V-O.
B. CONTACT—Copper nickel alloy.
C. FINISH—Gold inlay, 75 micro-inches min. or tin inlay, 200 microinches min.

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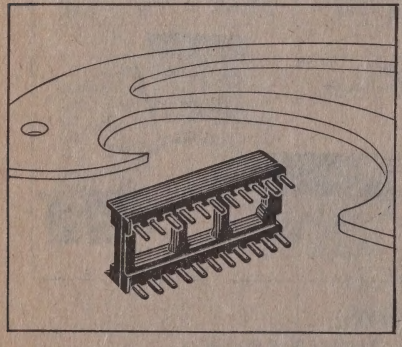


Face Grip Style Contact Available with Gold or Tin Inlay

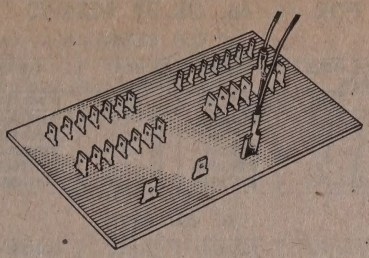
- TI's new face grip contact design insures a very high degree of retention force and vibration resistance, eliminating most vibration-induced intermittencies.
- Gold or tin inlay saves you money by putting the expensive metal only at the point of contact.
- Open body assures maximum component cooling.

Stock No.	TI Number	No. of Pins	Dimensions			Net Each			
			Body Length	Row to Row	Max. Body Width	1-99	100-499	500-999	1000-4999
GOLD INLAY									
40F4041	C950801	8	.400	.300	.400	0.27	0.24	0.22	0.20
40F4042	C951401	14	.700	.300	.400	.33	.30	.27	.24
40F4043	C951601	16	.800	.300	.400	.38	.35	.32	.29
40F4044	C951801	18	.900	.300	.400	.43	.39	.35	.32
40F4045	C952001	20	1.000	.300	.400	.49	.44	.40	.36
40F4046	C952201	22	1.100	.400	.500	.55	.49	.44	.40
40F4047	C952401	24	1.200	.600	.700	.63	.56	.50	.45
40F4048	C952801	28	1.400	.600	.700	.74	.64	.56	.50
40F4049	C954001	40	2.000	.600	.700	.99	.91	.81	.72
TIN INLAY									
40F4032	C850801	8	.400	.300	.400	0.18	0.14	0.12	0.12
40F4033	C851401	14	.700	.300	.400	.21	.17	.14	.14
40F4034	C851601	16	.800	.300	.400	.24	.19	.16	.15
40F4035	C851801	18	.900	.300	.400	.27	.22	.19	.19
40F4036	C852001	20	1.000	.300	.400	.30	.25	.23	.21
40F4037	C852201	22	1.100	.400	.500	.33	.27	.25	.24
40F4038	C852401	24	1.200	.600	.700	.36	.30	.27	.25
40F4039	C852801	28	1.400	.600	.700	.42	.35	.33	.30
40F4040	C854001	40	2.000	.600	.700	.60	.51	.47	.43

NOTE:
1. Built-in anti-wicking feature.
2. May be mounted end-to-end and side-by-side for maximum density.
3. Large opening and high standoffs provided to facilitate automatic IC insertion.
4. Redundant contacts.

MATERIALS:
A. BODY—Glass reinforced polyester, UL rated 94V-O.
B. CONTACT—Copper nickel alloy.
C. FINISH—Gold inlay, 75 micro-inches min. or tin inlay, 200 microinches min.

PC BOARD DISCONNECT TABS



- Mating tab portion designed in compliance with NEMA standards
- Mates with any standard female quick connect
- Tab configuration requires a minimum amount of space for mounting
- All tabs have a .000050 nickel pre-plate and .0001 min. electro-tin plate on brass tab

Printed circuit tabs answer a long sought-after need for an economical space-saving tab concept for terminating wire leads to printed circuit boards. Cost less than special pin and socket contacts and provide standardization. Direct labor cost savings—no need to top-solder the board. Male, quick-disconnect. All tab sizes are interchangeable in pre-drilled boards. Recommended mounting hole .046" dia., #56 drill or .052" dia., #55 drill, depending upon board type and thickness.

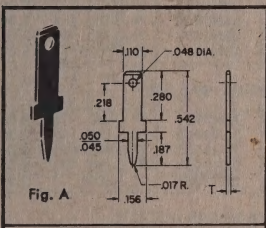


Fig. A

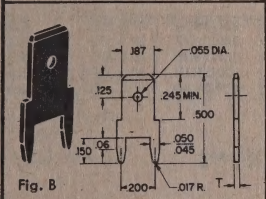


Fig. B

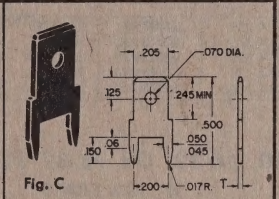


Fig. C

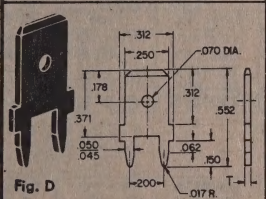


Fig. D

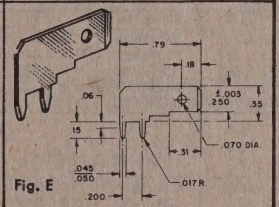


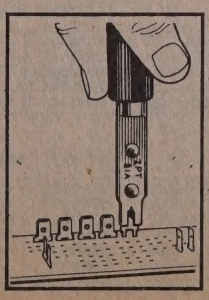
Fig. E

Stk. No.	Type	Fig.	Thickness	PER PKG.—100 1-9	10-Up
16N1000	PCT-1102	A	.020	2.75	1.80
16N1001	PCT-1103	A	.032	2.75	1.80
16N1002	PCT-1802	B	.020	2.75	1.80
16N1003	PCT-1803	B	.032	2.75	1.80
16N1004	PCT-2002	C	.020	2.75	1.80
16N1005	PCT-2003	C	.032	2.75	1.80
16N1006	PCT-2503	D	.032	2.75	1.80
23N3663	PCTL-2503	E	.032	4.25	2.94

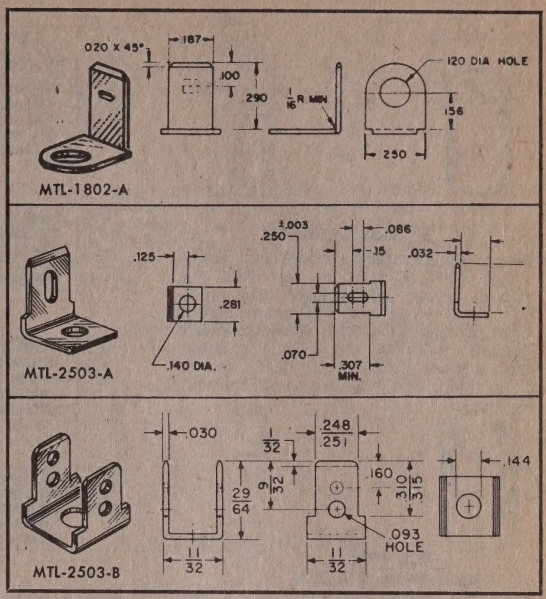
UNIVERSAL HAND TOOL

Type 8404-500. For small-quantity jobs. Inserts advanced-design P.C. board disconnect male tabs into pre-drilled boards. Tabs can be inserted straight or peened over for greater retention. Close spacing is possible. One tool accommodates all tab sizes: .110", .187", .205", and .250", in all thicknesses.

16N1007. NET.....39.00



MALE TABS FOR RIVET OR SCREW MOUNTING



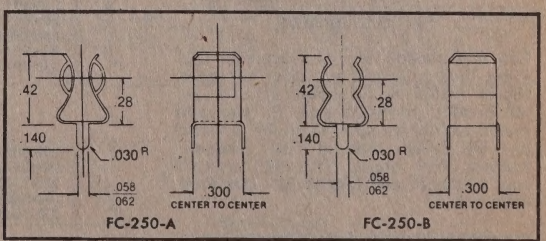
- **Designed to NEMA standards and UL 310 standards**
- **Good solderability**

MTL-1802-A is .187 wide tab of .020 thick brass. Mounting hole is .120 for #4 screw.
MTL-2503-A is .250 wide tab of .032 thick brass, electro-tin plated. Mounting hole is .144 to aocommodate a #6 screw.
MTL-2503-B is a double .250 wide male tab of .032 brass, electro-tin plated. Mounting hole is .144 for a #6 screw.

Stk. No.	Type	Per Pkg. of 100 1-9	10-Up
23N3664	MTL-1802-A	3.30	2.10
23N3665	MTL-2503-A	3.40	2.10
23N3666	MTL-2503-B	4.25	2.80

12

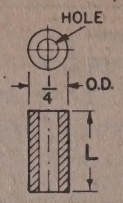
PC BOARD MOUNTED FUSE CLIPS



Clips accommodate ¼" (.250) diameter fuses. Material is hot tin plated .020 brass. Tails are on standard .300 centers.

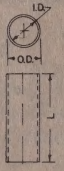
Stock No.	Type	Std. Pkg.	Price Per Package of 100 1-9	10-Up
23N3667	FC-250-A	100	4.50	3.48
23N3668	FC-250-B	100	3.75	2.25

CLEARANCE HOLE SPACERS FOR #4, #6, OR #8 SCREWS



¼" O.D. SPACERS

Nickel plated brass spacers per MIL-F-14072 QQ-N-290 type VII. Seamless aluminum spacers iridite finish per MIL-C-5541. Phenolic spacers PBE grade, natural color. Excellent dielectric strength. Plastic spacers polyvinyl dichloride providing: high thermal resistance (to 225°F), self-extinguishing, and high dielectric strength.



ECONOMY ALUMINUM SPACERS

Material is 5052-H34 aluminum per QQ-318C. Spacers are rolled flat strip aluminum assuring maximum bearing surface, square ends, and no burrs. Approximate O.D.s: 1⅛₄" for #4, 3⁄16" for #6, 1⅝₄" for #8.

¼" O.D. BRASS

L	CLEARANCE HOLE #4 SCREW		CLEARANCE HOLE #6 SCREW		CLEARANCE HOLE #8 SCREW		Pkg. of
	Stock No.	Type	Stock No.	Type	Stock No.	Type	100
¼"	23N3851	RB-4-250	23N3856	RB-6-250	23N3861	RB-8-250	7.00
⅜"	23N3852	RB-4-375	23N3857	RB-6-375	23N3862	RB-8-375	8.40
½"	23N3853	RB-4-500	23N3858	RB-6-500	23N3863	RB-8-500	9.40
¾"	23N3854	RB-4-750	23N3859	RB-6-750	23N3864	RB-8-750	14.50
1"	23N3855	RB-4-1000	23N3860	RB-6-1000	23N3865	RB-8-1000	18.60

¼" O.D. FIBER

¼"	23N3896	FS-4-250	23N3901	FS-6-250	23N3906	FS-8-250	6.30
⅜"	23N3897	FS-4-375	23N3902	FS-6-375	23N3907	FS-8-375	7.80
½"	23N3898	FS-4-500	23N3903	FS-6-500	23N3908	FS-8-500	9.20
¾"	23N3899	FS-4-750	23N3904	FS-6-750	23N3909	FS-8-750	12.60
1"	23N3900	FS-4-1000	23N3905	FS-6-1000	23N3910	FS-8-1000	15.50

¼" O.D. SEAMLESS ALUMINUM

¼"	23N3800	RA-4-250	23N3805	RA-6-250	23N3810	RA-8-250	6.00
⅜"	23N3801	RA-4-375	23N3806	RA-6-375	23N3811	RA-8-375	7.00
½"	23N3802	RA-4-500	23N3807	RA-6-500	23N3812	RA-8-500	8.00
¾"	23N3803	RA-4-750	23N3808	RA-6-750	23N3813	RA-8-750	10.00
1"	23N3804	RA-4-1000	23N3809	RA-6-1000	23N3814	RA-8-1000	12.00

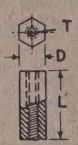
ECONOMY, BUTTED SEAM ALUMINUM SPACER

¼"	23N3941	RS-4-250	23N3946	RS-6-250	23N3951	RS-8-250	2.05
⅜"	23N3942	RS-4-375	23N3947	RS-6-375	23N3952	RS-8-375	2.30
½"	23N3943	RS-4-500	23N3948	RS-6-500	23N3953	RS-8-500	2.55
¾"	23N3944	RS-4-750	23N3949	RS-6-750	23N3954	RS-8-750	2.65
1"	23N3945	RS-4-1000	23N3950	RS-6-1000	23N3955	RS-8-1000	2.90

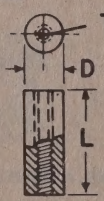
¼" O.D. CPVC PLASTIC

¼"	23N3926	RP-4-250	23N3931	RP-6-250	23N3936	RP-8-250	4.09
⅜"	23N3927	RP-4-375	23N3932	RP-6-375	23N3937	RP-8-375	4.37
½"	23N3928	RP-4-500	23N3933	RP-6-500	23N3938	RP-8-500	4.57
¾"	23N3929	RP-4-750	23N3934	RP-6-750	23N3939	RP-8-750	5.11
1"	23N3930	RP-4-1000	23N3935	RP-6-1000	23N3940	RP-8-1000	5.65

THREADED SPACERS FOR #4-40, #6-32, OR #8-32 SCREWS



¼" HEX SPACER



¼" O.D. SPACER

Cadmium plated brass hex spacers per QQ-P-416 Type 2 Class B and clear chromate. Nickel plated round brass spacers per MIL-F-14072 QQ-N-290 type VII. Hex and round aluminum spacers iridite finished per MIL-C-5541. Natural color phenolic spacers PBE grade. Threaded spacers over 1" length and tapped ⅜" deep from each end.

CONTACT NEAREST NEWARK FACILITY FOR LARGER QUANTITY PRICES

¼" HEX BRASS

L	#4-40 THREAD		#6-32 THREAD		#8-32 THREAD		Pkg. of
	Stock No.	Type	Stock No.	Type	Stock No.	Type	100
¼"	23N3881	HTB-4-250	23N3886	HTB-6-250	23N3891	HTB-8-250	8.70
⅜"	23N3882	HTB-4-375	23N3887	HTB-6-375	23N3892	HTB-8-375	10.60
½"	23N3883	HTB-4-500	23N3888	HTB-6-500	23N3893	HTB-8-500	12.40
¾"	23N3884	HTB-4-750	23N3889	HTB-6-750	23N3894	HTB-8-750	19.30
1"	23N3885	HTB-4-1000	23N3890	HTB-6-1000	23N3895	HTB-8-1000	22.80

¼" O.D. BRASS

¼"	23N3866	RTB-4-250	23N3871	RTB-6-250	23N3876	RTB-8-250	8.00
⅜"	23N3867	RTB-4-375	23N3872	RTB-6-375	23N3877	RTB-8-375	9.50
½"	23N3868	RTB-4-500	23N3873	RTB-6-500	23N3878	RTB-8-500	12.40
¾"	23N3869	RTB-4-750	23N3874	RTB-6-750	23N3879	RTB-8-750	18.00
1"	23N3870	RTB-4-1000	23N3875	RTB-6-1000	23N3880	RTB-8-1000	21.00

¼" O.D. FIBER

¼"	23N3911	PTS-4-250	23N3916	PTS-6-250	23N3921	PTS-8-250	9.40
⅜"	23N3912	PTS-4-375	23N3917	PTS-6-375	23N3922	PTS-8-375	12.00
½"	23N3913	PTS-4-500	23N3918	PTS-6-500	23N3923	PTS-8-500	13.40
¾"	23N3914	PTS-4-750	23N3919	PTS-6-750	23N3924	PTS-8-750	17.70
1"	23N3915	PTS-4-1000	23N3920	PTS-6-1000	23N3925	PTS-8-1000	21.00

¼" HEX ALUMINUM

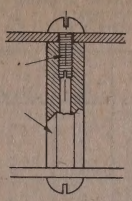
½"	23N3836	HTA-4-250	23N3841	HTA-6-250	23N3846	HTA-8-250	8.00
⅜"	23N3837	HTA-4-375	23N3842	HTA-6-375	23N3847	HTA-8-375	9.00
½"	23N3838	HTA-4-500	23N3843	HTA-6-500	23N3848	HTA-8-500	10.00
¾"	23N3839	HTA-4-750	23N3844	HTA-6-750	23N3849	HTA-8-750	12.00
1"	23N3840	HTA-4-1000	23N3845	HTA-6-1000	23N3850	HTA-8-1000	14.00

¼" O.D. ALUMINUM

¼"	23N3815	RTA-4-250	23N3822	RTA-6-250	23N3829	RTA-8-250	7.00
⅜"	23N3816	RTA-4-375	23N3823	RTA-6-375	23N3830	RTA-8-375	8.00
½"	23N3817	RTA-4-500	23N3824	RTA-6-500	23N3831	RTA-8-500	9.00
¾"	23N3818	RTA-4-750	23N3825	RTA-6-750	23N3832	RTA-8-750	11.00
1"	23N3819	RTA-4-1000	23N3826	RTA-6-1000	23N3833	RTA-8-1000	14.00
1½"	23N3820	RTA-4-1500	23N3827	RTA-6-1500	23N3834	RTA-8-1500	17.00
2"	23N3821	RTA-4-2000	23N3828	RTA-6-2000	23N3835	RTA-8-2000	19.00

VOLTREX brand PC Board Supplies

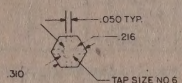
HEX SPACER/STANDOFFS



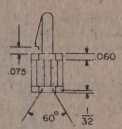
- High dielectric, self-extinguishing
- Low moisture absorption
- Resistant to chemicals
- Use with self-tapping screws
- Made from gray CPVC

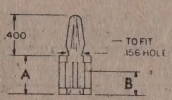
Stk. No.	Type	Screw	Hex	Length	PER PK.—100 1-9	10-49	50-99	100-249
16N1019	HSS-43	#4	3/16"	3/8"	3.62	2.16	1.72	1.50
16N1020	HSS-44	#4	3/16"	1/2"	4.34	2.59	2.06	1.79
16N1021	HSS-45	#4	3/16"	5/8"	4.59	2.74	2.18	1.90
16N1022	HSS-46	#4	3/16"	3/4"	4.83	2.88	2.30	2.00
16N1023	HSS-47	#4	3/16"	7/8"	5.11	3.04	2.43	2.11
16N1024	HSS-48	#4	3/16"	1"	5.35	3.19	2.54	2.21
16N1025	HSS-64	#6	1/4"	1/2"	4.92	2.93	2.34	2.03
16N1026	HSS-65	#6	1/4"	5/8"	5.23	3.12	2.48	2.16
16N1027	HSS-66	#6	1/4"	3/4"	5.59	3.34	2.66	2.31
16N1028	HSS-67	#6	1/4"	7/8"	5.99	3.24	2.84	2.47
16N1029	HSS-68	#6	1/4"	1"	6.36	3.79	3.02	2.63
16N1030	HSS-85	#8	3/8"	5/8"	6.93	4.13	3.29	2.86
16N1031	HSS-86	#8	3/8"	3/4"	7.65	4.56	3.63	3.16
16N1032	HSS-87	#8	3/8"	7/8"	8.36	4.98	3.97	3.45
16N1033	HSS-88	#8	3/8"	1"	9.08	5.41	4.31	3.75

SCREW FASTENED CIRCUIT BOARD SUPPORT



- Minimal Chassis Protusion
- High Dielectric Strength
- Nylon Material



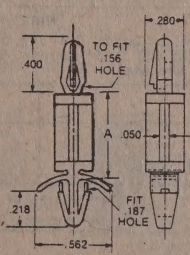


Insert No. 6 self-tapping screw through chassis and into support. Snap circuit board over top of supports tapered head. Tension flange holds circuit board in place; squeeze flange for circuit board removal.

Stock No.	Type	Spacing "A"	Tap Depth "B"	PER PKG.—100 1-9	10-49	50-99	100-249
23N3975	SPCS-4	1/4"	13/64"	9.44	5.62	4.48	3.90
23N3976	SPCS-6	3/8"	1/4"	9.59	5.71	4.55	3.96
23N3977	SPCS-8	1/2"	1/4"	9.75	5.81	4.63	4.02
23N3978	SPCS-12	3/4"	1/4"	10.83	6.45	5.14	4.47

SNAP-IN CIRCUIT BOARD SUPPORT/SPACER

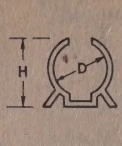
Provide ample clearance from the chassis for assembled boards. An arrow-type locking head snaps into a .187" dia. hole in chassis where it expands to lock permanently in position. Finger grip insertion eliminates need for tools. Circuit board is held firmly in position by locking tension flange which, compressed upon entry, springs out to lap over and secure board. A squeeze of the fingers permits removal of board from support for repair or replacement.



Stk. No.	Type	Spacing Dist. "A"	PER PK.—100 1-9	10-49	50-99	100-249
16N1008	PCS-3	3/16"	4.98	2.97	2.36	2.06
16N1009	PCS-4	1/4"	5.30	3.16	2.52	2.19
16N1010	PCS-6	3/8"	5.57	3.32	2.65	2.30
16N1011	PCS-8	1/2"	5.99	3.57	2.84	2.47
16N1012	PCS-10	5/8"	6.41	3.82	3.04	2.65
16N1013	PCS-12	3/4"	6.82	4.07	3.24	2.82
16N1014	PCS-14	7/8"	7.25	4.32	3.44	2.99
16N1015	PCS-16	1"	16.05	9.56	7.62	6.62
16N1016	PCS-18	1 1/8"	16.43	9.79	7.80	6.78
16N1017	PCS-20	1 1/4"	16.81	10.01	7.97	6.94
16N1018	PCS-22	1 3/8"	17.18	10.23	8.15	7.09

SPC technology

COMPONENT CLAMPS



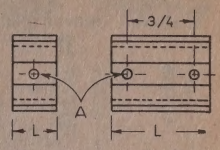
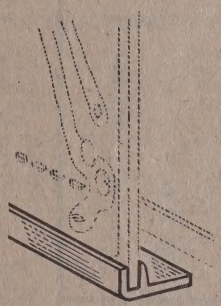


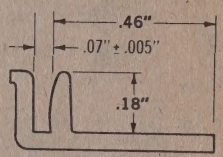
Fig. A Fig. B

Fasten, and where required, insulate a wide variety of electrical and electronic components, accessories, and parts. Permit quick insertion, allow easy removal. Typical applications are capacitors, resistors, lamps, batteries, and fuses. Made of strong black vinyl and have high dielectric strength. Floor of clip is pierced for screws or other fastening devices.

Stk. No.	Type	Component Dia. "D"	Clamp Lgt. "L"	Clamp Ht. "H"	Fig.	Hole Dia. "A"	PK-100 1-9
16N1034	CS-4	1/4	1/2	13/32	A	3/32	11.36
16N1035	CS-6	3/8	1/2	1/2	A	3/32	11.80
16N1036	CS-8	1/2	1/2	5/8	A	3/32	12.32
16N1037	CS-10	5/8	1/2	5/8	A	3/32	12.92
16N1038	CS-12	3/4	1/2	7/8	A	5/32	14.62
16N1039	CS-16	1	1 1/8	1 1/4	B	5/32	17.56
16N1040	CS-22	1 3/8	1 1/8	1 15/32	B	5/32	19.91
23N3972	CS-24	1 1/2	1 3/4	....	B	5/32	22.86
23N3973	CS-36	2 1/4	2 3/4	2 5/8	B	5/32	94.42

P.C. BOARD GUIDE





Plastic P.C. Board Guides Offer Low Initial Cost Plus Low Installation Cost

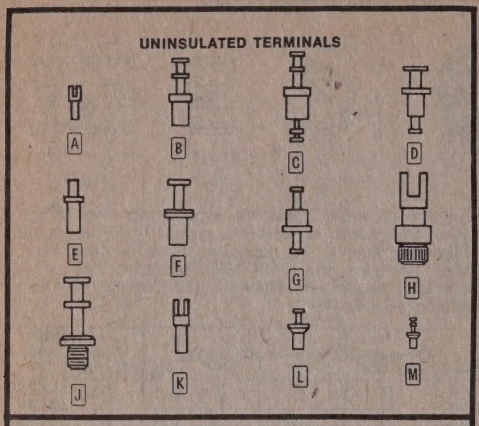
Guides made from plastic extrusions assuring accurate placement and alignment of circuit boards. Available adhesive bases for self fastening. Guides designed to take circuit boards 1/16" thick, and are stocked in 4 ft. lengths.

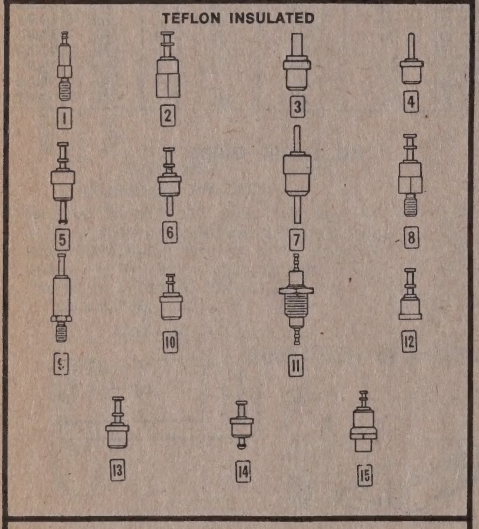
Stock No.	Type	PKG. OF 10 10-90	100-400	500-900	1000-2400
23N3974	PCBG-3	16.89	10.06	8.01	6.97

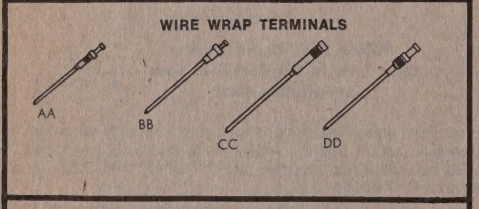
You Can Depend on
NEWARK
For Everything in
Industrial Electronics

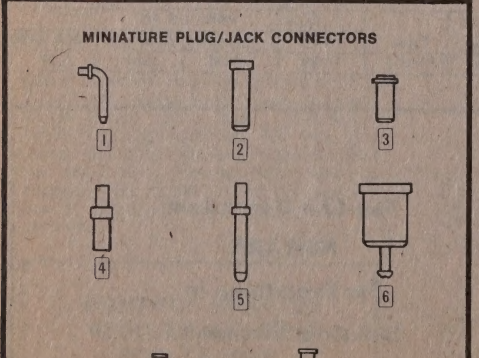
12

VOLTREX® brand Solder Terminals









UNINSULATED TERMINALS First two digit suffix of type number board thickness: 01 = 1/32", 02 = 1/16", 03 = 3/32", 04 = 1/8". Third digit contact plating: 5-silver, 6-tin, 7-solder.

Stock No.	Type	Fig.	Plating	Mtg. Dia.	Per Pkg. of 100 1-9	10-49	50-99	100-Up
23N3700	UT10-025	A	5	.047"	6.34	4.88	4.56	3.99
23N3701	UT11-025	A	5	.047"	5.71	4.40	4.11	3.60
23N3702	UT12-025	A	5	.112"	19.87	15.30	14.31	12.52
23N3703	UT13-025	B	5	.090"	4.58	3.53	3.30	2.89
23N3704	UT13-035	B	5	.090"	4.58	3.53	3.30	2.89
23N3705	UT13-045	B	5	.090"	4.58	3.53	3.30	2.89
23N3706	UT14-025	C	5	.090"	8.35	6.43	6.01	5.26
23N3766	UT14-045	C	5	.090"	8.35	6.43	6.01	5.26
23N3707	UT15-026	E	6	.060"	5.59	4.30	4.02	3.52
23N3708	UT16-025	F	5	.112"	6.30	4.85	4.54	3.97
23N3709	UT17-035	F	5	.078"	4.04	3.11	2.91	2.55
23N3710	UT18-025	G	5	.116"	5.59	4.30	4.02	3.52
23N3711	UT19-045	B	5	.112"	5.69	4.38	4.10	3.58
23N3712	UT20-025	B	5	.090"	4.15	3.20	2.99	2.61
23N3713	UT20-035	B	5	.090"	4.15	3.20	2.99	2.61
23N3714	UT21-025	J	5	4-40 Trd.	11.89	9.16	8.56	7.49
23N3715	UT22-025	B	5	.112"	6.43	4.95	4.63	4.05
23N3716	UT22-035	B	5	.112"	6.43	4.95	4.63	4.05
23N3717	UT23-035	H	5	.112"	9.85	7.58	7.09	6.21
23N3718	UT24-025	K	5	.062"	5.44	4.19	3.92	3.43
23N3719	UT25-025	K	5	.071"	5.54	4.27	3.99	3.49
23N3720	UT26-025	K	5	.112"	7.96	6.13	5.73	5.01
23N3721	UT27-025	B	5	.071"	5.44	4.19	3.92	3.43
23N3722	UT28-025	C	5	.090"	6.41	4.94	4.62	4.04
23N3723	UT28-035	C	5	.090"	6.41	4.94	4.62	4.04
23N3724	UT29-025	D	5	.072"	4.47	3.44	3.22	2.82
23N3725	UT30-025	B	5	.072"	4.27	3.29	3.07	2.69
23N3726	UT30-035	B	5	.072"	4.27	3.29	3.07	2.69
23N3727	UT31-025	J	5	.072"	4.71	3.63	3.39	2.97
23N3728	UT32-025	F	5	.047"	3.55	2.73	2.56	2.24
23N3729	UT33-025	A	5	.047"	6.90	5.31	4.97	4.35
23N3730	UT34-027	L	7	.060"	5.00	3.85	3.60	3.15
23N3731	UT35-047	M	7	.060"	5.00	3.85	3.60	3.15
23N3732	UT36-025	B	5	.062"	4.49	3.46	3.23	2.83

NOTE: All come in standard package of 100 pieces.

TEFLON INSULATED
All types listed are teflon insulated with terminals solder plated.

Stock No.	Type	Fig.	Mtg.	Per Pkg. of 50 1	2-9	10-49
23N3750	IT50-017	1	4-40 Thd.	33.50	26.00	24.00
23N3751	IT51-017	8	6-32	33.50	26.00	24.00
23N3752	IT52-017	2	4-40	33.50	26.00	24.00
23N3753	IT53-017	2	6-32	33.50	26.00	24.00
23N3754	IT54-017	15	4-40 Tap.	52.00	40.00	37.00
23N3755	IT54-027	15	6-32 Tap.	52.00	40.00	37.00

TEFLON INSULATED PRESS-MOUNT TERMINALS

Stock No.	Type	Fig.	Descrip.	Panel Thk.	Mtg. Dia.	Ht. Above Board	Pkg. of 50 1	2-9	10-49
23N3756	IT55-017	13	Dbl. Tur.	to .062"	.093"	.140"	18.00	12.50	11.50
23N3757	IT56-017	10	Dbl. Tur.	to .062"	.148"	.210"	17.00	11.50	10.50
23N3758	IT57-017	4	Pin Term.	to .062"	.148"	.210"	15.50	10.50	10.00
23N3759	IT58-017	12	Dbl. Tur.	to .062"	.148"	.210"	18.00	12.50	11.50
23N3760	IT59-027	3	Pin Ter.	to .062"	.093"	.165"	19.50	13.50	12.50
23N3761	IT60-017	7	Stand Off	to .062"	.148"	.210"	18.00	12.50	11.50
23N3762	IT61-027	5	Pin/Pin	to .085"	.148"	.210"	18.00	12.50	11.50
23N3763	IT61-037	5	Feed Thru.	to .125"	.148"	.210"	18.00	12.50	11.50
23N3764	IT62-017	6	Dbl. Tur.	to .190"	.148"	.250"	18.00	12.50	11.50
23N3765	IT63-017	14	Feed Thru.	to .125"	.216"	.228"	29.50	20.50	18.50

WIRE WRAP TERMINALS

Type WT70-026: 1/16" board, .090" mtg. dia. **Type WT71-018:** .062"-.125" boards, .056" mtg. dia. All wire wrap. **Type WT72-018:** .052"-.188" board, .058" mtg. dia. **Type WT73-018:** .062" board. .058" mtg. dia. All wire wrap.

Stock No.	Type	Fig.	Description	Per Pkg. of 100 1-9	10-49	50-99	100-Up
23N3733	WT70-026	BB	Turret	14.97	11.53	10.78	9.43
23N3734	WT71-018	AA	Turret	19.01	14.64	13.69	11.98
23N3735	WT72-018	CC	Press Mount	19.56	15.06	14.08	12.32
23N3736	WT73-018	DD	Turret	19.12	14.72	13.77	12.05

MINIATURE PLUG/JACK CONNECTORS
All connectors listed are gold-plated

Stk. No.	Type	Jack I.D. Pin O.D.	Fig.	Description	Lgt.	Board Thick.	Per Pkg. of 100 1-9	10-49	50-99	100-Up
23N3737	MC80	.016"	2	Jack, PC, Transistor Lds.	.240"	.031"/.156"	26.00	20.00	18.00	16.00
23N3738	MC81	.040"	3	Jack, PC, Dip Soldered Thru Hole	.236"	.031"/.156"	26.00	20.00	18.00	16.00
23N3739	MC82	.040"	3	Jack, PC, Dip. Soldered	.236"	.031"/.156"	37.00	28.00	26.00	23.00
23N3740	MC83	.025"	4	Jack, PC, Swage Type	.339"	.125"	63.00	49.00	45.00	40.00
23N3741	MC84	.025"	7	Jack, PC, Dip. Soldered	.171"	.031"/.094"	31.00	24.00	22.00	20.00
23N3742	MC85	.040"	8	Jack, PC, Dip. Soldered	.208"	.031"/.156"	31.00	24.00	22.00	20.00
23N3743	MC86	.016"	2	Jack, PC, Trans. Leads	.230"	.031"/188"	31.00	24.00	22.00	20.00
23N3744	MC87	.040"	6	Wht. Teflon, Jack/Term. .148" mtg. dia.	.390"	—	63.00	49.00	45.00	40.00
23N3745	MC88	.040"	1	Pin, PC, Right Angle	.257"	1/32"	19.91	15.33	14.34	12.54
23N3746	MC89	.040"	5	Pin, PC, .040 mtg. dia.	.300"	1/16"	9.46	7.28	6.81	5.96
23N3747	MC90	.040"	5	Pin, PC, .040 mtg. dia.	.300"	3/32"	9.46	7.28	6.81	5.96
23N3748	MC91	.040"	5	Pin, PC, .040" mtg. dia.	.150"	3/32"	7.98	6.14	5.75	5.03
23N3749	MC92	.025"	5	Pin, PC, .040" mtg. dia.	.125"	1/16"	12.90	9.93	9.29	8.13

IC Sockets & Accessories

CAMBION

For 6, 8, 14, 16, 18, 22, 24, 36 and 40 pin dual-in-line IC's with either Wire-Wrap* or solder-tab terminations. One-piece molded diallyl insulators withstand high temp. and provide excellent mechanical stability (Nos. -3777 and -3778 are one-piece molded glass-filled nylon with anti-moisture bosses). Phosphor bronze contacts accept flat or round pins up to .024" dia. Standard terminal plating is **-03** gold for all Wire-Wrap; **-04** electro-tin for all solder tab sockets. Sockets can be supplied with electro-tin plating or Wire-Wrap pins or with gold plating on solder tab pins—prices on request. May be permanently mounted individually (rivet or screw) or press-mounted in PC boards or panels for production or breadboarding. Metric dimensional sockets for standard 14 and 16 pin DIP's are also available. *Reg. Gardner-Denver Co. TM.

Stock No.	Type 703-	No. Contacts	Terminals	Inches: Overall Length	Inches: Term. Grid	Net Each: 1-99	100-499	500-999	1000-2499
13F3160	3771-01-04-16	6	Solder tab	.334	.100 x	**.99**	**.69**	**.63**	**.58**
13F3161	3881-01-03-16	6	Wire-Wrap	.334	.300	**1.36**	**.95**	**.87**	**.80**
13F3162	3772-01-04-16	8	Solder tab	.434	.....	**1.04**	**.72**	**.66**	**.60**
13F3163	3882-01-03-16	8	Wire-Wrap	.434	.....	**1.43**	**1.00**	**.91**	**.83**
13F3164	3777-01-04-12	14	Solder tab	.780	.....	**.95**	**.66**	**.60**	**.55**
40F4014	3788-01-04-16	14	Solder tab	.784	.....	**1.17**	**.82**	**.74**	**.68**
40F4020	3897-01-03-16	14	Wire-Wrap	.784	.....	**1.60**	**1.12**	**1.02**	**.94**
13F3165	3778-01-04-12	16	Solder tab	.834	.....	**1.03**	**.72**	**.65**	**.60**
40F4015	3789-01-04-16	16	Solder tab	.884	.....	**1.26**	**.88**	**.80**	**.73**
40F4009	3898-01-03-16	16	Wire-Wrap	.884	.....	**1.77**	**1.23**	**1.12**	**1.03**
13F3166	3787-01-04-16	18	Solder tab	.934	.....	**1.44**	**1.01**	**.92**	**.84**
13F3167	3895-01-03-16	18	Wire-Wrap	.934	.....	**2.12**	**1.48**	**1.35**	**1.24**
13F3168	3785-01-04-16	22	Solder tab	1.180	.100 x	**2.03**	**1.41**	**1.29**	**1.18**
13F3169	3892-01-03-16	22	Wire-Wrap	1.180	.400	**2.51**	**1.75**	**1.59**	**1.46**
40F4016	3790-01-04-16	24	Solder tab	1.280	.100 x	**2.35**	**1.64**	**1.49**	**1.37**
40F4019	3896-01-03-16	24	Wire-Wrap	1.280	.600	**2.75**	**1.92**	**1.74**	**1.60**
13F3170	3783-01-04-16	28	Solder tab	1.480	.....	**2.62**	**1.83**	**1.67**	**1.53**
13F3171	3890-01-03-16	28	Wire-Wrap	1.480	.....	**3.20**	**2.24**	**2.04**	**1.88**
40F4017	3791-01-04-16	36	Solder tab	1.880	.....	**3.05**	**2.14**	**1.95**	**1.79**
40F4018	3893-01-03-16	36	Wire-Wrap	1.880	.....	**4.00**	**2.78**	**2.53**	**2.32**
13F3172	3766-01-04-16	40	Solder tab	2.080	.....	**3.30**	**2.31**	**2.10**	**1.93**
13F3173	3885-01-03-16	40	Wire-Wrap	2.080	.....	**4.25**	**2.98**	**2.71**	**2.49**

Inverted pin design provides good lead-in, secure gripping, reduces wicking possibility. .159" above board. Red glass-reinforced nylon bodies. Electro-tin contact finish.

Contact Details

Section View of Socket Assembly

LOW PROFILE SOLDER-TAB SOCKETS

Stock No.	Type 703-	No. of Pins	NET EACH: 1-99	100-499	500-999	1000-2499
65F1814	4008	8	**.27**	**.19**	**.17**	**.16**
65F1815	4014	14	**.39**	**.27**	**.25**	**.23**
65F1816	4016	16	**.41**	**.29**	**.26**	**.24**
65F1817	4018	18	**.62**	**.44**	**.40**	**.36**
65F1818	4022	22	**.73**	**.51**	**.46**	**.43**
65F1819	4024	24	**.77**	**.54**	**.49**	**.45**
65F1820	4040	40	**1.08**	**.75**	**.68**	**.63**
65F1821	4064	64	**1.47**	**1.03**	**.93**	**.86**
Same as above except with Kapton Strip to prevent solder wicking.						
65F1822	5308	8	**.29**	**.20**	**.18**	**.17**
65F1823	5314	14	**.41**	**.29**	**.26**	**.24**
65F1824	5316	16	**.43**	**.30**	**.27**	**.25**
65F1825	5318	18	**.64**	**.45**	**.41**	**.38**
65F1826	5322	22	**.75**	**.52**	**.48**	**.44**
65F1827	5324	24	**.80**	**.56**	**.51**	**.46**
65F1828	5340	40	**1.11**	**.78**	**.71**	**.65**
65F1829	5364	64	**1.49**	**1.04**	**.95**	**.87**

PRECUT AND STRIPPED WIRE KIT

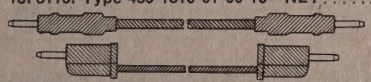
For wire-wrapping. Solid copper 30 AWG white insulated Kynar® wire, silver plated, ends stripped to tolerance. Kit contains 13 pkgs. of varied lengths from 1" thru 9". Per pkg.: 1" thru 4.5", 100 pcs.; 5" thru 9", 50 pcs. Also available 1.0" thru 25.0" lengths in black, red and white insulation on request.

13F3174. Type 718-1010-01-01-19—NET **60.80**

HAND WIRE WRAP TOOL

For wrapping solid copper 30 AWG wire. Low cost alternative to power equipment. Molded glass filled nylon. Size, 3.225" x .480" dia.

13F3175. Type 435-1816-01-00-16—NET **2.98**



PATCH CORD KITS

Contains 100 pieces (48 pcs., Fig. A; 52 pcs., Fig B) pin patch cords .040" dia. Red, blue and black in 2", 4", 6" and 8" lengths.

40F6190. Type 446-3892-01-00-00 ..... Net **118.10**

Type 446-3991-01-00-00. Contains 73 pcs. stackable patch cords (Fig. B). Red, black and blue in 2", 4", 6" and 8" lengths.

13F3177 ..... Net **94.10**

Individual .025", .040", .080" dia. male and female patch cords available in variety of lengths and colors, standard or "piggy back" styles.

70 PIN CARD CONNECTOR

Stock No.	Type 706-	Terminals	Net Each: 1-9	10-24	25-49
40F1452	7029-01	Solder lug	**7.15**	**6.80**	**6.45**
40F1451	7015-01*	Wire-Wrap	**6.25**	**5.95**	**5.65**

*For use with CAMBION Power Planes

IC INSERTION-EXTRACTION TOOL

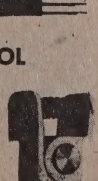
Positions integrated circuits for insertion or extraction. Practically any IC with 14 or 16 leads aligned on 0.300" centers can easily be inserted or extracted. Material is plastic.

13F3230. Type 706-3739-01-00-00 ..... 1-4, Each **1.44** 5-9, Each **1.30**; 10-24, Each **1.18**; 25-49, Each **1.15**

65F1812. Type 706-3733-01-00-00. For 24 pin (.600" centers) IC's. 1-4, Each ..... **1.70**; 5-9, Each ..... **1.53** 10-24, Each ..... **1.39**; 25-49, Each **1.36**

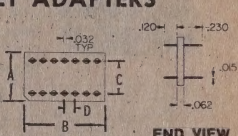
65F1813. Type 415-7036-01-00-20. IC Card-Ejector Clip Handle. White. Order in multiples of 10.

10-90, Each ..... **.16**; 100-up ..... **.14**



COMPONENT SOCKET ADAPTERS

Plug into standard 14, 16, 24 or 36 pin dual in-line sockets or Cambion Integrated socket strip. Larger width sizes for wider components straddle two sockets or socket strips. Terminal pairs are on .100" or .200" grid centers; Terminal is phosphor bronze, spring tempered per QQ-B-750; Comp. A. Finish is hard gold plate. Board material, .062" type GEE glass epoxy per MIL-P-18177. Also available with tin plating.

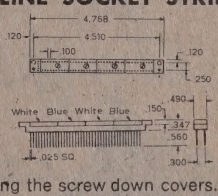


Stock No.	Type 702-	Dimensions, In.: Board A	Board B	Term. Ctr. C	Term. Ctr. D	*	Net Each: 1-49	50-99	100-249
13F3184	3723	.450	.750	.300	.200	8	**.97**	**.86**	**.76**
13F3185	3724	.950	.750	.800	.200	8	**.97**	**.86**	**.76**
13F3186	3725	.450	.750	.300	.100	14	**1.45**	**1.29**	**1.13**
13F3187	3726	.950	.750	.800	.100	14	**1.45**	**1.29**	**1.13**
13F3188	3728	.450	.850	.300	.100	16	**1.75**	**1.55**	**1.36**
13F3189	3730	.950	.850	.800	.100	16	**1.75**	**1.55**	**1.36**
13F3190	3732	.750	1.235	.600	.200	12	**1.28**	**1.14**	**.99**
13F3191	3734	.750	1.835	.600	.200	18	**2.04**	**1.82**	**1.59**

*No. of terminals.

80 PIN DUAL IN-LINE SOCKET STRIP

Molded diallyl body .025" sq., Wire-Wrap posts and spring contacts. Electro-tin plated contacts standard. Mounts all dual in-line devices without a PC board. For independent mounting or into Cambion mounting frame or relay rack drawers. Pins are replaced by removing the screw down covers. Socket strips accept five 14 pin DIP's, four or five 16 pin DIPs. Wider MSI or LSI DIPs can be mounted by bridging between two properly-spaced strips.



13F3192. Type 703-1000-01-04-00. Net Each, 1-9 ..... **5.20**

10-99 ..... **5.00**; 100-499 ..... **3.50**; 500-999 ..... **3.15**

IC TESTERS

Provide easy test point access to 14 and 16 pin Dual-In-Line IC's under operating conditions. Tester is placed over top of IC and makes contact with the exposed portion of each lead.

13F3231. Type 706-1020-01-00-00. 14-Pin Tester.

1-4, Each **3.35**; 5-9, Each **3.00**; 10-24, Each **2.75**; 25-49, Ea. **2.68**

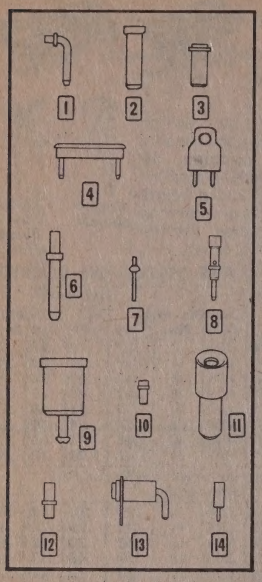
13F3232. Type 706-1019-01-00-00. 16-Pin Tester.

1-4, Each **3.60**; 5-9, Each **3.25**; 10-24, Each **2.95**; 25-49, Ea. **2.88**

12

CAMBION®

Boards, Connectors and Handles



MINIATURE PLUG/JACK CONNECTORS AND PATCH CORDS

Gold plating. Types listed are most commonly used items. Ask Newark for Cambion Plug-Jack brochure for complete listing of many other types.

(*) Jack I/D-.016/.019. **Order Series 450 and 461 in multiples of 50. Order Series 460 in multiples of 100.**

Stock Number	Type	I/D	Fig.	Description	Board Thk.	EACH 50	100-450	500-up
40F6102	450-3230-01-03-00	.025	11	PC Jack for .025 Pin	.031/.062	.37	.28	.26
39F2911	450-3268-01-03-00	.016*	2	PC Jack for Transistor Leads	.031/.156	.26	.20	.18
65F1790	450-3327-01-03-00	.025/.040	14	Combination Plug/Jack	.....	.42	.32	.30
65F1791	450-3366-01-03-00	.040	12	High Silhouette Soldermount Jack	.031/.094	.30	.23	.21
40F6119	450-3388-01-03-00	.040	3	PC Jack-Dip Sold.	.031/.156	.37	.28	.26
65F1792	450-3394-01-03-00	.025	.....	PC Jack Closed Entry/Printed circ.	1/32"	.63	.49	.45
40F6122	450-3394-02-03-00	.025	.....	PC Jack Closed Entry/Printed circ.	1/16"	.63	.49	.45
39F2974	450-3398-01-03-00	.080	3	PC Jack-Dip Sold.	.031/.250	.42	.32	.30
40F6125	450-3703-01-03-00	.025	.....	PC Jack-Dip Sold.	.031/.094	.31	.24	.22
65F1793	450-3752-01-03-00	.040	10	PC Jack, Soldermount	.062/.125	.63	.49	.45
65F1794	450-3888-01-03-00	.080	13	Test Point Side Mounted PC Jack	.....	1.35	1.04	.96
40F6309	450-4351-01-03-10	.047	9	Blk. Teflon-Jack,Term- .185 Mt. Dia.	To .094	1.15	.89	.82
40F6130	450-4352-01-03-10	.040	9	Teflon Insulated Jack	.031/.094	.63	.49	.45

Stock Number	Type	O/D	Fig.	Description	Lgth.	Board Thk.	EACH 100-900	1000-up
40F6090	460-1521-01-03-00	.040	1	PC Right Angle, Bent Pin	.257"	1/32"	.20	.16
40F6097	460-2970-01-03-00	.040	6	PC Pin- .040" Mtg. Dia.	.300"	1/32"	.10	.08
39F2967	460-2970-02-03-00	.040	6	PC Pin- .040" Mtg. Dia.	.300"	1/16"	.10	.08
39F2968	460-2970-03-03-00	.040	6	PC Pin- .040" Mtg. Dia.	.300"	3/32"	.10	.08
39F2935	460-2971-02-03-00	.040	6	PC Plug, Swage Mount	.....	1/16"	.08	.07
40F6099	460-3202-01-03-00	.025	6	Comb. Term/Pin- .025" Mtg. Dia.	.025"	1/32"	.09	.07
39F2940	460-3231-02-03-00	.025	6	PC Pin- .040" Mtg. Dia.	.125"	1/16"	.13	.10
39F2946	460-3233-02-03-00	.040	6	PC Pin- .040" Mtg. Dia. Thru Hole	.150"	1/16"	.10	.08
65F1800	460-3308-01-03-00	.040	8	PC Pin	.....	.....	.23	.18
40F6308	460-3889-01-03-00	.025	7	PC Pin- .031" Mtg. Dia.	.....	1/32"	.10	.08

						50	100-450	500-up
39F2985	461-2871-01-03-10	.040	5	Black Shorting Plug	.....	.30	.23	.21
65F1795	461-2871-01-03-12	.040	5	Red Shorting Plug	.....	.30	.23	.21
65F1796	461-2871-01-03-16	.040	5	Blue Shorting Plug	.....	.30	.23	.21
65F1797	461-2872-01-03-10	.040	4	Black Shorting Plug	.....	.30	.23	.21
65F1798	461-2872-01-03-12	.040	4	Red Shorting Plug	.....	.30	.23	.21
65F1799	461-2872-01-03-16	.040	4	Blue Shorting Plug	.....	.30	.23	.21

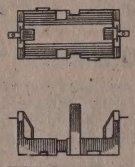
Many jacks available with tin (-04) plating or with dual plating (-06) . . . tin bodies, gold inserts.

TERMINAL BOARDS

Each section drilled for 14 terminals, with 10 mounted (except type 1401 drilled for 7 with 5 mtd.). Materials: FBE, cotton fabric phenolic per MIL-P-15035B; GEE, epoxy glass cloth, MIL-P-18177B; NPG, nylon fabric phenolic, MIL-P-15047B.

Stock Number	Type 200-	Material	Thickness x Width	EACH 1-9	10-99	100-499
40F2000	1401-35-01-01	FBE	3/32" x 1/2"	3.85	2.77	2.43
40F2006	1402-35-01-01	FBE	3/32" x 2"	8.55	6.15	5.40
40F5138	1402-35-01-03	NPG	3/32" x 2"	10.20	7.35	6.45
40F2007	1402-45-01-01	FBE	1/8" x 2"	8.55	6.15	5.40
40F5139	1402-45-01-02	GEE	1/8" x 2"	17.70	12.70	11.20
40F2013	1403-45-01-01	FBE	1/8" x 2 1/2"	9.00	6.50	5.65
40F2018	1404-35-01-01	FBE	3/32" x 3"	9.30	6.70	5.85
40F2024	1405-35-01-01	FBE	3/32" x 1 1/16"	7.85	5.65	4.95
40F2028	1406-35-01-01	FBE	3/32" x 1 1/2"	8.20	5.90	5.15

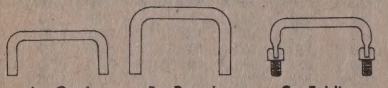
BATTERY HOLDERS



Snap-in holders with locking strap to hold mercury or zinc batteries under extreme vibration and shock. Phosphor bronze body. Can be interlocked. New 2800 and 2801 are glass-filled nylon molded holders. Shock and vibration retainers; tinned phosphor bronze contacts.

Stock No.	Type 400-	Battery Type and Size	Each—Multiples of 10 10-90	100-500
40F2128	2233-01-02-00	Mercury .655"D x .650"L	.88	.75
13F3155	2800-01-00-20	"C" size, 1.19 x 1.19 x 2.40"	.49	.42
13F3156	2801-01-00-20	"D" size, 1.60 x 1.38 x 2.90"	.49	.42
65F1801	2802-01-00-00	"AA" size, .778 x .739 x 2.40"	.48	.41
40F2133	2870-01-02-00	"D" mercury, 1.190 x 2.375"	2.89	2.46
40F2135	2890-01-02-00	"D" zinc, 1.344 x 2.406"	2.89	2.46
40F2136	2895-01-02-00	"D" zinc, 1.344 x 2.436"	2.01	1.72

HANDLES



All handle types meet or exceed military and federal specifications. Brass and nickel finish, except (*) aluminum with black oxide.

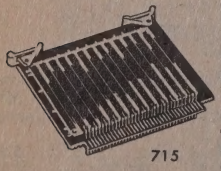
Stk. No.	Type	Mtg. Cntr.	Ht. (in.)	Fig.	1-99	100-499	500-999
40F2204	415-1075-01-02	4.56	1	B	2.84	2.49	1.98
40F2311	415-1220-01-02	1.25	1	B	2.74	2.39	1.90
40F2181	415-1280-03-02	4.0	1.50	B	2.95	2.58	2.05
40F2527	415-1900-01-02	4.0	1.85	C	6.85	6.00	4.75
40F2220	415-2062-01-02	4.0	1.85	C	8.50	7.45	5.90
40F2208	415-2111-01-02	3.0	1.281	A	4.00	3.50	2.78
40F2211	415-2111-02-02	4.56	1.50	A	4.50	3.95	3.15
40F2316	415-2111-03-02	6.43	1.75	A	5.05	4.40	3.50

Matching CAMBION ferrules are available for CAMBION handles.

Stk. No.	Type	Mtg.	Ht. (In.)	Fig.	1-99	100-499	500-999
40F2313	415-1220-03-02-00	3.0	1	B	2.95	2.58	2.05
65F1802	415-1276-02-18-00	4.0	1.50	*	3.25	2.84	2.25
65F1803	415-1290-02-14-00	3.0	1.50	B	1.88	1.64	1.31
65F1804	415-1290-04-18-00	6.0	1.50	B	2.52	2.21	1.75
65F1805	415-2385-02-14-00	4.562	1.50	A	3.25	2.84	2.25
65F1806	415-2385-03-18-00	6.438	1.75	A	3.55	3.10	2.48
40F5142	415-2720-01-22-00	4.0	1.459	C	9.60	8.40	6.65

*Shape: Rectangle

HIGH DENSITY WIRE-WRAP CAMBI-CARDS®


715

714

PC boards accept dual-in-line IC sockets, in-line IC's and discrete components. Wire-Wrap interconnections. Each socket position on **715 Series** (on every other row on **714 Series**) has two auxiliary pins to permit connecting each IC to power and ground planes. Cards with sockets affixed; with sockets and spaces for discretes; for all discretes; copper-clad and blank cards; card extenders and general purpose cards without sockets but with grid patterns. All cards have edge connectors. Board material—.062" thick, double clad copper, epoxy glass cloth type FL-GE per MIL-P-13949. Pin plating, gold over phosphor bronze material. **715** Cards, 4.5" wide. **714** Cards, 9.75" wide.

715 SERIES—70 PIN INPUT/OUTPUT CONNECTORS

Stock No.	Type 715-	Card Lgth. In.	No. Sockets per card	†	NET EACH 1-4	5-9	10-24
13F3200	1000-01	4.5	Card extender	. . .	54.40	49.00	43.50
40F1449	1011-01	4.5	24	16	104.50	94.10	83.60
13F3206	1015-01	4.5	Gen'l purpose (w/o sockets)	. . .	42.60	38.30	34.10
13F3208	1100-01	9.25	Card extender	. . .	54.40	49.00	43.50
13F3214	1115-01	9.25	Gen'l purpose (w/o sockets)	. . .	56.60	50.90	45.30

†No. of Pins/Socket

714 SERIES—140 PIN INPUT/OUTPUT

Stock No.	Type 714-	Card Lgth. In.	No. Sockets per card	†	NET EACH 1-4	5-9	10-24
65F1807	1011-01-00-00	4.5	54—Gen'l purpose	. . .	210.60	189.50	168.50
65F1808	1015-01-00-00	4.5	Gen'l purpose	. . .	81.40	73.30	65.10
65F1809	1018-01-00-00	4.5	Gen'l purpose	. . .	121.30	109.20	97.00
13F3222	1115-01-00-00	9.25	Gen'l purpose (w/o sockets)	. . .	108.40	97.60	86.70
65F1810	1118-01-00-00	9.25	Gen'l purpose	. . .	160.30	144.30	128.20
65F1811	1125-01-03-00	.....	.....	. . .	315.50	284.00	252.40

†No. of Pins/Socket

12

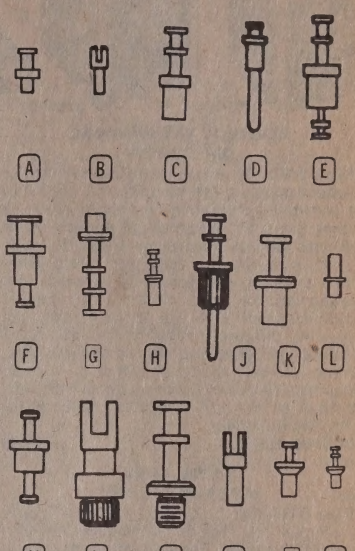
Solder Terminals

CAMBION

UNINSULATED TERMINALS

Stock No.	Type	Stock No.	Type	Stock No.	Type	Fig.	Plating	Mtg. Dia.	Each 100-900	1000-4900	5000-9900	10M-Up
13F2190	1019-02					B	01	.047	.063	.049	.046	.040
13F2192	1018-02					B	01	.047	.057	.044	.041	.036
40F6003	1025-02					B	01	.112	.199	.153	.143	.125
40F6004	1026-02	13F2193	1026-03	13F2194	1026-04	C	01	.090	.046	.035	.033	.029
				40F6006	1032-01	D	01	.062	.057	.044	.041	.036
40F6010	1043-02			13F3000	1043-04	E	01	.090	.084	.064	.060	.053
40F6015	1245-02					K	01	.112	.063	.049	.045	.040
40F6016	1457-02	13F3005	1457-03			K	01	.078	.040	.031	.029	.026
40F6021	1463-02					M	01	.116	.056	.043	.040	.035
39F3641	1512-02					A	05	.062	.058	.045	.042	.037
				13F3009	1548-04	C	01	.112	.051	.039	.037	.032
40F6023	1558-02	13F3010	1558-03			C	01	.090	.057	.044	.041	.036
40F6026	1582-02					P	01	4-40 Thd.	.042	.032	.030	.026
40F6029	1724-02	13F3018	1724-03			C	01	.112	.119	.092	.086	.075
		13F3020	1784-03			N	01	.112	.064	.050	.046	.041
40F6032	1785-02					R	01	.062	.099	.076	.071	.062
40F6038	1941-02					R	01	.071	.054	.042	.039	.034
40F6039	1969-02					R	01	.112	.055	.043	.040	.035
40F6043	2027-02					C	01	.071	.080	.061	.057	.050
40F6044	2034-02	13F3039	2034-03			C	01	.090	.054	.042	.039	.034
40F6045	2040-02					K	01	.072	.064	.049	.046	.040
40F6047	2042-02					F	01	.072	.065	.050	.047	.041
40F6048	2043-02	13F3046	2043-03			C	01	.072	.045	.034	.032	.028
40F6049	2044-02					P	01	.072	.043	.033	.031	.027
40F6053	2084-02					G	01	.112	.047	.036	.034	.030
40F6054	2085-02					K	01	.047	.108	.083	.077	.068
40F6056	2089-02					B	01	.047	.036	.027	.026	.022
40F6071	2753-02					S	05	.060	.069	.053	.050	.044
				13F3078	2754-04	T	05	.060	.050	.039	.036	.032
13F3080	3653-02					C	01	.062	.050	.039	.036	.032
39F3642	7337-02					H	05	.060	.045	.035	.032	.028

Suffix in type number indicates board thickness size: −01, 1/32"; −02, 1/16"; −03, 3/32"; −04, 1/8". Number in plating column indicates finish; 01 is silverplate, 04 is electro-tin plate and 05 is electro-solder. **Order number of terminals required in multiples of 100.**



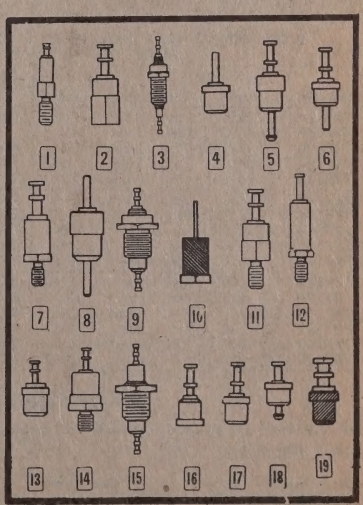
STUD, TAPPED AND RIVET-MOUNT TYPES

Stk. No.	Type 570-	Fig.	Mtg.	10-90	100-490	Stk. No.	Type 570-(§572)	Fig.	Mtg.	10-90	100-490
40F6200	1503-01-05-19*	1	4-40 thd.	.67	.52	39F3645	2642-01-01-19	3	6-32 thd.	1.60	1.23
40F6201	1504-01-05-19*	11	6-32 thd.	.67	.52	39F3648	2640-01-01-19	....	10-32 thd.	1.42	1.09
40F6202	1510-01-05-19*	2	4-40 thd.	.67	.52	40F1782	3648-02-01-00	....	6-32 tap	.72	.55
40F6203	1511-01-05-19*	2	6-32 thd.	.67	.52	40F1762	3650-01-01-00	....	4-40 tap	.72	.55
40F1821	1581-01-01-00	14	6-32 thd.	.67	.52	40F6224	§4810-01-05-16	7	14-40 thd.	.51	.39
40F1831	1795-01-01-00	15	1/4-28 thd.	1.15	.89	40F6225	§4814-01-05-16*	....	14-40 tap	.58	.45
40F1773	1942-01-05-00*	....	6-32 thd.	.72	.55	40F6227	§4820-01-05-16*	....	4-40 tap	.66	.51
40F1774	1942-02-05-00*	....	6-32 thd.	.72	.55	40F6228	§4826-01-05-16	....	4-40 tap	.58	.45
40F1841	1947-01-05-19	....	4-40 tap	1.04	.80	40F6229	4827-01-05-16	....	6-32 tap	.58	.45
40F1842	1947-02-05-19	....	6-32 tap	1.04	.80	40F6231	§4862-01-05-16**	....	4-40 tap	.65	.50
40F1737	1980-03-01-00†	....	3-48 thd.	.69	.53	40F6233	§4870-01-05-16†	12	2-56 thd.	.47	.36
40F1805	1990-01-05-00	9	1/4-28 thd.	1.39	1.07	40F6234	§4872-01-05-16†	....	2-56 tap	.51	.39
40F6213	1994-02-01-00	....	6-32 thd.	.69	.53	40F6236	§4884-01-05-16	....	2-56 tap	.51	.39
40F6217	2045-01-01-00	....	4-40 thd.	.72	.55	40F6237	§4894-01-05-16*†	12	2-56 thd.	.47	.36
40F1700	2255-01-03-00†	10	2-56 thd.	.87	.67	39F3643	§4863-01-05-16	....	6-32 tap	.65	.50
40F1701	2255-02-03-00†	10	2-56 thd.	.87	.67	39F3644	§4899-01-05-16	05	4-40 UNC	.47	.36

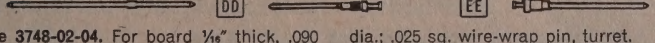
Types 1503, 1504, 1510, 1511 and 1947 are Teflon; 1581 and 1795 are phenolic; 4810-4899 are molded diallyl; others ceramic. Last suffix in Type No. indicates color; −19 white; −16 blue; −00 no color choice. Next-to-last suffix indicates terminal plating: −01 silver; −05 electro solder; −03 gold. Studs are cadmium plus colored chromate. (*) meets MIL-T-55155. All are double turret except (†) single turret, (**) fork terminal. **Order by number of terminals required in multiples of 10.**

TEFLON PRESS-MOUNT INSULATED TERMINALS

Stock No.	Type 571-	Fig.	Description	Panel Thick.	Mtg. Dia.	Ht. Above Board	Each 10-90	100-490	500-990
40F6239	4015-01-05-19	17	Double turret	To .062"	.093"	.140"	.36	.25	.23
40F1847	4025-01-05-19	13	Double turret	To .062"	.148"	.210"	.34	.23	.21
40F6248	4029-01-05-19	4	Pin term.	To .062"	.148"	.210"	.31	.21	.20
40F6251	4034-01-05-19	16	Double turret	To .062"	.148"	.210"	.36	.25	.23
40F5150	4176-01-05-19*	8	Pin/pin feed-thru	To .062"	.148"	.210"	.36	.25	.23
40F1947	4182-02-05-19	5	Dbl. tur. feed-thru	To .085"	.148"	.210"	.36	.25	.23
40F6261	4182-03-05-19	5	Dbl. tur. feed-thru	To .125"	.148"	.210"	.36	.25	.23
40F5152	4197-01-05-19*	6	Dbl. tur. feed-thru	To .190"	.148"	.250"	.36	.25	.23
40F1812	4263-01-05-19	18	Dbl. tur. feed-thru	To .125"	.216"	.228"	.59	.41	.37
40F6242	4026-01-05-19	17	Dbl. tur. stand-off	To .062"	.148"	.250"	.36	.25	.23
39F3647	4179-01-05-19	18	Turret feed-thru	To .062"	.148"	.125"	.39	.27	.25
39F3648	4016-01-05-19	19	Dbl. tur. stand-off	To .062"	.093"	.210"	.36	.25	.23



WIRE WRAP TERMINALS



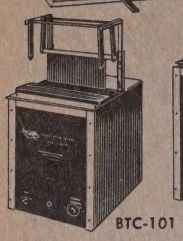
Type 3748-02-04. For board 1/16" thick, .090 mtg. dia.; .045 sq. wire-wrap pin with turret.
Type 3848-01-03. Board .062-.125" thk., .056 dia.; .025 sq. wire-wrap pin, turret.
Type 3854-01-03. Board .052-.188" thk., .058 dia.; .025 sq. wire-wrap pin, turret.
Type 3866-01-03. For board .062" thick only, .058 mtg. dia.; .025 sq. wire-wrap pin, turret.
Order number of terminals required in multiples of 100.

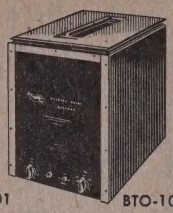
Stock No.	Type 155-	Fig.	Description	Each 100-900	1000-4900	5000-9900	100M-Up
40F4010	3748-02-04	EE	Turret	.150	.115	.108	.094
40F4011	3848-01-03	DD	Turret	.190	.146	.137	.120
40F4013	3866-01-03	.....	Turret	.191	.147	.138	.121
39F3649	0019-01-03	CC	pin	.057	.044	.041	.036
39F3650	1048-01-03	.....	pin	.038	.029	.027	.024

HAND SWAGER

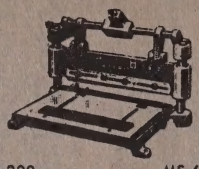
Stk. No.	Type	Description	Each
40F1570	3803-1	5" Throat	126.50

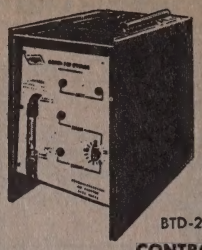
Bench Top Printed Circuit Components

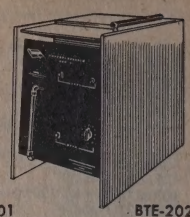

BTC-101


BTO-102

BTX-200


MS-6


BTD-201


BTE-202

CONTROL WITHDRAWAL DIP COATER

Type BTC-101. Photo-sensitive resists for pattern masking can be uniformly coated to a controlled thickness on copper clads or other flat sheet materials at speeds up to 12" per minute. Panels are supported vertically from the top edge and submerged, then smoothly withdrawn at a preset rate with a variable speed motor. Two 3½ quart stainless steel tanks are provided with lids, allowing different resists or coatings to be loaded and stored at the same time. Machine exterior is constructed of rugged stainless steel and polypropylene. 115V AC, 2 Amp. 60 Hz. 19"L x 14½"W x 24"H. Shipping weight 60 lbs.
79W100. NET **530.00**

RAPID CURE INFRA-RED OVEN

Type BTO-102. Cure of wet photo-resist and protective coatings can be accomplished in 1 to 1½ minutes. Panels are inserted vertically into the top opening of the oven on the same handling rack used for the dip coating operation. Cure is controlled by a timer which extinguishes I.R. elements at the end of the cure cycle. Equipped with a "stand-by" heating thermostat to maintain a "ready condition" if the oven is to be used on an intermittent basis. Two inch thick glass mat insulation is used to maintain a cool exterior of the oven. 22"L x 17"W x 21"H. Shpg. wt. 45 lbs.
79W101. NET **365.00**

ULTRA-VIOLET EXPOSURE FRAME

Type BTX-200. Exposure of photosensitive coatings in less than 2 minutes. An adjustable 5 minute timer extinguishes high output UV lamps at the end of the exposure cycle. Heavy foam padding provides excellent contact pressure between the negative and the light sensitive surface to be exposed. A pin registry rail is provided for easy 2 side registration. Four .125" dia. pins are positioned on 0", 4", 6", and 10" centers. 19½"L x 16½"W x 6"H. Shpg. wt. 30 lbs.
80W476. NET **275.00**

PRECISION MULTI-6 SHEARS

Type MS-6. Hand operated tool designed to cut circuit board laminates through .093" thick and sheet metal up to a thickness of .063". Cutting widths of 12.125" are possible. Accessory tooling described below. 11½" L x 18"W x 9"H. Shpg. wt. 24 lbs.
78F150. NET **217.00**

ACCESSORIES FOR MS-6

Type PS-2. Random 2-Hole Punch. Punches two randomly located .125" dia. holes.
78F151. NET **52.45**
Type NA-1. Corner Notcher. Cuts 90° corner notches up to 1" x 1".
78F152. NET **56.70**
Type PB-1. Press Brake. Makes 90° bends in soft aluminum or sheet steel.
78F153. NET **50.30**
Type DA-2. Drilling-Routing. Holds .030" thru .125" drill bits or routing cutters.
79W102. NET **79.00**

CONTROLLED TIME SPRAY DEVELOPER

Type BTD-201. Designed to spray develop exposed photosensitive coatings requiring either solvent or alkali based chemistry. Developing cycles of 1 to 1½ minutes are controlled with a 5 minute electrical timer activating the spray pumps. A metal chemical tank is used and the exterior case construction is of P.V.C. plastic. 22"L x 15"W x 20"H. Shpg. wt. 60 lbs.
79W103. NET **455.00**
Type BTD-401. Same as BTD-201 except double capacity. Accommodates boards up to 12" x 24". Size (LWH): 22" x 27¼" x 22". Shpg. wt. 85 lbs.
79W097. NET **850.00**

DOUBLE SIDE SPRAY ETCHER

Type BTE-202. Single or double clad P.C. boards may be etched in less than 3 minutes. A 1000 watt grounded titanium heater maintains the four gallon etchant sump at a constant temperature of 120°F. Twin side manifolds distribute a random etch spray pattern against both sides of the vertically held panel. Construction materials compatible with commonly used etchants. 22"L x 14½"W x 20"H. Wt. 60 lbs.
80W475. NET **465.00**
Type BTE-402. Same as BTE-202 except double capacity. Accommodates boards up to 12" x 24". Size (LWH): 22" x 26¾" x 22". Shpg. wt. 85 lbs.
79W098. NET **955.00**

12

PRINTED CIRCUIT BOARD

G-10 glass epoxy circuit boards, 1 oz. copper clad, 1/16" thick Meet standard NEMA grade tolerances. Supplied unsensitized (Unsen.) or photosensitized (Sen.). Photosensitized materials are ready for exposure with no other sensitizing required.

2 OZ. COPPER CLAD LAMINATED G-10 GLASS EPOXY
5 PIECES PER PACKAGE

Stk. No.	Type	Description	Inches	Per Pkg. 1-4	5-9	10-up
78F178	P12-365G	Unsen. 1 side	3x6	6.40	4.99	4.48
78F179	P12-465G	Unsen. 1 side	4x6	8.55	6.67	5.99
78F180	P12-12125G	Unsen. 1 side	12x12	45.35	35.37	31.75
78F181	P22-365G	Unsen. 2 sides	3x6	7.30	5.69	5.11
78F182	P22-465G	Unsen. 2 sides	4x6	9.75	7.61	6.83
78F183	P22-665G	Unsen. 2 sides	6x6	14.60	11.39	10.22
78F184	P22-12125G	Unsen. 2 sides	12x12	51.85	40.44	36.30
78F185	S12-365G	Sen. 1 side	3x6	9.10	7.10	6.37
78F186	S12-465G	Sen. 1 side	4x6	12.10	9.44	8.47
78F187	S12-665G	Sen. 1 side	6x6	18.15	14.16	12.71
78F188	S12-7105G	Sen. 1 side	7x10	33.10	25.82	23.71
78F189	S12-12125G	Sen. 1 side	12x12	64.80	50.54	45.36
78F190	S22-365G	Sen. 2 sides	3x6	12.00	9.36	8.40
78F191	S22-465G	Sen. 2 sides	4x6	16.00	12.48	11.20
78F192	S22-665G	Sen. 2 sides	6x6	24.00	18.72	16.80
78F193	S22-12125G	Sen. 2 sides	12x12	85.55	66.73	59.89

1 OZ. COPPER CLAD GLASS EPOXY BOARDS
5 PIECES PER PACKAGE

Stk. No.	Type	Description	Inches	Per Pkg. 1-4	5-9	10-up
19F3216	P1-365G	Unsen. 1 side	3x6	6.10	4.76	4.27
78F159	P1-465G	Unsen. 1 side	4x6	8.10	6.32	5.67
19F3217	P1-12125G	Unsen. 1 side	12x12	43.45	33.89	30.42
19F3218	P2-365G	Unsen. 2 sides	3x6	6.40	4.99	4.48
78F160	P2-465G	Unsen. 2 sides	4x6	8.55	6.67	5.99
19F3219	P2-12125G	Unsen. 2 sides	12x12	45.35	35.37	31.75
19F3220	S1-365G	Sen. 1 side	3x6	8.70	6.79	6.09
78F161	S1-465G	Sen. 1 side	4x6	11.60	9.05	8.12
19F3221	S1-665G	Sen. 1 side	6x6	17.35	13.53	12.15
19F2037	S1-7105G	Sen. 1 side	7x10	31.85	24.84	22.30
19F3222	S1-12125G	Sen. 1 side	12x12	61.60	48.05	43.12
19F3223	S2-365G	Sen. 2 sides	3x6	10.75	8.39	7.53
78F162	S2-465G	Sen. 2 sides	4x6	14.35	11.19	10.05
19F3224	S2-665G	Sen. 2 sides	6x6	21.55	16.81	15.09
19F3225	S2-12125G	Sen. 2 sides	12x12	76.50	59.67	53.55

COPPER CLAD—PHOTOSENSITIZED—12 PER PACKAGE

All materials are photosensitized with Eastman Kodak® KPR type 4 and are ready to shear to size using a KEPRO MS-6 shear.

Stock No.	Type	Description	Wt./Pkg. (Lbs.)	1 PKG.
79W116	S1-1224	1/16" Phenolic, 1 Side	15	95.05
79W117	S2-1224	1/16" Phenolic, 2 Side	16	129.25
79W118	S1.5-1224G	1/32" Glass Epoxy, 1 Side	11	110.90
79W119	S2.5-1224G	1/32" Glass Epoxy, 2 Side	12	137.15
79W120	S1-1224G	1/16" Glass Epoxy, 1 Side	19	140.65

24 sq. ft. of copper clad laminate sheared to convenient 12" x 24" size and packaged 12 pieces per package.

Stock No.	Type	Description	Wt./Pkg. (Lbs.)	1 PKG.
79W121	S2-1224G	1/16" Glass Epoxy, 2 Side	20	166.45
79W122	S12-1224G	1/16" Glass Epoxy, 1 Side	21	149.95
79W123	S22-1224G	1/16" Glass Epoxy, 2 Side	23	190.55
79W124	S1-1224B	1/16" Epoxy Comp., 1 Side	18	109.00
79W125	S2-1224B	1/16" Epoxy Comp., 2 Side	18	139.95

Call or write NEWARK for a complete catalogue of Kepro etched circuit products.

Kepro P.C. Kits & Materials

1/16" (.062) EPOXY COMPOSITE LAMINATE—1 OZ. (.00135) COPPER FOIL

An epoxy composite laminate (CF or FR-4) type, with superior shearing, drilling, and punching normally associated with FR-3 type materials and electrical and mechanical properties approaching FR-4 glass epoxy including flame resistance.

UNSENSITIZED MATERIAL

Stk. No.	Type	Wt. Per Pkg. lbs.	Wt. Per Pkg. oz.	Net Price Per 5 Pack 1-4	5-9	10-up
78F049	P1-365B	1	2	4.25	3.32	2.98
78F050	P1-465B	1	10	6.30	4.91	4.41
78F051	P1-7105B	2	5	15.45	12.05	10.82
78F052	P1-12125B	3	6	29.80	23.24	20.86
78F053	P2-365B	1	3	4.70	3.67	3.29
78F054	P2-465B	1	11	7.10	5.54	4.97
78F055	P2-7105B	2	6	17.35	13.53	12.15
78F056	P2-12125B	3	10	33.70	26.29	23.59

PHOTOSENSITIZED MATERIAL

Stk. No.	Type	Wt. Per Pkg. lbs.	Wt. Per Pkg. oz.	Net Price Per 5 Pack 1-4	5-9	10-up
78F058	S1-365B	1	2	6.65	5.19	4.66
78F059	S1-465B	1	10	9.95	7.76	6.97
78F060	S1-7105B	2	5	24.25	18.92	16.98
78F061	S1-12125B	3	6	47.30	36.89	33.11
78F062	S2-365B	1	3	8.85	6.90	6.20
78F063	S2-465B	1	11	13.30	10.37	9.31
78F064	S2-7105B	2	6	33.15	25.08	22.51
78F065	S2-12125B	3	10	62.90	49.06	44.03

STANDARD KIT

Type S-101A. An etching kit designed for custom fabrication of circuit boards. A liquid or tape resistant is manually applied to the XXXP Phenolic copper clad sheet in the desired pattern, then etched. A perforated copper clad panel is supplied with this kit to speed component mounting. Contents: 2 sheets 3 x 6 x 1/16" copper clad phenolic, unsensitized, 1 sheet 3 x 6 x 1/16" perforated copper clad phenolic, unsensitized, 1-Resist. Marking Pen, 1-Package assorted Tapes and Dots, 2-Bottles Etching Solution, 1-Plastic Etching Tray, 1-Cleaning Pad and instructions. Shpg. wt. 2 lbs.
19F2000. NET 5.40

Type S-101A-G. Identical to S-101A Kit, except, base material is G-10 Glass Epoxy. Copper Clad.
19F2001. NET 7.20

PROFESSIONAL KIT

Type P-101A. An etching kit designed to custom fabricate your own circuit board utilizing a photo engraving process. A sensitized sheet of XXXP Phenolic copper clad is exposed through your prepared negative, then developed and etched. Contents: 2 sheets 3 x 6 x 1/16" photosensitized copper clad phenolic, 3 sheets Mech. Neg. 1-Print Frame Glass, 2-Print Frame Clamps, 1-Bottle Developer, 2-Bottles Etching Solution, 1-Aluminum developing Tray, 1-Plastic Etching Tray, 1-Cleaning Pad. With complete instructions. Shpg. wt. 3 lbs.
19F2002. NET 7.95

Type P-101A-G. As above except base is G-10 Glass Epoxy. Copper Clad.
19F2003. NET 10.05

ETCHED CIRCUIT LAB

Type L-505A. A complete lab which contains all materials required for circuit board development. Uses high quality photo processing. Contains: 1-8½ x 12 Developing Tray, 1-8½ x 12 Etching Tray, 1-Safelight, 1-Printing Frame, 1-Photo Flood Lamp, 1-Kepro Photo Layout Kit (PL-2A), 1-40-10 Mech. Neg. 1-Etching Solution (1 Pint), 1-Developing Solution (1 Pint), Resist. Marking Pen. 1-3⅛ x 7⅛ x 1½" Plastic Tray and Lid, 1-Aluminum Tray, 1-Etching Solution (4 oz.), 1-Eyelet Assortment, 1-Cleaning Pad, 1-Set of Instructions. Shpg. wt. 19 lbs.
80W125. NET 47.40

Type L-505A-G. Identical to L505A, except, base material is G-10 Glass Epoxy, Copper Clad. Shpg. wt. 20 lbs.
80W126. NET 58.65

PHOTO REVERSING KIT

Type FK-701. Simple two-step process prepares line negatives and positive from taped or inked artwork or reverses existing negatives or positives. No darkroom needed. Includes two pieces 10" x 24" reversing film, chemicals and instructions. Shpg. wt., 2 lbs.
19F2010. NET 9.80

Type RF-1024. 2 mil. green reversing film, 10" x 24". Shpg. wt. 8 oz.
19F2045. NET 4.00

Type RF-2024. 2 mil. green reversing film, 20" x 24". Shpg. wt. 1 lb.
19F2046. NET 7.65

ETCHED CIRCUIT PROCESSING CHEMICALS

Stk. No.	Type	Description	Weight	EACH
00Z310	PRSK-1G	1 gal. Photo Resist Stripper	15 lbs.	26.75
00Z307	RFD-1G	1 gal. Reversing Developer	13 lbs.	9.95
00Z305	D-1G	1 gal. Developing Solution	16 lbs.	14.60
00Z301	E-1G	1 gal. Etching Solution	16 lbs.	7.15
00Z302	SP-1G	Dry Etching Crystals	2½ lbs.	5.95
00Z303	SP-5G	Dry Etching Crystals	11½ lbs.	18.30
00Z308	SP-20G	Dry Etching Crystals	41 lbs.	57.00
00Z309	PRSK-1QT	1 qt. Photo Resist Stripper	4 lbs.	8.45
00Z304	D-1QT	1 qt. Developing Solution	4 lbs.	5.55
00Z010	E-1QT	1 qt. Etching Solution	4 lbs.	3.65

PHOTO LAYOUT KIT

Type PL-2A. For preparing camera-ready artwork without inking and lettering. Reduced layout time by use of pressure-sensitive tapes, dots, letters and numerals. Contents: 96 ¼" Tape Dot Terminations. 108"-⅛" Tape Conductor Strips. 216"-1/16" tape Conductor Strips. 1-translucent-type (letters and numerals, assorted sizes) sheet. 1-Acetate Sheet (8" x 10"). 1-Mech. Neg. (8" x 10"). 2-Sheets of Graph paper, 1/10" grid 8 x 10". 1-Instruction sheet. Wt., 1 lb.
19F2006. NET 5.40

MASTER PHOTO LAYOUT KIT

Type PL-200A. This package includes all necessary materials to make Master artwork on stable base drafting films. Utilizes the same time saving methods as the PL-2A. Contents: 2 pcs. 18"x24" Matte Surface Mylar, 2 pcs.—18"x24" Mech. Neg. mylar 1 pc. 1/10" grid mylar sheet 18"x24" base. 4 pcs.—17"x21" Graph paper, 1/10" grid. 432-⅛" tape dot termination. 567-¼" tape dot termination. 252-½" dot terminations. 18 yds.-1/16" tape conductor strips. 21 yds.-⅛" tape conductor strips. 18 yds. ¼" tape conductor strips. 1 sheet —8½"x11" translucent (letters and numerals, assorted sizes) sheet. 1 btl.—Opaquing fluid. 1-Brush, 1-Bow Compass (with knife cutters) 1-Center Dot Cutter, 1-Tweezers, 1-Cutting Knife Set, 1-Peeling Stylus, 1-instruction and Data Sheet. Shpg. wt. 4 lbs.
19F2007. NET 47.25

NAMEPLATE & PANEL KIT

Type NP-303A. Kit permits you to prepare name-plate by a simple photographic process. Plates are exposed to light source through artwork made from supplied materials. Panels art then dev., no fixing nec. Finished plates are aluminum and contrasting dk. blue. Contents: 2-8"x10" Aluminum Sheet, 1-8"x10" Acetate Sheet, ¼-Sheet translucent-type. 1-8"x10" Print Glass, 1-1 oz. Bottle developer, 2-2x2x¾" Appls. (sponges). 2-(8x10") pressure sensitive adhesive. Shpg. wt. 1 lb. 1 oz.
19F2008. NET 10.40

ETCHED ANODIZED NAMEPLATE & PANEL KIT

Type NP-404. Produces etched nameplates and panels using anodized aluminum stock. Processed by exposing, developing, and etching plates. Finished plates are black anodized aluminum and natural color aluminum finish. Contents: 3-3x6" Aluminum Panels. 3-3x6" Acetate Sheets, ¼-Sheet translucent type. 1-Print Glass, 2-3" Clamps, 1-4 oz. Bottle Developer, 1-2 oz. Package Etchant, 1-Dev. Tray, 1-Etch Tray. 3-(3x6") pressure sensitive adhesive. 1½ lbs.
19F2009. NET 8.95

SILK SCREEN KIT

Type SC-601A. Professional materials and equipment for producing lacquer resistant film type photo stencils with print area up to 7"x9" and to use these stencils to screen-print 1000 or more impressions per day. No dark room needed. Kit includes screen printing frame with one stretched silk in place plus silk and emulsion for two additional patterns, mounting hinges, squeegee, black and white inks, film printing frame, safe-light, photo-flood lamp, trays and all necessary chemicals and solutions. Shpg. wt., 13 lbs.
80W127. NET 47.75

ELECTROLESS PC BOARD TIN PLATING KIT

Model ITP-801. Simple immersion process deposits thin coating of essentially pure tin to etched copper circuit to protect from oxidation and to provide exceptional solderability. Immersion tin plating is a chemical process and requires no expensive electroplating equipment. Tin solution is heated to 160 deg. F. in high-temperature glass tray and circuit board is immersed for 3-5 minutes. Board is removed from tray, rinsed 3 minutes under running hot water, then another 3 minutes under running cold water. Kit includes high-temperature glass tray, accommodating board sizes up to 7" x 10"; board handling rack; thermometer; 1 qt. immersion tin solution (sufficient for plating patterns on approx. 25 sq. ft. of etched panels) and complete instructions. Shpg. wt., 5½ lbs.
78F086. NET 16.10

EXTRA MATERIALS FOR ITP-801 KIT

Stk. No.	Type	Description	Weight	Net
78F083	ITP-1QT	Immersion Tin Solution	4 lbs.	10.30
78F088	ITP-1G	Immersion Tin Solution	11 lbs.	33.75

SOLID CARBIDE CIRCUIT BOARD DRILLS

Specially designed for smooth, burr-free drilling in circuit boards and all laminates, tapered web, straight shank.

Stk. No.	Type	1-4	5-9	10-up
78F066	SCD-125 (⅛)	5.50	4.29	3.85
19F2051	SCD-064 (#52)	4.73	3.69	3.31
19F2052	SCD-052 (#55)	4.57	3.56	3.20
19F2053	SCD-040 (#60)	4.40	3.43	3.08
19F2054	SCD-035 (#65)	4.40	3.43	3.08
78F067	SCD-032 (#67)	3.85	3.00	2.70
19F2055	SCD-028 (#70)	3.85	3.00	2.70

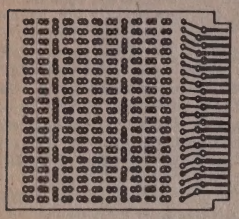
12

SPC technology VOLTREX brand

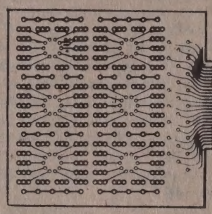
PC Board Supplies

ETCHED CIRCUIT CARDS FOR CIRCUIT DESIGN, PROTOTYPE CONSTRUCTION

Experiment with circuit designs, test them, and make prototypes without the bother of making your own cards. Voltrex etched circuit cards are fabricated from top quality 2-oz. copper clad G-10 glass epoxy 1/16" thick. All copper is electroplated, to provide thick and uniform plating, with either gold or solder. These cards have double readout edge tabs. Eighteen and 22-position tabs are spaced on 0.156" centers. Twenty-five position tabs are spaced on 0.050" centers. (Compatible with Cinch Tykon Edge Connectors).



8404-007



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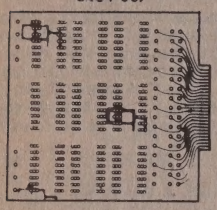

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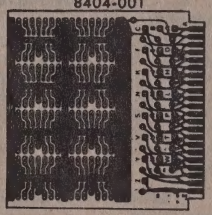

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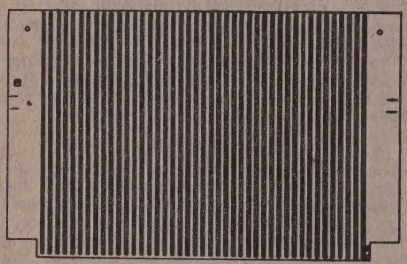


8404-010

INTEGRATED CIRCUIT CARDS

13N2084 (Type 8404-001). 25-contact double readout with pads for six 14-pin flat pack pads on one side and six 10-pin TO-5's on the other so that a total of six IC's of either type can be mounted. All circuitry and contact tabs gold plated. 3" x 3 1/16".

13N2085 (Type 8404-005). 25-contact double readout for mtg. up to nine 14 or 16-pin dual-in-line packages. Holes are .030" to accept most flat or round leads. Circuitry and tabs are solder plated. 3x3 1/16"

19N3441 (Type 8404-011). 22-contact double readout for up to eight 14-pin dual-in-line packages. Circuitry provided for supplying power to the IC's from contacts #1 and #2. Solder plated circuits with gold plated contact tabs. 4 x 4".

UNIVERSAL CIRCUIT CARDS

13N2081 (Type 8404-007). 22 double readout edge tabs. Circuits and contact tabs are solder plated.

Has 233 mounting pads of one or more holes each, with a total of 444 holes. Holes are .052" on a .1" grid design. 4 x 4 1/2".

EXTENDER CARD

13N2082 (Type 8404-010). Extends contact fingers of a card. Has 43 solder plated extender strips on .156" centers on each side 5 x 8".

Stk. No.	Type	1-9	10-24	25-49	50-99
13N2084	8404-001	8.72	7.85	7.07	6.65
13N2085	8404-005	11.38	10.24	9.22	8.67
13N2081	8404-007	11.38	10.24	9.22	8.67
13N2082	8404-010	14.19	12.77	11.49	10.80
19N3441	8404-011	14.80	13.32	11.99	11.28

PHOTOBLUE

PRE-SENSITIZED COPPER CLAD LAMINATES FOR ETCHED PC BOARDS

Photoblue is the latest innovation in the production of etched process, PC boards. Represents a major advance over standard sensitized boards. Reduce or eliminate many problems normally associated with PC board production. Sensitized surfaces protected from scratches or mishandling by plastic film not removed until developing step. Less sensitive to ordinary room light, can be handled in incandescent lighting for short periods without affecting its ability to receive circuit pattern. All solutions are aqueous, eliminating drying step between developing and etching. Each production step is highly visible, from exposure on. After exposure, circuit pattern appears lighter blue on deep blue background. After developing, circuit pattern is highly visible blue on copper making flaws easily detectible. After etching, no copper visible; after stripping, no blue visible. All boards are 1/16" thick, FR-4 glass epoxy. Pkgd. in moisture- and light-proof black plastic bags.

NOTE: Commercially available solutions will destroy the resist pattern on photoblue boards. To obtain the proper developer, simply dissolve 6 oz. of tri-sodium phosphate into one gallon of water (TSP is a widely used window washing compound, readily available in most hardware stores).

G-10 GLASS EPOXY BOARDS—1 OZ.

Copper Cladding	Board Size	1 Board		Pkg. of 5 Boards				
		Stk. No.	Each	Stk. No.	1-4	5-9	10-19	20-Up
1 side	3x6"	13N2023	2.15	13N2024	8.70	6.79	6.09	5.22
1 side	4x6"	13N2025	2.79	13N2026	11.60	9.05	8.12	6.96
1 side	6x6"	13N2027	4.15	13N2028	17.35	13.53	12.15	10.41
1 side	7x10"	13N2029	7.46	13N2030	31.85	24.84	22.30	19.11
1 side	12x12"	13N2031	14.15	13N2032	61.60	48.05	43.12	36.96
2 sides	3x6"	13N2033	2.61	13N2034	10.75	8.39	7.53	6.45
2 sides	4x6"	13N2035	3.41	13N2036	14.35	11.19	10.05	8.61
2 sides	6x6"	13N2037	5.09	13N2038	21.55	16.81	15.09	12.93
2 sides	12x12"	13N2039	17.47	13N2040	76.50	59.67	53.55	45.90

G-10 GLASS EPOXY BOARDS—2 OZ.

1 side	3x6"	13N2041	2.24	13N2042	9.10	7.10	6.37	5.46
1 side	4x6"	13N2043	2.91	13N2044	12.10	9.44	8.47	7.26
1 side	6x6"	13N2045	4.33	13N2046	18.15	14.16	12.71	10.89
1 side	7x10"	13N2047	7.74	13N2048	33.10	25.82	23.17	19.86
1 side	12x12"	13N2049	14.87	13N2050	64.80	50.54	45.36	38.88
2 sides	3x6"	13N2051	2.88	13N2052	12.00	9.36	8.40	7.20
2 sides	4x6"	13N2053	3.77	13N2054	16.00	12.48	11.20	9.60
2 sides	6x6"	13N2055	5.63	13N2056	24.00	18.72	16.80	14.40
2 sides	12x12"	13N2057	19.48	13N2058	85.55	66.73	59.89	51.33

CU-SKIN-062—UNSENSITIZED COPPER CLAD LAMINATES

Simply apply a manual resist (like the Voltrex resist marker or pressure sensitive patterns, terminal circles, or conductor strips) directly on the unsensitized copper surface. Agitate the board in etching solution. Any copper not covered by resist will be washed away, leaving the circuit pattern you design. Material, 1/16" thick. 1 oz. (.00135) or 2 oz. (.00270) copper clad.

G-10 GLASS EPOXY BOARDS—1 OZ.

Copper Cladding	Board Size	1 Board		Pkg. of 5 Boards				
		Stk. No.	Each	Stk. No.	1-4	5-9	10-19	20-Up
1 side	3x6"	19N2022	1.57	19N3216	6.10	4.76	4.27	3.66
1 side	4x6"	78N155	2.02	78N159	8.10	6.32	5.67	4.86
1 side	12x12"	19N2023	10.12	19N3217	43.45	33.89	30.42	26.07
2 sides	3x6"	19N3213	1.64	19N3218	6.40	4.99	4.48	3.84
2 sides	4x6"	78N156	2.12	78N160	8.55	6.67	5.99	5.13
2 sides	12x12"	19N2024	10.55	19N3219	45.35	35.37	31.75	27.21

G-10 GLASS EPOXY BOARDS—2 OZ.

1 side	3x6"	78N163	1.64	78N178	6.40	4.99	4.48	3.84
1 side	4x6"	78N164	2.12	78N179	8.55	6.67	5.99	5.13
1 side	12x12"	78N165	10.55	78N180	45.35	35.37	31.75	27.21
2 sides	3x6"	78N166	1.84	78N181	7.30	5.69	5.11	4.38
2 sides	4x6"	78N167	2.38	78N182	9.75	7.61	6.83	5.85
2 sides	6x6"	78N168	3.54	78N183	14.60	11.39	10.22	8.76
2 sides	12x12"	78N209	11.99	78N184	51.85	40.44	36.30	31.11

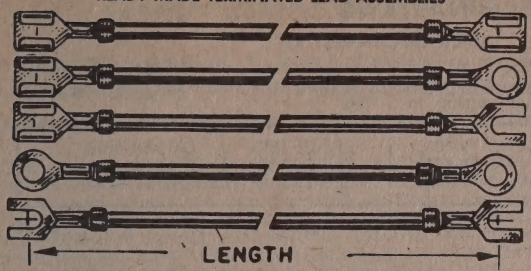
Resist Marking Pen (MARK-3000) adds or touches-up circuitry on Cu-Skin or developed Photoblue boards.

Stk. No.	Type	Description	Each
19N2038	MARK-3000	Resist Marking Pen	1.25

12

Keystone Terminal Boards & Accessories

READY MADE TERMINATED LEAD ASSEMBLIES



TIME SAVING APPROVED MATERIALS—GREATER FLEXIBILITY
Brass, tinplated terminals are firmly staked to #20 UL approved wire with a .031 thick PVC plastic wall. Rated 600V. Black, 12" long. Contact Newark for other available lengths and colors.

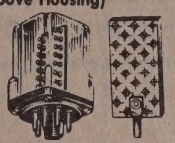
Stock No.	Type	Fig. No.	Kwik Connect Term.	Ring Term Screw Hole Size	Spade Term Screw Hole Size	Each
35F1150	5001-12-B	1	(2).250	....	....	
35F1151	5002-12-B	1	(2).205	....	....	
35F1152	5003-12-B	1	(2).187	....	....	
35F1153	5005-12-B	2	....	#6	....	
35F1154	5006-12-B	2	....	#8	....	.14
35F1156	5008-12-B	2	.250	#6	....	
35F1157	5009-12-B	2	.250	#8	....	
35F1158	5011-12-B	2	.187	#6	....	
35F1159	5012-12-B	2	.187	#8	....	
35F1160	5013-12-B	3	.250	....	#6	
35F1161	5014-12-B	3	.205	....	#8	
35F1162	5015-12-B	3	.2	....	#6	
35F1163	5016-12-B	3	.205	....	#8	
35F1164	5017-12-B	3	.187	....	#6	
35F1165	5018-12-B	3	.187	....	#8	.14
35F1166	5020-12-B	4	....	#6 & #6	....	
35F1167	5021-12-B	4	....	#8 & #8	....	
35F1168	5022-12-B	5	....	....	#6 & #6	
35F1169	5023-12-B	5	....	....	#8 & #8	

PLUG-IN HOUSING

Durable housings are ideally suited for packaging relays, logic packages, networks and miniature circuitry. Headers are molded of G.P. black phenolic. Pins are brass, nickel plated. Guide hole tapped 8-32 for terminal board mntg. stud. Materials: Polystyrene: use up to 170°F conditions. Butyrate. High impact strength, use at 210°F; Nylon at 300°F. Complete with Octal Header and Screws.

Stk. No.	Type	Size	Mat'l	Color	1-19	20-99	100-249
35F1670	641	Mini	Polyst.	Opaq. Bl.	.76	.70	.65
35F1672	664	Small	Nylon	White	.90	.85	.78
35F1673	665	Small	Polyst.	Clear	.77	.74	.70
35F1674	643	Small	Polyst.	Opaq. Bl.	.72	.66	.61
35F1675	650	Large	Butyrate	Clear	1.58	1.42	1.31
35F1676	668	Large	Poiyst.	Clear	.92	.87	.83
35F1677	677	Large	Polyst.	Opaq. Bl.	.92	.87	.83
35F1678	639	X-L'ge	Polyst.	Clear	1.32	1.21	1.02

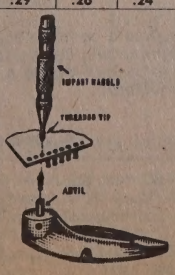
TERMINAL BOARDS (For Use With Above Housing)



Terminal boards are made of glass epoxy material. Spacing of holes is .100 and .1200 alternates. An 8-32 threaded stud is firmly eyeletted to the board and is easily assembled into the tapped hole of the headers. Board thickness is 1/16". Diameter holes are .062. GEE MIL-P-18177

Stk. No.	Type	Size—Board with Stud.	For Covers	1-19	20-99	100-249
35F1652	696	1x1 3/16"	Mini	.23	.18	.16
35F1653	697	1 1/8x1 3/4"	Small	.23	.18	.16
35F1654	698	1 1/2x2 3/4"	Large	.25	.21	.19
35F1656	638	1 5/16x2 3/8"	X-L'ge	.29	.26	.24

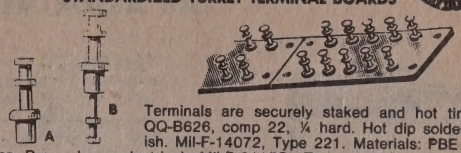
"IMPACT" STAKING KIT



Produces a light or heavy blow which is adjustable by turning the spring tension cap. Uniform striking action attained by pressing down handle. Interchangeable tools supplied permit assembly of terminal boards, printed circuits and small components. Simple construction, automatic single hand operation. Kit includes: 1 No. 1301 Anvil Tool Holder, 1 impact handle (No. 1302), and the following tools: 1310, 1311, 1312, 1313, 1315, 1316, 1321, 1716, 1717, 1722, 1726. Instructions are also included. Stakes all dia. to 3/32" max.

35F1658. Type 1707 ..... **25.00**

STANDARDIZED TURRET TERMINAL BOARDS



Terminals are securely staked and hot tinned. QQ-B626, comp 22, ¼ hard. Hot dip solder finish. Mil-F-14072, Type 221. Materials: PBE indicates Paper base electrical, Mil-P-3115C, Temp. 250°F max. Type XXXP, GEE indicates Glass Epoxy Mil-P-18177, 300°F max., Type G-10. All are 3/32" thick and double row of terminals (50 total) on 3/8" centers except (*) which has a single row with 25 terminals. All are 13/16" long.

Double Turret—One Side (Fig. A)

Stk. No.	Type	Width	Spacing Btw Row	Mat'l	1-19	20-99	100-249
35F1640	15031*	½"	....	PBE	1.55	1.36	1.20
35F1641	15036	1½"	1 3/16"	PBE	3.85	3.27	2.89
35F1642	15236	1½"	1 3/16"	GEE	5.30	4.51	3.98
35F1643	15033	2"	1½"	PBE	3.90	3.32	2.93
35F1644	15233	2"	1½"	GEE	6.15	5.23	4.61
35F1645	15034	2½"	2"	PBE	4.10	3.48	3.00
35F1646	15234	2½"	2"	GEE	6.60	5.61	4.95
35F1647	15035	3"	2½"	PBE	4.25	3.61	3.19

Feed Thru Double Turret—Both Sides (Fig. B)

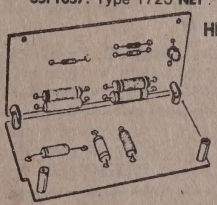
35F1648	15046	1½"	1 3/16"	PBE	6.10	5.19	4.58
35F1649	15043	2"	1½"	PBE	6.10	5.19	4.58
35F1650	15044	2½"	2"	PBE	6.40	5.44	4.80
35F1651	15045	3"	2½"	PBE	6.60	5.61	4.95

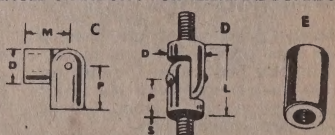
PROTOTYPE KIT

This complete assortment of basic materials and staking tools for experimental and production runs. For construction of 1/16" and 3/32" thick terminal boards. Eyelets, terminals, brackets, bushings and push-in terminals included with instructions.

35F1657. Type 1723 NET **20.00**

HINGED STANDOFFS FOR TERMINAL BOARDS





Saves time, space and service cost. Interconnects circuits or services without danger of shorting. Wiring exposed for easy test. Made of brass per Mil Spec. QQ-B-626A, Comp. 22, ½ hard. Cadmium plated per QQ-P-416 Class 2, Type 2, and gold iridite.

Female Hinged Standoffs (Fig. C)

Stock No.	Type	Thread	Size, Inches D	M	P	1-19	20.99	100-249
92F055	351	4-40*	.187	.375	.375	.37	.34	.30
92F056	352	4-40	.187	.375	.625	.40	.36	.33
92F057	353	6-32*	.250	.375	.375	.39	.35	.32
92F058	354	8-32	.250	.375	.625	.41	.37	.34
92F059	355	8-32*	.250	.375	.375	.39	.35	.32
92F060	356	8-32	.250	.375	.625	.41	.37	.34

*.172 deep; all others .250 deep.

Male Hinged Standoffs (Fig. D) All Have ½" Body Length

Stock No.	Type	Thread	Size, Inches D	S	P	1-19	20-99	100-249
92F061	357	4-40	.187	¼	¼	.36	.33	.30
92F062	358	6-32	.250	5/16	¼	.37	.34	.31
92F063	359	8-32	.250	5/16	¼	.37	.34	.31

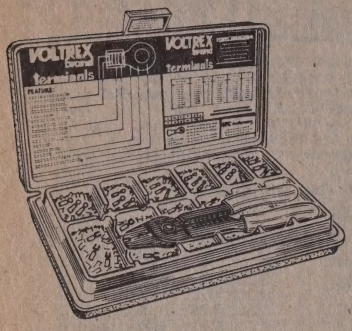
Standoffs For Front Of Boards (Fig. E)

Stock No.	Type	Use with Hinge #	Length	1-19	20-99	Per 100
92F064	1657A	351	¾"	....	....	11.00
92F065	1657B	352	1"	....	....	13.20
92F066	1548E	353	¾"	....	....	11.60
92F067	1548F	354	1"	....	....	13.20
92F068	1692D	355	¾"	....	....	11.00
92F069	1692E	356	1"	....	....	13.20
92F070	1657	357	½"	....	....	8.50
92F071	1548C	358	½"	....	....	8.40
92F072	1692C	359	½"	....	....	8.25

12

SPC technology Terminal & Connector Kits

LAB ASSORTMENT TERMINAL KITS



VOLTREX

TERMINAL FEATURES

- **Beveled terminal mouth to facilitate wire insertion**
- **Multiple "V" grooves for maximum holding power and minimum contact resistance**
- **Open barrel construction for visual inspection**
- **Barrel to pad transition designed to provide maximum resistance to flexing and bending**
- **Constructed from pure electrolytic copper annealed to facilitate proper flow for maximum installed strength**
- **One piece, burr free construction for economy, mechanical strength, and maximum electrical conductivity**
- **Uniform electro-tin plating for maximum corrosion protection**

These handy kits contain an assortment of 300 of our most popular electrical connectors in a durable plastic box. They are just right for on-the-job repairs or in the design lab. Each kit comes with a crimp tool and convenient identification chart.

SEE INDEX FOR COMPLETE TERMINAL LINE

QUICK DISCONNECT KIT

Type 8403-QD. An assortment of insulated male and female quick disconnect terminals including the nylon insulated version. Includes 25 pieces each of the terminals listed below plus the Voltrex multi-purpose crimp tool.

CFS-TV-1818	CMS-TV-1818	CFS-DF-1818	CMS-DF-1818
CFS-TV-1825	CMS-TV-1825	CFS-DF-1425	CMS-DF-1425
CFS-TV-1425	CMS-TV-1425	CFS-TV-1412	CFS-TV-1418

23N3622. NET 37.95

"SURE GRIP" KIT

Type 8403-DY. Includes 25 each of the terminals listed below. Terminals grip wire and insulation. Features a nylon insulating sleeve for maximum insulation and resistance to harmful agents. Also includes Voltrex multi-purpose crimp tool.

CRS-DY-1806	CMS-DO-1425	CRS-DY-1410	CBS-DY-1806
CRS-DY-1810	CFS-DY-1425	CRS-DY-1010	CBS-DY-1406
CRS-DY-1406	CGS-DY-1408	CFS-DO-1425	CBS-DY-1010

31N006. NET 37.95

VINYL INSULATED KIT

Type 8403-TV. Terminals are pure electrolytic copper annealed for maximum strength and electro-tin plated for high conductivity. Vinyl insulation prevents short circuits. Kit contains 25 each of the following terminals. Also includes Voltrex multi-purpose crimp tool.

CRS-TV-1806	CBS-TV-1406	CRS-TV-1410	CMS-TV-1425
CRS-TV-1810	CGS-TV-1410	CRS-TV-1010	CFS-TV-1425
CRS-TV-1406	CGS-TV-1810	CBS-TV-1806	CCS-TV-1414

31N005. NET 31.95

NON-INSULATED KIT

Type 8403-TO. Terminals have one piece construction for maximum electrical conductivity and mechanical strength. Kit contains 25 each of a wide variety of the most commonly used terminals, listed below, plus a Voltrex multi-purpose crimp tool.

CRS-TO-1806	CBS-TO-1406	CRS-TO-1410	CFS-TO-1425
CRS-TO-1810	CGS-TO-1810	CRS-TO-1010	CCP-TO-1414
CRS-TO-1406	CMS-TO-1425	CBS-TO-1806	CCS-TO-1414

31N004. NET 27.95

LAB ASSORTMENT A-MODE CONNECTOR KITS

A-Mode Connector Features

- **Self-mating**
- **Stackable**
- **Mountable**
- **Low contact resistance**
- **High dielectric**
- **Color coded housings**
- **UL recognized**
- **Snap action**
- **Self-cleaning**
- **High reliability**
- **Maximum conductivity**
- **High voltage protection**
- **Vibration Protected**
- **CSA listed**

These kits are an engineer's dream come true. Because of the unique features of the A-Mode, one kit covers all your lab and design needs. The kit contains 50 connectors, a crimp tool, and an insertion/extraction tool in a tough clear plastic box. **See index for complete line of A-mode connectors.**

AEK-015 15 AMP KIT INCLUDES:

50—15 Amp Contacts
50—Housings In Assorted Colors of Red, Black, Green, White
1—Insertion/Extraction Tool
1—Crimp Tool

13N1988. NET 69.95

AEK-030 30 AMP KIT INCLUDES:

50—30 Amp Contacts
50—Housings In Assorted Colors Of Red, Black, Green, White
1—Insertion/Extraction Tool
1—Crimp Tool

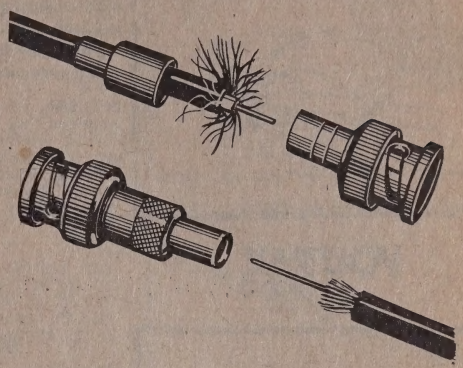
13N1989. NET 69.95

Connector and Tubing Kits

SPC technology

FASTFIT® CONNECTOR KITS

- 50 or 75 Ohm Impedance
- 500 VRMS Peak Rating
- 1500 VRMS Dielectric Withstanding
- <.1 db Insertion Loss at 2 ghz
- VSWR 1.05 at 1 Ghz, 1.2 at 2 Ghz
- No Contact Crimp or Soldering



This unique family of connectors reduces installation time from four minutes to forty seconds, because the self-extinguishing, pre-loaded, center contact is made by simply pushing the trimmed center conductor home. The termination is completed by simply sliding the braid crimp stress relief ferrule over the end of the unit and crimp. See page 410 for a complete description of the Fastfit family. Each kit contains crimp-type connectors from the Fastfit family and include the crimping tool and cable stripper, everything needed to make termination of your coaxial cable fast, simple and reliable.

Type 8411-UG88/1. Fastfit kit for terminating RG 58/U cable with a type BNC connector. Contains: 25 pieces of type CP88-1 con nector, a pre-set cable stripper, and ratchet type crimp tool.
23N3623. NET **99.95**

Type 8411-UG88/2. Fastfit kit for terminating RG 59/U and RG 62/U cable with a type BNC connector. Contains: 25 pieces of type CP88-2 connector, a pre-set cable stripper, and ratchet type crimp tool.
23N3624. NET **99.95**

VOLTREX brand

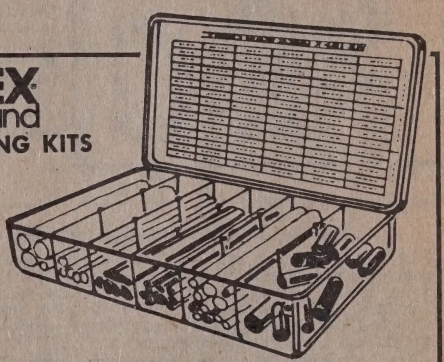
WHISPER 6″ HIGH-TEMPERATURE HEAT GUN

- Flameless
- Whisper quiet
- Hi-temp—1000°F at nozzle

Lightweight and whisper-quiet to reduce operator fatigue. Reaches 1000°F at the nozzle to shrink full range of tubing types, including Teflon. No extra nozzles to buy. No separate stands—(it stands self-supported in 5 basic positions plus hand-held mode.) Controlled heat path permits positioning hands close to nozzle without burning—assures precise control of shrinking process.
37N1447. NET **50.93**

VOLTREX brand

ENGINEER'S TUBING KITS



Including:

PVC
Flexible Polyolefin
Semi-Rigid Polyolefin
Polyolefin Melt Liner
Kynar
FEP Teflon
TFE Teflon
Teflon Melt Liner
Tefzel
Neoprene

These kits contain an assortment of sizes of the tubing types listed below. This material assortment enables the engineer to decide upon the best tubing in each application before putting his prototype into production. The deluxe kits are perfect starter kits since they include the Whisper 6 Heat Gun. The Basic 6″ kit contains 75-6″ lengths of tubing plus 20 caps; the Advanced 100mm kit contains 125-100mm lengths of tubing plus 32 caps. Both are packaged in a high-impact, polystyrene, Sectioned storage box with "Quick-Scan" chart. See pages 554-560 for listings of the complete Voltrex tubing line.

BASIC 6″ KIT INCLUDES:
18 Pcs. Type **PVS**
18 Pcs. Type **FPS**
14 Pcs. Type **SRS**
14 Pcs. Type **SRC**
11 Pcs. Type **KYS**
5 Pcs. Type **NPS**
9 Pcs. Type **TTS**
6 Pcs. Type **MLC**
37N1436 ..... **29.95**

ADVANCED 100MM KIT INCLUDES:
18 Pcs. Type **PUS**
18 Pcs. Type **FPS**
12 Pcs. Type **KYS**
10 Pcs. Type **NPS**
14 Pcs. Type **MLT**
10 Pcs. Type **SST**
5 Pcs. Type **TFM**
10 Pcs. Type **TTS**
9 Pcs. Type **TTO**
9 Pcs. Type **TZS**
20 Pcs. Type **SRC**
12 Pcs. Type **MLC**
37N1443 ..... **49.95**

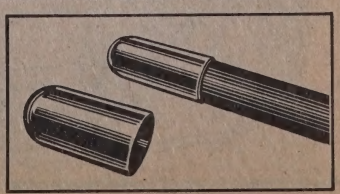
DELUXE KIT

In addition to the kits described above, the deluxe kits include the Whisper "6" heat gun, designed for shrinking Voltrex brand tubing.
37N1449. Deluxe Basic 6″ kit **69.95**
37N1444. Deluxe Advanced 100mm Kit **89.95**

12

HEAT SHRINKABLE POLYOLEFIN CAP ASSORTMENT

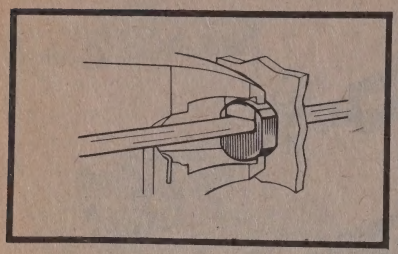
Type 8400-CAP. Kit contains an assortment of sizes in both type SRC, molded semi-rigid polyolefin caps, and type MLC, molded polyolefin caps with a meltable liner, 170 caps in total, packaged in a sturdy polystyrene storage box with a handy identification chart on the lid. Kit contains: 50-1/8″ SRC, 25-1/4″ SRC, 20-3/8″ SRC, 20-1/2″ SRC, 25-3/16″ MLC, 15-1/4″ MLC, 10-3/8″ MLC, 10-1/2″ MLC, and 5-1″ MLC.
23N3625. NET **59.95**



Product Assortments

CORD STRAIN RELIEF BUSHING ASSORTMENT

WITH PINCERS INSERTION TOOL



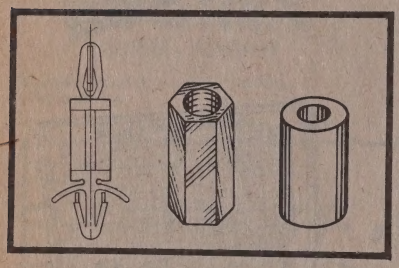
- Cut Assembly Costs
- Rugged One-piece Nylon Construction
- Withstands Temperatures to 300°F
- Eliminates Need to Tie or Knot Cord
- Prevents Insulation/Conductor Injury
- Lengthens Cord Life
- Compact—Snaps Into Panel Hole
- Non-slip Grip on Cord

8408-SRF. An assortment of sizes and cord contours, 120 total, of cord strain relief bushings that eliminate the strain that tears cord loose from contacts or connections without injuring the insulation. Comes complete with specially designed pincers for ease in installation. Kit contains 10 pieces each of types SRD-10, SRF-10, SRF-20 and SRF-30; 20 pieces each of types SRF-40, SRF-50, SRR-10, and SRR-20. Packaged in sturdy polystyrene sectioned storage box with handy identification chart in the lid.

23N3612. NET **44.95**

VOLTREX brand

SPACER/STANDOFF ASSORTMENTS



8404-HSS CPVC PLASTIC SPACER ASSORTMENT

- Self-Extinguishing
- Temperature Resistance To 225°F
- High Dielectric Strength
- Takes #4, #6, #8 and #10 Screws

Assortment contains 9 of the most popular sizes of type HSS, self-tapping spacers and 9 of the most popular sizes of type RP, through-hole spacers: 18 different parts with a total of 800 spacers made of rugged polyvinyldichloride. Packaged in a sturdy polystyrene sectioned storage box with a handy identification chart on the lid. Contains: 50 each of HSS-44, HSS-46, HSS-64, HSS-66, HSS-85, HSS-86, RP4-250, RP4-500, RP4-750, RP6-250, RP6-500, RP6-750, RP8-500, and RP8-750. 25 each of HSS-48, HSS-68, HSS-88 and RP8-1000.

23N3613. NET **34.95**

METAL SPACER ASSORTMENTS

Kit contains 25 pieces each of 6 of the most popular sizes of round, thru-hole, round tapped, and hex tapped metal spacers, a total of 350 pieces. Sizes included are #4 screw ¼" and ⅜" lengths; #6 screw ½", ¾", and 1" lengths; and #8 screw 1" length. Packaged in a sturdy polystyrene sectioned storage box with handy identification chart in the lid.

Stk. No.	Type	Description	EACH
23N3614	8404-RTA	Aluminum Spacer Kit	49.95
23N3615	8404-RTB	Brass Spacer Kit	54.95

8404-PCS SNAP-IN SPACER ASSORTMENT

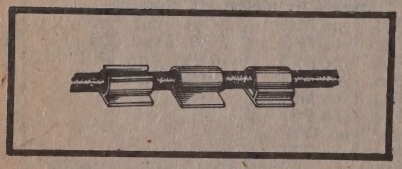
- Finger Grip Insertion—No need For Tools
- Locking Tension Flange Secures Boards
- Makes Repair or Replacement Easy
- Ample Chassis For Assembled PC Boards

Type PCS molded nylon spacers snap into .187" hole in the chassis; PC board with .156" holes snaps onto the spacer for quick assembly. Kit contains 50 pieces each of ¼", ⅜", ½", ¾", 1" and 1¼" heights, 300 pieces total, packaged in a sturdy polystyrene sectioned storage box with a handy identification chart in the lid.

23N3616. NET **27.95**

VOLTREX brand

CABLE CLAMP ASSORTMENTS

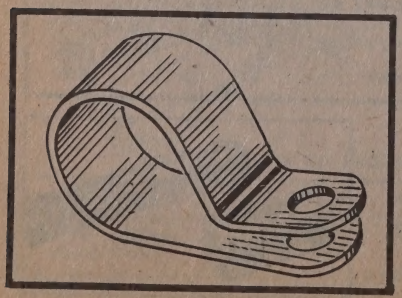


ADHESIVE BACKED CABLE CLAMP ASSORTMENT

- For Cable, Tube, Pipe or Rod Up To ½" diameter
- Made From Strong, Resilient CPVC Plastic
- No Holes To Bore, No Screws To Fasten

Kit 8408-ACC contains 355 pieces, 12 different parts, of quickly installed adhesive mounted cable clamps packaged in sturdy polystyrene sectioned storage box with handy identification chart in the lid. Contents: 40 ALC-2, 15 ALC-4, 10 ALC-6, 50 ACC-1, 50 ACC-2, 25 ACC-3, 15 ACC-4, 10 ACC-6, 50 AUC-1, 50 AUC-2, 25 AUC-3, and 15 AUC-4.

23N3617. NET **47.95**



SCREW MOUNTED CABLE CLAMP ASSORTMENTS

Quickly and securely fasten tubing, rod, cable, etc. to a flat surface with just a single screw or nail. Assortment contains 50 pieces each for ⅛" and ¼" diameter; 25 pieces each for ⅜" and ½" diameter; 15 pieces for ¾" diameter; and 10 pieces for 1" diameter. Packaged in a sturdy polystyrene sectioned storage box with handy identification chart in the lid.

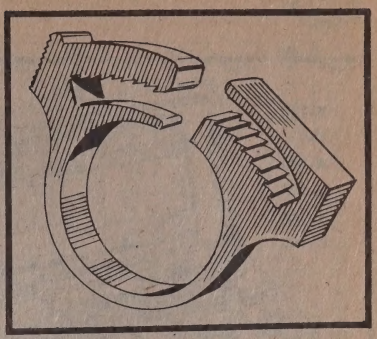
Stk. No.	Type	Description	NET
23N3618	8408-ECC	Ethyl Cellulose Clamp Assortment	12.95
23N3619	8408-NCC	Nylon Cable Clamp Assortment	13.95

See SPC Technology Voltrex Brand Wiring Accessories Pages For More Information on the Parts in the Assortments Listed Above.

Wire Tie Kits and Parts Bins

SPC technology

VOLTREX brand CABLE/HOSE CLAMP ASSORTMENTS

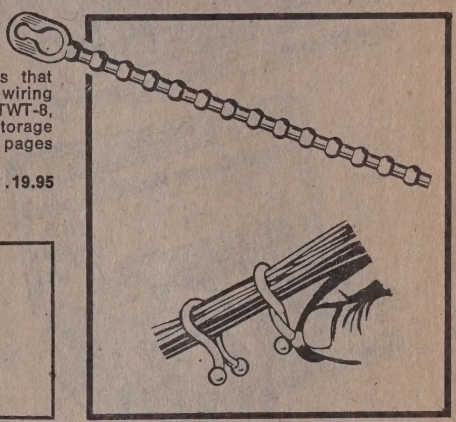


- **Reduces Installation Costs**
- **Easily Adjustable and Removable**
- **Durable, Secure, Fast, Economical**
- **Installs In Seconds With Pliers**

8408-CHC. Kit contains an assortment of 8 sizes, 239 pieces total, of the unique type CHC cable/hose clamp. These clamps can be installed in seconds with a standard pair of pliers, sometimes with only two fingers, and can be removed by a simple twist action with pliers. Clamps are packaged in a sturdy polystyrene sectioned storage box with a handy identification chart in the lid. Contents: 50 pieces each CHC-19 and -21; 25 pieces each CHC-28, -32, -35 and -38; 20 pieces CHC-52; and 10 pieces CHC-58. See Voltrex Wiring Accessories pages.

23N3620. NET **44.95**

VOLTREX brand REMOVABLE WIRE TIE ASSORTMENT



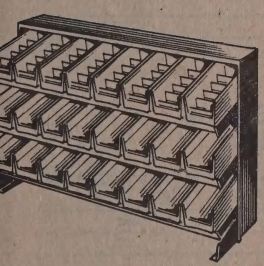
- **Variety of Colors For Coding**
- **Reusable**
- **Polyethylene and Nylon**
- **Fast and Secure**

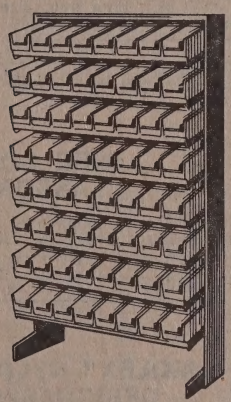
8408-TWT. This kit contains a number of releasable cable bundling devices that quickly and reliably secure wire harnesses, but are easily removed to allow wiring changes and are reusable. Contents: 50 pieces each TWT-3, TWT-4, TWT-5, TWT-8, BTP-4 (in mixed colors), and BTN-4. Packaged in sturdy polystyrene sectioned storage box with handy identification chart in the lid. See Voltrex Wiring Accessories pages for complete description.

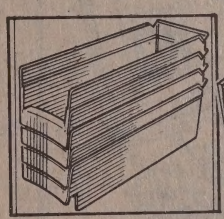
23N3621. NET **19.95**

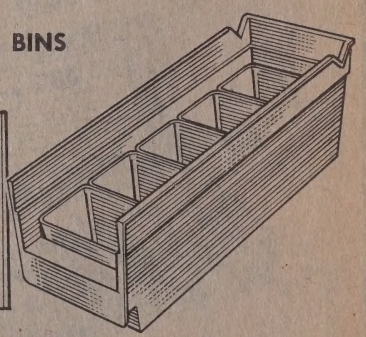
Contact Newark For SPC Technology Catalogs On Products Including Terminals, Tubing and Connectors and For Price Quotes On Larger Quantities.

HEAVY-DUTY SEAMLESS PLASTIC PARTS BINS

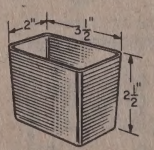




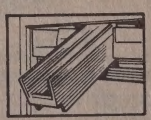




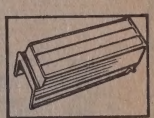
Plastic Bins Nest—Space saving storage



Plastic Mini-Bins fit into larger bins for "sub-storage"



Hanging Notch—Hang bins for easy access



Bottom Runners—Aid bin removal, Reduce friction

BENCH MODEL

Keep work materials close at hand. 24 plastic parts bins are conveniently displayed on a table or work bench. Unit is free standing or can be bolted to bench top. Rack only. Accommodates 24—4″x4″x12″ bins.

FLOOR MODEL

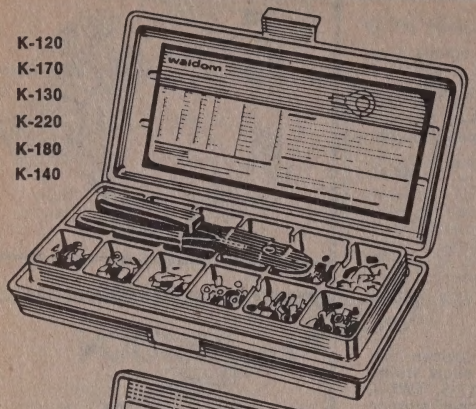
64-bin unit uses a small amount of floor space. Unit is free standing or may be bolted to floor or wall. Rack only. Accommodates 64 — 4″x4″x12″ bins.

Stk. No.	Type	Description	Weight	ea.
80N358	RACK-01	3-shelf bench-top rack Set-up size: 22″x36″x13″	29	40.95
80N359	RACK-02	8-shelf floor rack Set-up size: 61″x35½″x12″	75	94.50

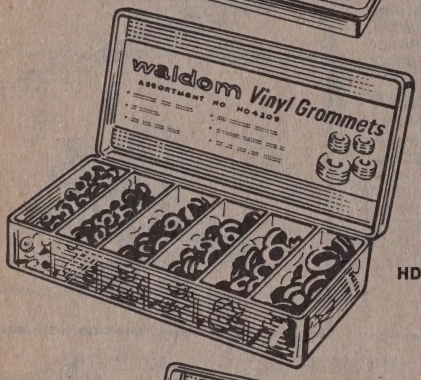
Injection-molded plastic bins are perfect for storing parts. High-density polyethylene resists the ravages of grease, chemicals, and wear like no other bins can! Pull "handle" makes removing from shelf easy . . . without disturbing adjacent bins. Optional Mini-Bins fit neatly inside larger bins to accommodate various size parts. Extra-high sides help prevent spills. In OSHA safety yellow, with convenient label area that accepts standard pressure-sensitive file folder labels (not incl.).

Stock No.	Type	Description	Pcs./ carton	Ship. wt.	Less than carton Price Ea.	Per carton
80N353	BIN-01	2½″x2″x3½″ Mini-Bin	100	5	.58	49.50
80N354	BIN-05	4″x4″x12″ Parts Bin	50	16½	2.58	110.25
80N355	BIN-10	4″x8″x12″ Parts Bin	25	18	3.99	89.78

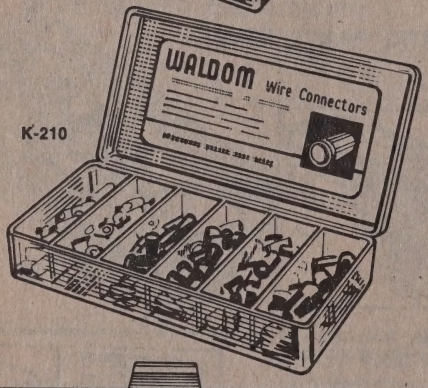
KIT ASSORTMENTS



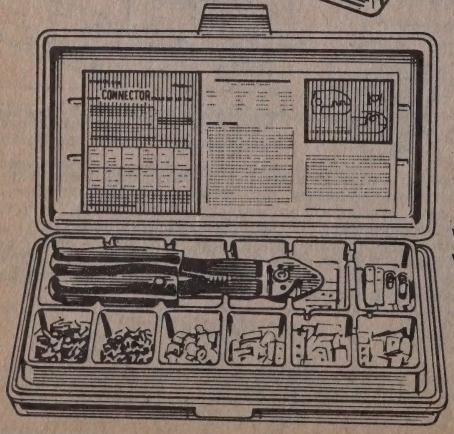
K-120
K-170
K-130
K-220
K-180
K-140



HD-4209



K-210



WM-72
WM-50

DELUXE SOLDERLESS TERMINAL ASSORTMENTS

- **Quick and Easy Connections**
- **Includes Crimping Tool**

Kit No. K-120 Non-insulated: 510 pieces of the most pop. ring, flanged spade, spade term. & butt, quick disconnect and closed end connectors in wire ranges 22-18 thru 16-14.

Kit No. K-170 Non-insulated: Cont. 180 pieces of ring, spade, flanged spade, hook, quick disconnect term., butt connectors. Wire ranges: 22-18 through 12-10.

Kit No. K-130 Insulated & Non-insulated: Cont. 600 pieces of ring, flanged spade, spade term. and butt, quick disconnect and closed end connectors. Wire ranges: 22-18 through 6-12.

Kit No. K-220 Insulated & Non-insulated: Cont. 420 pieces of male & female quick disconnect term., wire ranges 18-14 through 12-10.

Kit No. K-180 Insulated: Cont. 120 pieces of flanged spade, spade, ring, quick disconnect term. and butt, closed end connectors in wire sizes 22-18 through 12-10.

Kit No. K-140 Insulated: Cont. 600 pieces of ring, flanged spade, spade term. and butt, quick disconnect, closed end connectors in wire sizes 22-18 through 16-20.

Stk. No.	Type	Net
49F1260	K-120	21.95
49F1261	K-170	13.95
49F1262	K-130	31.95
49F1263	K-220	33.95
49F1264	K-180	14.95
49F1265	K-140	39.95

VINYL GROMMET ASSORTMENT

Contains: total of 185 pieces; Size of chassis hole, ¼", 5/16", 3/8", 7/16", ½", 5/8". Wire hole size, 1/8", 3/16", ¼", 5/16", 3/8", ½". Complete with reusable plastic box.

Stk. No.	Type	Net
49F1266	HD-4209	4.95

WIRE CONNECTOR ASSORTMENT

Contains 130 wire connectors. From 3 #10 down to 2 #24 plus all combinations in between. Rated at 300 Volts.

Stk. No.	Type	Net
49F1267	K-210	4.95

MOLEX® NYLON CONNECTOR DESIGNER/SERVICE KIT

- **Unbreakable Container**
- **Crimping Tool Included**
- **A Must For Every Creative Designer**

Includes all circuit capacities: Male and Female housings, terminals, crimp tool, terminal ejector tool and detailed instructions. **Kit No. WM-72:** Uses .062" pin terminals. Miniature Series. Contains parts to assemble male and female connector housing from 1 to 36 circuit connectors. Total of 56 connectors. Crimp and extractor tool included. UL and CSA recognized. **Kit No. WM-50:** Uses .093" pin terminals. Standard Series. Contains parts to assemble male and female connector housing from 1 to 15 circuit connectors. Total of 45 connectors. Crimp and extractor tool included. UL and CSA recognized.

Stk. No.	Type	Net
49F1268	WM-72	39.95
30F774	WM-50	34.95

Cable and Power Cord Index

BELDEN

CABLE INDEX

Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page
8021	528	8261	524	8457	514	8603	527	8742	515	8916	522	9393	524	9484	527	9620	514	9826	522	83001	521
8022	528	8262	524	8458	514	8619	514	8743	515	8917	522	9394	517	9485	527	9621	514	9828	522	83002	521
8023	528	8267	524	8459	514	8620	514	8744	515	8918	522	9395	517	9499	527	9622	514	9850	524	83003	521
8024	528	8268	524	8460	514	8621	514	8745	515	8919	522	9397	517	9501	518	9623	514	9865	526	83004	521
8025	528	8279	526	8461	514	8622	514	8746	515	8920	522	9398	517	9502	518	9626	514	9867	526	83005	521
8045	526	8280	526	8465	514	8623	514	8747	515	9100	525	9402	519	9503	518	9641	528	9873	519	83006	521
8046	526	8281	526	8466	514	8624	514	8748	515	9154	516	9405	514	9504	518	9642	528	9874	519	83007	521
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8216	524	8429	517	8520	523	8720	516	8744	527	9267	524	9460	516	9579	520	9768	518	9965	517	83395	523
8218	524	8430	517	8521	523	8722	519	8795	527	9268	524	9461	516	9580	520	9769	518	9966	517	83396	523
8219	524	8431	517	8522	523	8723	519	8816	529	9269	524	9462	516	9581	520	9771	519	9967	517	83402	523
8221	524,	8434	519	8523	523	8724	519	8822	529	9271	524	9464	516	9582	520	9772	519	9968	517	83403	523
	525	8437	516	8524	523	8725	519	8823	529	9272	524	9466	527	9583	520	9773	519	9975	522	83404	523
8227	524	8441	516	8525	523	8726	519	8824	529	9273	524	9467	527	9584	520	9774	519	9976	522	83412	523
8232	524	8442	514	8527	523	8727	519	8825	529	9274	525	9468	527	9596	520	9775	519	9977	522	83413	523
8233	524	8443	514	8528	523	8728	519	8866	526	9283	525	9469	527	9597	520	9776	519	9978	522	83414	523
8237	524	8444	514	8529	523	8729	516	8868	526	9285	525	9470	527	9598	520	9777	519	9980	522	83415	523
8238	524	8445	514	8530	523	8730	519	8869	526	9287	525	9476	527	9600	522	9784	519	9981	522	83416	523
8240	524	8446	514	8531	523	8732	519	8870	526	9302	518	9477	527	9601	522	9794	527	9982	522	83423	523
8241	524,	8447	514	8538	523	8733	519	8878	528	9305	518,	9478	527	9602	522	9802	519	9983	522	83424	523
	525	8448	514	8597	523	8734	519	8879	528	9306	518	9479	527	9603	522	9803	519	9984	522	83425	523
8242	524	8449	514	8598	523	8737	516	8890	528	9309	518	9480	527	9604	522	9818	522	9985	522	83443	523
8254	524	8450	516	8599	523	8739	516	8897	528	9315	518	9481	527	9605	522	9820	522	9986	522	83444	523
8255	524	8451	516	8601	527	8740	514	8898	528	9319	518	9482	527	9606	522	9822	522	9987	522	83445	523
8259	524	8456	514	8602	527	8741	515	8899	528	9327	518	9483	527	9607	522	9824	522	83000	521	83446	523

13

POWER CORD INDEX

Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page
8452	534	17133	533	17195	533	17408	532	17508	530	17523	530	17605	530	17620	530	17676	532	19123	534		
8453	534	17134	533	17196	533	17409	532	17509	530	17524	531	17606	530	17621	530	17740	529,	19124	534		
8454	534	17135	533	17198	533	17412	532	17510	530	17525	531	17607	530	17622	530		530	19125	534		
8462	534	17136	533	17205	532	17419	532	17511	530	17526	531	17608	530	17623	530	17741	529,	19126	534		
8472	534	17137	533	17206	532	17422	532	17512	529,	17527	531	17609	530	17624	531		530	19140	534		
8474	534	17142	533	17236	532	17425	532		530	17528	531	17610	530	17625	531	17742	530	19201	534		
8478	534	17143	533	17237	532	17447	532	17513	529,	17530	531	17611	530	17626	531	17743	530	19205	534		
8479	534	17144	533	17238	532	17448	532		530	17531	531	17612	529,	17627	531	17745	530	19206	534		
8888	534	17145	533	17239	532	17449	532	17514	529,	17532	531		530	17628	531	17746	530	19215	534		
9997	533	17146	533	17250	532	17460	532		530	17533	531	17613	529,	17629	532	17749	530	19217	534		
9998	533	17147	533	17251	530	17461	532	17515	529,	17536	530		530	17630	531	17750	530	19326	534		
15725	532	17148	533	17252	532	17462	532		530	17537	530	17614	529,	17632	531	17751	530	19328	534		
15726	532	17149	533	17254	530	17463	532	17516	529,	17538	530		530	17633	531	17752	530	19352	534		
17005	533	17150	533	17255	532	17500	530		530	17539	530	17615	529,	17635	532	17753	531	19353	534		
17006	533	17151	533	17258	532	17501	530	17517	529,	17541	530		530	17636	530	17754	531	19354	534		
17009	533	17152	533	17276	532	17502	530		530	17542	530	17616	529,	17637	530	17755	531	19362	534		
17106	533	17153	533	17308	532	17503	530	17518	530	17600	530		530	17638	530	19105	534	19364	534		
17109	532	17154	533	17328	532	17504	530	17519	530	17601	530	17617	529,	17639	530	19106	534	4017410	533		
17112	532	17155	533	17403	532	17505	530	17520	530	17602	530		530	17641	530	19115	534	4017420	533		
17130	533	17191	533	17405	532	17506	530	17521	530	17603	530	17618	530	17642	530	19120	534	4017430	533		
17131	533	17192	533	17406	532	17507	530	17522	530	17604	530	17619	530	17675	532	19122	534				
17132	533	17194	533	17407	532																

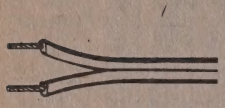
FLAT CABLE INDEX

Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page
9A22010	520	9A24010	520	9A26010	520	9B22010	520	9B24020	520	9L28024	520	9L28050	520		
9A22014	520	9A24014	520	9A26014	520	9B22015	520	9B24030	520	9L28025	520	9L28060	520		
9A22015	520	9A24015	520	9A26015	520	9B22020	520	9L28010	520	9L28026	520				
9A22016	520	9A24016	520	9A26016	520	9B22030	520	9L28014	520	9L28034	520				
9A22020	520	9A24020	520	9A26020	520	9B24010	520	9L28016	520	9L28037	520				
9A22030	520	9A24030	520	9A26030	520	9B24015	520	9L28020	520	9L28040	520				

BELDEN

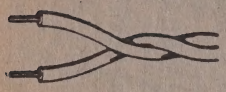
Multi-Conductor Cables

TWO CONDUCTOR SPEAKER CABLES



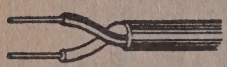
Parallel conductor cables for speaker lines. Also ideal for a variety of other audio and instrumentation applications. Chrome vinyl insulation, stranded. *solid.

Type No.	AWG and Cond.	Cable Width	Work Volt	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9708	18-2	.207″	300	36F052WA	7.25	36F052WF	28.45	36F052WM	56.90
8649	20-2	.146″	300	36F1816WA	5.55	36F1816WF	19.90	36F1816WM	39.75
8781*	22-2	.120″	300	36F133WA	3.99	36F133WF	11.90	36F133WM	23.80
8782	24-2	.115″	300	36F105WA	3.59	36F105WF	12.00	36F105WM	24.00



UNJACKETED. Twisted pair cable, vinyl insulated.

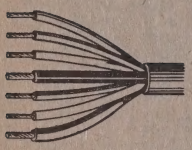
Type	AWG	Nom. O.D.	Work. Volt	Stock No.	100′	Stock No.	500′	Stock No.	1000′
8481	22 (solid)	.116″	350	36F068WA	4.62	36F068WF	15.05	36F068WM	30.10
8482	19 (solid)	.132″	350	36F1009WA	6.05	36F1009WF	22.25	36F1009WM	44.45
8460	18 (strd.)	.180″	450	36F1010WA	8.85	36F1010WF	34.60	36F1010WM	69.15
8470	16 (strd.)	.204″	600	.....	.....	36F1011WF	41.25	36F1011WM	82.45



JACKETED. As above, but with chrome vinyl overall jacket.

8740	22 (solid)	.160″	300	36F060WA	5.60	36F060WF	20.05	36F060WM	40.01
8442	22 (strd.)	.165″	350	.....	.....	36F039WF	22.85	36F039WM	45.70
8205	20 (strd.)	.190″	350	36F197WA	7.30	36F197WF	26.90	36F197WM	53.75
8461	18 (strd.)	.226″	450	36F1014WA	9.90	36F1014WF	39.85	36F1014WM	79.65
8471	16 (strd.)	.256″	600	.....	.....	36F1015WF	57.15	36F1015WM	100.00
8473	14 (strd.)	.332″	600	.....	.....	36F1021WF	90.75	36F1021WM	155.55
8477	12 (strd.)	.384″	600	.....	.....	36F1354WF	109.45	36F1354WM	218.85

MULTIPLE CONDUCTOR CABLES—NOT PAIRED



Stranded tinned copper conductors, color-coded, vinyl plastic insulated, with jacket overall. Voltage ratings: 22 AWG types, 200V; 18 types, 400V; 16 types, 600V; 14 types, 600V. Available only in spool sizes listed. USES: Audio, control cables, communication.

LISTED

22 AWG
UL 2576

20 AWG
UL 2464

18 AWG
UL 2263

Type	AWG & Con.	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
8442	22-2	.165″	.....	.....	36F039WF	22.85	36F039WM	45.70
8443	22-3	.164″	36F040WA	6.95	36F040WF	28.10	36F040WM	56.20
8444	22-4	.182″	36F041WA	9.30	36F041WF	38.35	36F041WM	76.65
8445	22-5	.194″	36F042WA	10.85	36F042WF	45.80	36F042WM	91.55
8446	22-4, 18-2	.236″	36F043WA	16.65	36F043WF	72.40	36F043WM	124.05
8447	22-5, 18-2	.254″	36F044WA	19.80	36F044WF	84.45	36F044WM	144.75
8448	22-6, 18-2	.254″	36F045WA	20.95	36F045WF	91.90	36F045WM	157.50
8449	22-7, 18-2	.269″	36F046WA	22.15	36F046WF	99.35	36F046WM	170.25
9430	22-7	.214″	.....	.....	36F1819WF	61.25	36F1819WM	105.00
8488	22-8	.205″	36F056WA	13.85	36F056WF	60.90	36F056WM	104.40
9421	22-8	.229″	37F3085WA	17.85	37F3085WF	71.15	37F3085WM	121.95
9423	22-9	.229″	37F3086WA	19.90	37F3086WF	86.20	37F3086WM	147.75
8456	22-10	.264″	36F200WA	22.25	36F200WF	100.00	36F200WM	171.90
8457	22-12	.264″	36F201WA	25.15	36F201WF	100.00	36F201WM	195.45
8458	22-15	.320″	36F198WA	39.65	36F198WF	150.45	36F198WM	300.90
9431	22-20	.345″	.....	.....	36F1084WF	194.40	36F1084WM	388.80
8459	22-25	.370″	36F199WA	62.05	36F199WF	243.00	36F199WM	486.00
9432	22-30	.400″	.....	.....	36F1085WF	279.00	36F1085WM	558.00
9433	22-40	.455″	37F3087WA	94.85	37F3087WF	369.00	37F3087WM	738.00
9434	22-50	.500″	.....	.....	37F3088WF	461.25	37F3088WM	922.50
9444	20-4	.217″	36F1086WA	11.50	36F1086WF	50.35	37F1086WM	100.00
9445	20-5	.239″	36F1087WA	14.00	36F1087WF	61.00	36F1087WM	104.55
9439	20-7	.260″	37F3089WA	19.80	37F3089WF	87.60	37F3089WM	150.15
9455	20-9	.317″	36F1088WA	26.25	36F1088WF	101.10	36F1088WM	202.20
9457	20-12	.338″	36F1089WA	32.30	36F1089WF	126.90	36F1089WM	253.80
9458	20-15	.369″	36F1090WA	42.35	36F1090WF	169.05	36F1090WM	338.10
8489	18-4	.254″	36F002WA	17.10	36F002WF	74.75	36F002WM	128.10
8465	18-5	.286″	36F1017WA	20.95	36F1017WF	95.20	36F1017WM	163.20
8467	18-7	.324″	36F1018WA	29.60	36F1018WF	114.25	36F1018WM	228.45
8469	18-9	.379″	36F1019WA	38.10	36F1019WF	151.60	36F1019WM	303.15
8466	18-12	.412″	36F144WA	52.45	36F144WF	217.05	36F144WM	434.10
8468	18-15	.505″	36F145WA	71.50	36F145WF	288.25	36F145WM	576.45
8619	18-19	.505″	36F1351WA	87.50	36F1351WF	340.90	36F1351WM	681.75
9626	18-25	.600″	36F1099WA	100.00	36F1099WF	439.50	36F1099WM	879.00
9405	18-6, 16-2	.377″	.....	.....	37F3090WF	131.25	37F3090WM	262.50
8620	16-4	.375″	36F146WA	28.00	36F146WF	112.30	36F146WM	224.55
9620	16-5	.405″	36F1095WA	36.85	36F1095WF	131.55	36F1095WM	263.10
8621	16-7	.455″	36F147WA	51.75	36F147WF	197.70	36F147WM	395.40
9621	16-9	.510″	.....	.....	36F1096WF	244.30	36F1096WM	488.55
8622	16-12	.600″	36F148WA	84.30	36F148WF	333.15	36F148WM	666.30
8623	16-15	.685″	37F3091WA	117.95	37F3091WF	479.25	37F3091WM	958.50
8624	16-19	.719″	37F3092WA	144.65	37F3092WF	582.00	37F3092WM	1164.00
9622	16-25	.820″	.....	.....	36F1097WF	669.00	36F1097WM	1338.00
8627	14-4	.495″	36F1094WA	50.35	36F1094WF	196.45	36F1094WM	392.85
9623	14-5	.545″	36F1098WA	60.90	36F1098WF	234.30	36F1098WM	468.60
8628	14-7	.615″	37F3093WA	84.90	37F3093WF	336.70	37F3093WM	673.35
8629	14-12	.755″	37F3094WA	142.65	37F3094WF	590.25	37F3094WM	1180.50

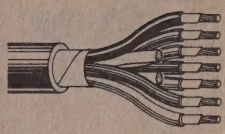
13

Multi-Conductor Cables

BELDEN

TYPE S NEOPRENE CONTROL CABLES (NON-PAIRED)

Industrial, utility, and motor control applications; remote control of automatic electric equipment. Neoprene jacket offers resistance to oils, acids, oxidation, abrasion, and impact.



Type	AWG & Cond.	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9420	16-5	.520″	37F3095WA	60.30	37F3095WF	250.90	37F3095WM	501.75
9422	16-7	.600″	37F3096WA	78.60	37F3096WF	330.15	37F3096WM	660.30
9424	16-9	.630″	37F3097WA	100.00	37F3097WF	420.75	37F3097WM	841.50
9425	16-12	.720″	37F3098WA	136.25	37F3098WF	574.50	37F3098WM	1149.00
9427	16-16	.800″	37F3099WA	171.00	37F3099WF	721.50	37F3099WM	1443.00
9429	16-20	.880″	37F3100WA	210.35	37F3100WF	898.50	.....	.....

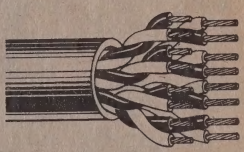
ELECTRICAL POWER AND CONTROL CABLES—MIL-C-3432

9215	18-2	.310″	.....	.....	37F3101WF	91.45	37F3101WM	156.75
9216	16-2	.335″	.....	.....	37F3102WF	100.00	37F3102WM	189.90
9217	14-2	.400″	.....	.....	37F3103WF	124.90	37F3103WM	249.75
9218	18-3	.345″	.....	.....	37F3104WF	100.00	37F3104WM	193.35
9219	16-3	.365″	.....	.....	37F3105WF	129.85	37F3105WM	259.65

MULTIPLE CONDUCTOR CABLES-PAIRED

All types below have #22 AWG solid tinned copper conductors, vinyl insulated and cabled in pairs. Chrome vinyl jacket overall. 8746 spools are one piece −0 +20%. *Not UL Listed.

SOLID



UL LISTED

Type	No. of Pairs	Nom. O.D.	Work Volt	Stk. No.	100′	Stk. No.	500′	Stk. No.	1000′
8741	2	.209″	300	36F061WA	9.45	36F061WF	37.45	36F061WM	74.90
8742	3	.244″	300	36F062WA	12.55	36F062WF	52.25	36F062WM	100.00
8757	4	.259″	300	.....	.....	36F069WF	69.30	36F069WM	118.80
9158	5	.307″	200	37F3106WA	18.40	37F3106WF	83.30	37F3106WM	142.80
8743	6	.305″	200	36F063WA	20.40	36F063WF	92.15	36F063WM	157.95
9160	8	.346″	200	.....	.....	37F3107WF	110.40	37F3107WM	220.80
8744	9	.354″	200	36F064WA	29.75	36F064WF	118.20	36F064WM	236.40
8753*	11	.369″	200	36F067WA	37.75	36F067WF	152.35	36F067WM	304.65
8754*	13	.394″	200	36F1465WA	42.30	36F1465WF	171.90	36F1465WM	343.80
8745	15	.405″	200	36F065WA	51.10	36F065WF	203.70	36F065WM	407.40
8755*	19	.430″	200	.....	.....	36F1466WF	254.65	36F1466WM	509.25
8756*	23	.495″	200	.....	.....	36F1467WF	308.55	36F1467WM	617.10
8746*	27	.535″	200	.....	.....	36F1468WF	351.60	36F1468WM	703.20

STRANDED

As preceding types but Type 22 AWG stranded (7x30) conductors provide greater flexibility, can be run in intricate bands.

UL LISTED

9744	2	.230″	300	.....	.....	36F1475WF	44.10	36F1475WM	88.20
9745	3	.280″	300	.....	.....	36F1476WF	65.45	36F1476WM	112.20
9746	4	.295″	300	.....	.....	36F1477WF	83.65	36F1477WM	143.40
8747	6	.320″	200	36F075WA	24.60	36F075WF	100.00	36F075WM	192.75
8748	9	.389″	200	36F076WA	36.75	36F076WF	147.75	36F076WM	295.50
9747	12	.440″	200	36F1478WA	52.35	36F1478WF	203.35	36F1478WM	406.65
8749	15	.455″	200	36F077WA	61.35	36F077WF	248.40	36F077WM	496.80
9748	19	.520″	200	36F1479WA	80.35	36F1479WF	312.85	36F1479WM	625.65
9749	23	.570″	200	36F1480WA	100.00	36F1480WF	402.00	36F1480WM	804.00
8750	27	.595″	200	.....	.....	36F078WF	470.25	36F078WM	940.50

20 AWG (10 x 30)

8205	1	.190″	350	36F197WA	7.30	36F197WF	26.90	36F197WM	53.75
9750	3	.309″	300	37F3108WA	18.20	37F3108WF	81.90	37F3108WM	140.40
9751	6	.376″	300	37F3109WA	33.95	37F3109WF	132.85	37F3109WM	265.65
9752	9	.439″	300	37F3110WA	50.35	37F3110WF	201.70	37F3110WM	403.35
9755	15	.531″	300	37F3111WA	79.10	37F3111WF	314.10	37F3111WM	628.20

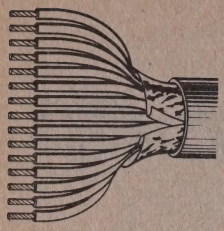
18 AWG (16 x 30)

9740	1	.224″	400	.....	.....	37F3112WF	41.75	37F3112WM	83.50
9156	2	.287″	300	.....	.....	37F3113WF	80.50	37F3113WM	138.00
8690	3	.362″	400	37F3114WA	28.10	37F3114WF	107.55	37F3114WM	215.10
9157	4	.358″	300	37F3115WA	33.35	37F3115WF	129.90	37F3115WM	259.80
9159	5	.416″	300	.....	.....	37F1316WF	172.35	37F3116WM	344.70
8691	6	.475″	400	37F3117WA	57.70	37F3117WF	225.15	37F3117WM	450.30
9161	8	.478″	300	37F3118WA	71.40	37F3118WF	278.20	37F3118WM	556.35
8692	9	.575″	400	37F3119WA	81.05	37F3119WF	328.30	37F3119WM	656.55
9741	12	.675″	400	37F3120WA	100.00	37F3120WF	436.50	37F3120WM	873.00
9742	15	.785″	400	37F3121WA	139.42	37F3121WF	543.75	37F3121WM	1087.50
9743	19	.865″	400	37F3122WA	176.60	37F3122WF	687.75	37F3122WM	1375.50

13

BELDEN Shielded Cables

MULTI-CONDUCTOR OVERALL BELDFOIL SHIELD CABLE (NON-PAIRED)



UL LISTED

2464
300V
CSA Type
S-R PVC

Type	No. Cond.	AWG	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
8641	2	24 Strd.	.168″	36F157WA	8.45	36F157WF	34.40	36F157WM	68.80
9533	3	24 Strd.	.168″	37F3123WA	12.00	37F3123WF	46.05	37F3123WM	92.05
9534	4	24 Strd.	.180″	37F3124WA	14.70	37F3124WF	56.35	37F3124WM	100.00
9535	5	24 Strd.	.190″	37F3125WA	17.35	37F3125WF	66.80	37F3125WM	114.45
9536	6	24 Strd.	.205″	37F3126WA	19.25	37F3126WF	76.60	37F3126WM	131.25
9537	7	24 Strd.	.205″	37F3127WA	20.60	37F3127WF	82.20	37F3127WM	140.85
9538	8	24 Strd.	.220″	37F3128WA	22.60	37F3128WF	93.90	37F3128WM	160.95
9539	9	24 Strd.	.240″	37F3129WA	24.95	37F3129WF	100.00	37F3129WM	177.75
9540	10	24 Strd.	.250″	37F3130WA	26.10	37F3130WF	100.00	37F3130WM	193.95
9541	15	24 Strd.	.280″	37F3131WA	45.85	37F3131WF	170.70	37F3131WM	341.40
9542	20	24 Strd.	.310″	37F3132WA	61.10	37F3132WF	227.55	37F3132WM	455.10
9543	25	24 Strd.	.370″	37F3133WA	72.20	37F3133WF	281.25	37F3133WM	562,50
9544	30	24 Strd.	.390″	37F3134WA	86.65	37F3134WF	337.50	37F3134WM	675.00
9545	40	24 Strd.	.440″	37F3135WA	100.00	37F3135WF	443.25	37F3135WM	886.50
9546	50	24 Strd.	.490″	37F3136WA	141.00	37F3136WF	549.00	37F3136WM	1098.00

2 CONDUCTOR SHIELDED CABLES

OVERALL BELDFOIL SHIELD

Type No.	AWG	Nom. O.D.	Work Volt	Stock No.	100′	Stock No.	250′	Stock No.	500′	Stock No.	1000′
8640	28 Solid	.090″	100			36F087WE	14.45	36F087WF	28.90		
9452	24 Strd.	.135″	200	37F3137WA	10.35			37F3137WF	41.75	37F3137WM	83.50
8450	22 Solid	.118″	200	36F028WA	9.10	36F028WE	16.45	36F028WF	32.85	36F028WM	65.65
8451	22 Strd.	.135″	200	36F029WA	9.80	36F029WE	19.10	36F029WF	38.15	36F029WM	76.30
9451*	22 Strd.	.135″	200					37F3138WF	42.00	37F3138WM	84.00
8761	22 Strd.	.175″	350					36F165WF	34.65	36F165WM	69.30
9462	22 Strd.	.178″	300	36F1112WA	10.80			36F1112WF	41.05	36F1112WM	82.10
9461*	22 Strd.	.180″	350					37F3139WF	39.90	37F3139WM	79.80
8762	20 Strd.	.204″	350	36F166WA	10.70	36F166WE	21.80	36F166WF	43.50	36F166WM	87.00
9464*	20 Strd.	.204″	350					37F3140WF	48.75	37F3140WM	97.50
9154	20 Strd.	.198″	300					37F3141WF	41.75	37F3141WM	83.50
8760	18 Strd.	.222″	450			36F164WE	26.10	36F164WF	52.10	36F164WM	100.00
9460*	18 Strd.	.222″	450					37F3142WF	57.35	37F3142WM	100.00
8719	16 Strd.	.304″	600					36F1092WF	78.50	36F1092WM	134.55
8720	14 Strd.	.340″	750					36F1093WF	102.55	36F1093WM	205.05
8718	12 Strd.	.400″	1000					36F1091WF	154.00	36F1091WM	307.95

*Foil bonded to jacket for automatic stripping

OVERALL SPIRAL SHIELD

8739

8739	22 Solid	.160″	350	36F081WA	9.30			36F081WF	38.85	36F081WM	77.70
8737	22 Strd.	.170″	350	36F084WA	10.00	36F084WE	21.35	36F084WF	42.70	36F084WM	85.40
8759	20 Strd.	.199″	350	36F085WA	12.60			36F085WF	50.15	36F085WM	100.00
8790	18 Strd.	.231″	450	36F107WA	15.60	36F107WE	33.10	36F107WF	66.10	36F107WM	113.25
8780	16 Strd.	.266″	450	36F106WA	19.55			36F106WF	85.40	36F106WM	146.40

13

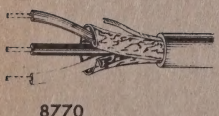
OVERALL BRAID SHIELD

8208

8437	22 Solid	.200″	300					36F093WF	56.20	36F093WM	100.00
8441	22 Strd.	.210″	300	36F036WA	14.10			36F036WF	61.55	36F036WM	105.45
8208	18 Strd.	.225″	200	36F195WA	19.95			36F195WF	87.80	36F195WM	150.45

3 CONDUCTOR, SHIELDED CABLES—VINYL

Chrome vinyl jacket; polyethylene insulation with BELDFOIL shield, except (*) braided shield, vinyl insulated (**) spiral shield. USES: Shielded instrumentation, sound, strain gauge, communication, etc.



8770

Type	AWG	Nom. O.D.	Work Volt	Stock No.	100 Ft.	Stock No.	250 Ft.	Stock No.	500 Ft.	Stock No.	1000 Ft.
8618	16 Strd.	.300″	600					36F1360WF	100.00	36F1360WM	180.00
8735*	22 Strd.	.199″	350	36F083WA	13.75			36F083WF	57.75	36F083WM	100.00
8771	22 Strd.	.175″	350			36F168WE	21.80	36F168WF	43.50	36F168WM	87.00
9770	22 Strd.	.145″	200			36F1083WE	24.95	36F1083WF	49.80	36F1083WM	99.60
8772	20 Strd.	.200″	350					36F169WF	54.90	36F169WM	100.00
8770	18 Strd.	.236″	450					36F167WF	69.85	36F167WM	119.70
8791**	18 Strd.	.236″	450	36F135WA	19.10				83.75	36F135WM	143.55
8643*	30 Strd.	.086″	200	36F136WA	16.20	36F1361WE	37.55				

4 CONDUCTOR SHIELDED CABLES

BELDFOIL

Type No.	AWG	Nom. O.D.	Work Volt	Stock No.	100′	Stock No.	500′	Stock No.	1000′
8729	22 Strd.	.265″	300			37F3143WF	99.05	37F3143WM	169.80
9418	18 Strd.	.230″	300	37F3144WA	21.70	37F3144WF	86.75	37F3144WM	148.65
8404*	20 Strd.	.295″	600	36F024WA	29.50	36F024WF	113.95	36F024WM	227.85
8424*†	20 Strd.	.295″	600	36F013WA	36.70	36F013WF	147.30	36F013WM	294.60
8407*#	16 Strd.	.416″	600	36F132WA	61.45				

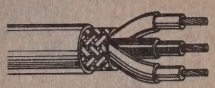
*braid shield; †rubber jacket; #neoprene jacket.

Shielded Cable

BELDEN

SINGLE AND MULTI-CONDUCTOR SHIELDED CABLE

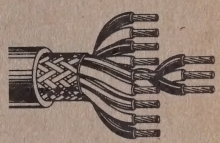
Suitable for general purpose use in communications and instrumentation applications. Cables have excellent resistance to moisture, weather, ozone, acids, alkali and flame.



Type	No. Cond.	AWG and Stranding	Nom. O.D.	Cap. pF/ft.	Ins. Thick.	Jacket Thick.	Stk. No.	100'	Stk. No.	500'	Stk. No.	1000'
9965	1	22 (19x34)	.100"	—	.010"	.010"	36F1117WA	12.35	36F1117WF	55.30	36F1117WM	100.00
9961	1	20 (19x32)	.109"	—	.010"	.010"	36F1118WA	12.95	36F1118WF	58.20	36F1118WM	100.00
9951	1	16 (19x29)	.139"	—	.010"	.016"	36F1119WA	17.15	36F1119WF	78.25	36F1119WM	134.10
9966	2	22 (19x34)	.176"	49	.010"	.020"	36F1120WA	20.75	36F1120WF	93.80	36F1120WM	160.80
9962	2	20 (19x32)	.192"	55	.010"	.020"	36F1121WA	23.90	36F1121WF	100.00	36F1121WM	183.60
9952	2	16 (19x29)	.238"	70	.010"	.025"	36F1122WA	28.70	36F1122WF	118.75	36F1122WM	237.45
9967	3	22 (19x34)	.184"	49	.010"	.020"	36F1123WA	28.30	36F1123WF	112.50	36F1123WM	225.00
9963	3	20 (19x32)	.202"	55	.010"	.020"	36F1131WA	29.15	36F1131WF	120.75	36F1131WM	241.50
9953	3	16 (19x29)	.250"	70	.010"	.025"	36F1125WA	39.65	36F1125WF	162.30	36F1125WM	324.60
9968	4	22 (19x34)	.200"	49	.010"	.020"	36F1126WA	31.70	36F1126WF	123.85	36F1126WM	247.65
9964	4	20 (19x32)	.212"	55	.010"	.020"	36F1127WA	35.35	36F1127WF	145.00	36F1127WM	289.95
9954	4	16 (19x29)	.270"	70	.010"	.023"	36F1128WA	50.15	36F1128WF	200.50	36F1128WM	400.95

SHIELDED CONTROL CABLE

Recommended for applications where remote switching of video camera function is required.



9260	6	6-20 (7x28)	.305"	35	.016"	.032"	36F1129WA	36.15	36F1129WF	126.60	36F1131WM	253.20
9261	12	12-20 (7x28)	.410"	35	.016"	.040"	36F1130WA	59.95	36F1130WF	214.05	36F1132WM	428.10

MICROPHONE CABLES

General purpose shielded cables, for all stage, studio and instrumentation applications. Rubber types have rubber insulated tinned copper conductors, tinned copper braid shield, black rubber jacket overall, (†) except black Neoprene jacket. (**) 8402 & 8408 have brown hypalon jacket. Vinyl types are similar, but have polyethylene insulated conductors, chrome vinyl jacket. (*) Miniature cables having tinned cadmium bronze conductors. USES: Mike, power supply, instrumentation, entertainment, etc.

RUBBER

Type	A.W.G. & Cond.	O.D.	Stock No.	50 Ft.	Stock No.	100 Ft.	Stock No.	250 Ft.	Stock No.	500 Ft.	Stock No.	1000 Ft.
8410	25-1	.245"	36F010WB	14.00	36F010WA	25.75	36F010WE	59.35	36F010WF	101.65		
8413*	24-2	.190"	36F026WB	14.90	36F026WA	27.25	36F026WE	64.85	36F026WF	111.15		
8406*	24-3	.223"			36F202WA	35.55			36F202WF	145.65		
9394	20-1	.190"							37F3145WF	72.40	37F3145WM	124.05
8412	20-2	.268"	36F011WB	15.60	36F011WA	29.60	36F011WE	67.50	36F011WF	115.65	36F011WM	231.30
8402**	20-2	.268"			36F1355WA	30.75	36F1355WE	73.35	36F1355WF	125.65		
8423	20-3	.277"	36F012WB	17.85	36F012WA	32.55	36F012WE	76.25	36F012WF	130.60	36F012WM	261.15
8424	20-4	.295"	36F013WB	19.55	36F013WA	36.70	36F013WE	85.95	36F013WF	147.30	36F013WM	294.60
8425	20-5	.323"			36F014WA	45.25	36F014WE	100.00				
8426	20-6	.349"			36F015WA	55.60	36F015WE	116.50				
8427	20-7	.360"			36F016WA	60.55	36F016WE	126.85				
8418	20-8	.386"			36F018WA	68.55	36F018WE	142.20				
9395	18-1	.235"							37F3146WF	87.15	37F3146WM	149.40
8428†	18-2	.296"			36F017WA	38.85			36F017WF	153.00	36F017WM	306.00
8408**	16-2	.385"			36F1356WA	53.20			36F1356WF	219.55		
8407†	16-4	.422"			36F132WA	61.45	36F132WE	129.60				

VINYL PLASTIC

Type	A.W.G. & Cond.	O.D.	Stock No.	50 Ft.	Stock No.	100 Ft.	Stock No.	250 Ft.	Stock No.	500 Ft.	Stock No.	1000 Ft.
8401	25-1	.200"	36F020WB	7.35	36F020WA	13.50	36F020WE	28.30	36F020WF	56.45	36F020WM	100.00
8411	25-1	.144"	36F021WB	5.75	36F021WA	10.95	36F021WE	22.15	36F021WF	44.20	36F021WM	88.40
9397	24-2	.176"			37F3147WA	21.80			37F3147WF	80.80	37F3147WM	138.45
9398	24-3	.186"			37F3148WA	25.55			37F3148WF	94.45	37F3148WM	161.85
8420*	24-2	.185"	36F027WB	10.10	36F027WA	18.90	36F027WE	43.70	36F027WF	87.35		
8422	22-2	.231"	36F022WB	11.30	36F022WA	19.60	36F022WE	42.10	36F022WF	84.10	36F022WM	144.15
8403	20-3	.244"	36F023WB	14.55	36F023WA	27.40	36F023WE	60.50	36F023WF	103.60	36F023WM	207.15
8404	20-4	.248"			36F024WA	29.50	36F024WE	66.50	36F024WF	113.95	36F024WM	227.85
8405	20-5	.275"					36F1358WE	77.80	36F1358WF	133.30	36F1358WM	266.55

HI-FI AND STEREO CABLES

Phono Pick-Up Cable. Type 8421, Hi-Fi connecting cable, spiral wrapped shield, chrome vinyl jacket with cellular polyethylene insulated conductor, 8431 is rubber insulated, shield and brown cotton braid. 8419, and 8429, are vinyl insulated. * No shield, no jacket. color-coded polyethylene insulation and individual spiral wrapped shields; chrome vinyl jacket.

Dual-Channel Audio Cable, Type 8416. Designed for stereo and language lab hookup applications. Tinned copper-copperweld conductors, with color-coded polyethylene and individual spiral wrapped shields; chrome vinyl jacket. † per channel, +50 ft. below.

Miniature Audio Connecting Cable, Type 8417. Double BELFOIL aluminum-mylar shields provide total shielding for critical audio and instrumentation applications. Copper-copperweld conductor cellular polyethylene insulation, chrome vinyl jacket.

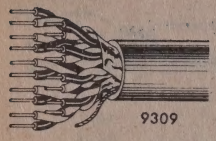
Type	No. of Cond.	AWG and (stranding)	Nom. O.D.	Nom. mmf/ft.	Stock No.	25 Ft.	Stock No.	100 Ft.	Stock No.	250 Ft.
8430*	2	32 (7x40)	.050"	21	36F158WC	2.26			36F158WE	13.15
9436	4	32 (7x40)	.065"	22	37F2460WC	3.96	37F2460WA	9.20		
8429	2	32 (7x40)	.057"	22	36F150WC	3.55			36F150WE	24.15
8419	3	32 (7x40)	.067"	30	36F159WC	4.20			36F159WE	29.75
8431	1	24 (16x36)	.095"	96	36F152WC	3.35	36F152WA	10.80		
8421	1	25 (7x33)	.180"	18	36F226WC	4.01	36F226WA	11.90	36F226WE	26.55
8416	2	25 (7x33)	.213"	35†	36F126WC	4.34	36F126WA	14.35	36F126WE	32.30
9454**	2	30 (7x38)	.049"	12	36F051WC	10.00	36F051WA	27.40		
8417	1	25 (7x33)	.140"	25	36F127WC	3.31	36F127WA	9.75	36F127WE	21.00

**Low Capacitance—Quad Systems.

13

MULTI-PAIRED OVERALL SHIELDED INSTRUMENTATION CABLES

Tinned copper, vinyl insulated, twisted-pairs, overall BELDFOIL aluminum-polyester shield. Stranded copper drain wire, chrome vinyl jacket.


9309

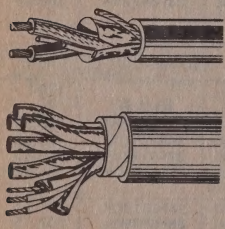
Type	No. Pairs	AWG and Stranding	Nom. O.D.	Cap. pF/ft.	Stk. No.	100′	Stk. No.	500′	Stk. No.	1000′
28 AWG										
8640	1	28 (solid)	.090″	55	.....	.....	36F087WF	28.90	.....	.....
22 AWG UL 2464										
9302	2	22 (solid)	.224″	35	36F1469WA	11.05	36F1469WF	46.55	36F1469WM	93.10
9305	4	22 (solid)	.265″	35	36F622WA	19.00	36F622WF	78.75	36F622WM	135.00
9306	6	22 (solid)	.321″	35	36F1470WA	22.40	36F1470WF	100.00	36F1470WM	174.90
9309	9	22 (solid)	.373″	35	36F1471WA	32.50	36F1471WF	126.15	36F1471WM	252.30
9315	15	22 (solid)	.437″	35	36F1472WA	56.80	36F1472WF	224.50	36F1472WM	448.95
9319	19	22 (solid)	.475″	35	36F1473WA	70.10	36F1473WF	275.65	36F1473WM	551.25
9327	27	22 (solid)	.571″	35	36F1474WA	94.95	36F1474WF	374.70	36F1474WM	749.40
24 AWG UL 2464 CSA TYPE S-R-PVC										
9501	1	24 (7 x 32)	.156″	41	36F623WA	8.75	36F623WF	36.35	36F623WM	72.65
9502	2	24 (7 x 32)	.222″	30	36F624WA	15.70	36F624WF	64.95	36F624WM	111.30
9503	3	24 (7 x 32)	.232″	30	36F625WA	21.00	36F625WF	87.25	36F625WM	149.55
9504	4	24 (7 x 32)	.252″	30	36F626WA	26.95	36F626WF	100.00	36F626WM	192.00
9505	5	24 (7 x 32)	.295″	30	36F627WA	33.70	36F627WF	119.95	36F627WM	239.85
9506	6	24 (7 x 32)	.295″	30	36F628WA	38.85	36F628WF	138.15	36F628WM	276.30
9507	7	24 (7 x 32)	.300″	30	36F629WA	44.45	36F629WF	158.40	36F629WM	316.80
9508	8	24 (7 x 32)	.330″	30	36F630WA	50.40	36F630WF	179.70	36F630WM	359.40
9509	9	24 (7 x 32)	.340″	30	36F631WA	56.20	36F631WF	200.55	36F631WM	401.10
9510	10	24 (7 x 32)	.380″	30	36F636WA	62.05	36F636WF	221.10	36F636WM	442.20
9515	15	24 (7 x 32)	.425″	30	36F637WA	90.85	36F637WF	324.00	36F637WM	648.00
9519	11	24 (7 x 32)	.450″	30	37F3154WA	100.00	37F3154WF	410.25	37F3154WM	820.50
9525	25	24 (7 x 32)	.530″	30	36F638WA	148.05	36F638WF	528.75	36F638WM	1057.50
9550	50	24 (7 x 32)	.715″	30	36F639WA	292.55	36F639WF	1045.50	36F639WM	2089.50

38-51 PAIR CABLES

Have 22 AWG solid copper conductors, 8751 vinyl insulated, 8752 polypropylene insulated. BELDFOIL shield overall, chrome vinyl jacket. 0 + 20% on spools.

Type	No. Cond.	Nom. O.D.	Stock No.	500′	Stock No.	1000′
8751	51 pr.	.700″	36F079WF	912.00	36F079WM	1824.00
8752	38 pr.	.600″	36F074WF	775.50	36F074WM	1551.00

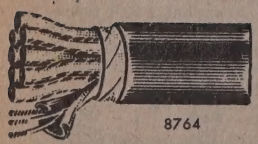
DATALENE INDIVIDUALLY SHIELDED CABLES



Type	No. Pairs	AWG and Stranding	Nom. O.D.	Cap. pF/ft.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9182	1	22 (19 x 34)	.350″	8.8	.....	.....	37F3149WF	100.75	37F3149WM	201.45
9184	2	22 (solid)	.420″	8.7	.....	.....	37F3150WF	144.70	37F3150WM	289.35
9730	3	24 (7 x 32)	.350″	12.5	37F3151WA	29.05	37F3151WF	113.10	37F3151WM	226.20
9731	6	24 (7 x 32)	.460″	12.5	37F3152WA	60.65	37F3152WF	236.20	37F3152WM	472.35
9732	9	24 (7 x 32)	.570″	12.5	37F3153WA	89.10	37F3153WF	347.10	37F3153WM	694.20
9733	11	24 (7 x 32)	.610″	12.5	37F3154WA	100.00	37F3154WF	413.25	37F3154WM	826.50
9734	12	24 (7 x 32)	.630″	12.5	37F3155WA	100.00	37F3155WF	444.00	37F3155WM	888.00
9735	15	24 (7 x 32)	.700″	12.5	37F3156WA	141.00	37F3156WF	549.00	37F3156WM	1098.00
9736	17	24 (7 x 32)	.730″	12.5	37F3157WA	163.80	37F3157WF	638.25	37F3157WM	1276.50
9737	19	24 (7 x 32)	.740″	12.5	37F3158WA	186.90	37F3158WF	728.25	37F3158WM	1456.50
9738	27	24 (7 x 32)	.920″	12.5	37F3159WA	265.65	37F3159WF	1035.00	37F3159WM	2070.00

MULTIPLE PAIR INDIVIDUALLY SHIELDED AUDIO CABLE

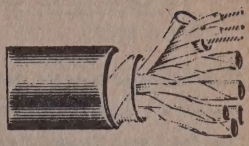
Tinned copper; .013″ vinyl insulation; each pair and drain wire under BEDFOIL aluminum-polyester shield. Chrome vinyl jacket.


8764

Type	No. Pairs	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
22 AWG SOLID UL 2464								
8767	3	.279″	36F190WA	22.60	36F190WF	100.00	36F190WM	175.20
8768	6	.379″	36F191WA	46.05	36F191WF	182.85	36F191WM	365.70
8764	9	.425″	36F192WA	62.50	36F192WF	259.95	36F192WM	519.90
8765	11	.470″	36F193WA	75.25	36F193WF	308.50	36F193WM	616.95
8766	15	.525″	36F194WA	100.00	36F194WF	423.00	36F194WM	846.00
22 AWG (7 x 30 STRANDED) UL 2493								
8777	3	.301″	36F1332WA	25.55	36F1332WF	101.85	36F1332WM	203.70
8778	6	.416″	36F1333WA	51.55	36F1333WF	213.70	36F1333WM	427.35
8774	9	.443″	36F1334WA	83.50	36F1334WF	313.35	36F1334WM	626.70
8775	11	.486″	36F1335WA	90.95	36F1335WF	371.50	36F1335WM	742.95
9768	12	.486″	36F1385WA	99.15	36F1385WF	399.00	36F1385WM	798.00
8776	15	.565″	36F1336WA	119.35	36F1336WF	492.75	36F1336WM	985.50
9769	17	.615″	36F1386WA	145.00	36F1386WF	574.50	36F1386WM	1149.00
8769	19	.625″	36F1337WA	161.90	36F1337WF	657.00	36F1337WM	1314.00
8773	27	.745″	36F1338WA	222.55	36F1338WF	933.75	36F1338WM	1867.50

MULTIPLE PAIR INDIVIDUALLY SHIELDED AUDIO CABLE (Cont'd)

Type	No. Pairs	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
20 AWG (10 x 30 STRANDED) UL 2464								
9402	2	.300″			37F3160WF	100.00	37F3160WM	171.45
9873	3	.356″	36F1387WA	33.25	36F1387WF	128.70	36F1387WM	257.40
9874	6	.471″	36F1388WA	66.60	36F1388WF	261.10	36F1388WM	522.15
9875	9	.555″	36F1389WA	98.45	36F1389WF	381.00	36F1389WM	762.00
9876	11	.580″	36F1390WA	100.00	36F1390WF	459.00	36F1390WM	918.00
20 AWG UL 2493								
9877	12	.600″	36F1391WA	124.25	36F1391WF	494.25	36F1391WM	988.50
9879	15	.655″	36F1393WA	150.15	36F1393WF	597.00	36F1393WM	1194.00
18 AWG UL 2483								
9773	3	.392″			36F1394WF	165.15	36F1394WM	330.30
9774	6	.570″			36F1395WF	337.75	36F1395WM	675.45
9775	9	.625″			36F1396WF	510.00	36F1396WM	1020.00
9776	12	.750″			36F1397WF	679.50	36F1397WM	1359.00
9777	15	.820″			36F1398WF	847.50	36F1398WM	1693.50



8777

Standard put-ups are 100′ -500′ -1000′ One piece −0 +20% on spool

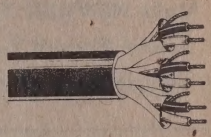
DIRECT BURIAL AUDIO & DATA CABLE

Tinned copper, polypropylene insulated BELDFOIL aluminum-polyester shield over individually twisted pairs with 22 AWG stranded tinned copper drain wire. Black High Density Polyethylene jacket.

Type	No. Cond.	AWG and Stranding	Nom. O.D.	Cap. pF/ft.	Ins. Thick.	Jacket Thick.	Stock No.	500′	Stock No.	1000′
9883	6	20 (10 x 30)	.340″	30	.013″	.040″	36F647WF	136.20	36F647WM	272.40
9886	12	20 (10 x 30)	.480″	30	.013″	.045″	36F648WF	286.60	36F648WM	573.15
9802	2	20 (Solid)	.190″	25	.013″	.035″	37F3161WF	40.45	37F3161WM	80.85
9803	3	20 (Solid)	.205″	23	.013″	.035″	37F3162WF	51.45	37F3162WM	100.00

Tinned copper, polypropylene insulated, conductors cabled. BELDFOIL aluminum-polyester shield overall, 22 AWG stranded tinned copper drain wire, black High Density Polyethylene jacket.

9890	10	20 (Solid)	.310″		.013″	.040″	36F649WF	152.80	36F649WM	305.55
9894	15	20 (Solid)	.390″		.013″	.045″	36F651WF	198.45	36F651WM	396.90



13

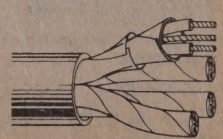
SPECIAL USE CABLES

Type	AWG & Cond. Shield	AWG & Cond. Unshield	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
8434	25-4		.165″	36F1032WA	14.30	36F1032WF	62.65	36F1032WM	107.40
8723	22-2		.165″	36F1033WA	14.65	36F1033WF	63.00	36F1033WM	108.00
8728	22-2		.198″			36F1353WF	99.05	36F1353WM	169.80
8724	22-2	22-2	.165″			36F1346WF	61.00	36F1346WM	104.55
8722	20-2	20-2	.230″			36F185WF	80.85	36F185WM	138.60
8734*	22-1	22-2	.194″	36F186WA	13.85	36F186WF	55.65	36F186WM	100.00
8732*	22-2	22-2	.190″ x .300″	36F173WA	17.25	36F173WF	70.70	37F173WM	121.20
8787	22-4	20-2	.290″			37F3163WF	136.45		
8786	24-4	22-2	.236″	36F138WA	19.25	36F138WF	86.05		
9685	22-2	22-1	.199″			37F3164WF	46.50	37F3164WM	92.95
8733	22-1								
	22-1								
	22-1		.205″	36F188WA	16.20	36F188WF	64.15		
8730	22-2	22-2	.205″			37F3165WF	77.10	37F3165WM	132.15
8788	22-3	22-2	.236″			37F3166WF	100.00		
9686	20-3	16-3	.295″			37F3167WF	100.00	37F3167WM	198.00
9155	20-2	18-2	.256″			37F3168WF	84.30	37F3168WM	144.45
9784	24-6	Pair	.454″			36F645WF	225.85	36F645WM	451.65
8725	20-4	Pair	.345″			36F646WF	213.15	36F646WM	426.30
9771	22-7	Triplets	.550″			37F3169WF	393.00		
9772	22-12	Triplets	.725″			37F3170WF	666.55		
3726	22-3	Quads	.330″	37F3171WA	47.10	37F3171WF	183.75	37F3171WM	367.50
8727	22-7	Quads	.435″	37F3172WA	96.35	37F3172WF	408.75	37F3172WM	817.50

*Braid

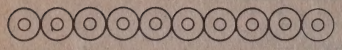
8724

8786



8725

BELDEN Flat Cable, Fire Alarm Cable

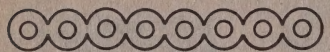


- Meets UL Listed Style No. 2697.
- Passes FR-1 Vertical Flame Test.
- Stranded Tinned Copper Conductors, 10 to 30 Conductors per Cable.
- Temperature Rating: 80°C.
- Voltage Rating: 300V.
- Conductor Insulation: .010".
- Length: Standard 100' put-ups.

BONDED FLAT CABLE

Type	AWG and Stranding	No. of Cond.	Nom. Width (in.)	Nom. Thick. (in.)	Stock No.	100'
7 STRAND CONSTRUCTIONS						
9A22010	22 (7 x 30)	10	.51	.051	37F3173WA	26.10
9A22014	22 (7 x 30)	14	.71	.051	37F3174WA	31.35
9A22015	22 (7 x 30)	15	.77	.051	36F679WA	39.20
9A22016	22 (7 x 30)	16	.82	.051	37F3175WA	35.80
9A22020	22 (7 x 30)	20	1.01	.051	36F680WA	52.15
9A22030	22 (7 x 30)	30	1.53	.051	36F681WA	78.15
9A24010	24 (7 x 32)	10	.44	.044	36F669WA	20.05
9A24014	24 (7 x 32)	14	.62	.044	37F3176WA	24.15
9A24015	24 (7 x 32)	15	.66	.044	36F671WA	30.10
9A24016	24 (7 x 32)	16	.70	.044	37F3177WA	27.55
9A24020	24 (7 x 32)	20	.88	.044	36F672WA	40.10
9A24030	24 (7 x 32)	30	1.32	.044	36F673WA	60.15
9A26010	26 (7 x 34)	10	.39	.039	36F665WA	16.90
9A26014	26 (7 x 34)	14	.55	.039	37F3178WA	20.35
9A26015	26 (7 x 34)	15	.59	.039	36F666WA	25.40
9A26016	26 (7 x 34)	16	.62	.039	37F3179WA	23.25
9A26020	26 (7 x 34)	20	.78	.039	37F3180WA	33.80
9A26030	26 (7 x 34)	30	1.17	.039	36F668WA	50.70
19 STRAND CONSTRUCTIONS						
9B22010	22 (19 x 34)	10	.51	.051	36F682WA	32.30
9B22015	22 (19 x 34)	15	.77	.051	36F683WA	48.50
9B22020	22 (19 x 34)	20	1.02	.051	36F684WA	64.50
9B22030	22 (19 x 34)	30	1.53	.051	36F685WA	96.70
9B24010	22 (19 x 36)	10	.45	.045	36F674WA	23.65
9B24015	22 (19 x 36)	15	.68	.045	36F675WA	41.40
9B24020	22 (19 x 36)	20	.90	.045	36F676WA	55.15
9B24030	22 (19 x 36)	30	1.35	.045	37F3181WA	82.70

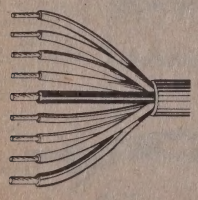
Make NEWARK Your One Stop Source For All Your Electronic Components And Accessories

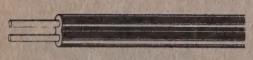


- Meets UL Listed Style No. 2651.
- Passes FR-1 Vertical Flame Test.
- Tinned Copper Stranded Conductors, 10 to 60 Conductors per Cable.
- Temperature Rating: 105°C.
- Voltage Rating: 300V.
- Length: Standard 100' put-ups.

LAMINATED FLAT CABLE

Type	AWG and Stranding	No. of Cond.	Nom. Width (in.)	Nom. Thick. (in.)	Stock No.	100'
9L28010	28 (7 x 36)	10	.50	.034	36F652WA	15.25
9L28014	28 (7 x 36)	14	.70	.034	36F653WA	21.00
9L28016	28 (7 x 36)	16	.80	.034	36F654WA	24.10
9L28020	28 (7 x 36)	20	1.00	.034	36F655WA	30.10
9L28024	28 (7 x 36)	24	1.20	.034	36F656WA	36.55
9L28025	28 (7 x 36)	25	1.25	.034	36F657WA	37.90
9L28026	28 (7 x 36)	26	1.30	.034	36F658WA	39.00
9L28034	28 (7 x 36)	34	1.70	.034	36F659WA	51.10
9L28037	28 (7 x 36)	37	1.85	.034	36F661WA	56.35
9L28040	28 (7 x 36)	40	2.00	.034	36F662WA	60.15
9L28050	28 (7 x 36)	50	2.50	.034	36F663WA	75.10
9L28060	28 (7 x 36)	60	3.00	.034	36F664WA	93.25





- UL Subject 1424
- Complies with NEC Article 760 Power Limited Circuits.
- Suitable for Use in Tray Cable Installations.
- 105°C—300V
- Passes the UL 70,000 BTU Flame Test

FIRE ALARM AND TRAY CABLES

Power limited fire protective signaling cable for use in accordance with NEC Article 760 power limited circuits. 9596, 9597, and 9598 also comply with NEC Article 725, Class 2 or 3 circuits. Suitable for appropriate tray cable installations. Red vinyl jacket.

Type	AWG	No. of Cond.	Shield	Stock No.	500'	Stock No.	1000'
9576	22 Solid	6	No	37F3182WF	56.00	37F3182WM	100.00
9577	22 Solid	9	No	37F3183WF	77.45	37F3183WM	132.75
9584	22 Solid	12	No	37F3184WF	99.95	37F3184WM	171.30
9596	19 Solid	2	No	37F3185WF	27.85	37F3185WM	55.65
9597	19 Solid	4	No	37F3186WF	61.60	37F3186WM	105.60
9598	19 Solid	6	No	37F3187WF	91.10	37F3187WM	156.15
9571	18 Solid	2	No	37F3188WF	40.80	37F3188WM	81.55
9574	18 Solid	2	Yes	37F3189WF	50.05	37F3189WM	100.00
9578	18 Solid	4	Yes	37F3190WF	79.55	37F3190WM	136.35
9572	16 Solid	2	No	37F3191WF	50.85	37F3191WM	100.00
9575	16 Solid	2	Yes	37F3192WF	61.70	37F3192WM	105.75
9579	16 Solid	4	Yes	37F3193WF	100.00	37F3193WM	173.10
9580	14 Solid	2	No	37F3194WF	79.45	37F3194WM	136.20
9581	14 Solid	2	Yes	37F3195WF	98.80	37F3195WM	169.35
9582	12 Solid	2	No	37F3196WF	100.00	37F3196WM	185.55
9583	12 Solid	2	Yes	37F3197WF	110.65	37F3197WM	221.25

Additional Cables Which Meet UL Subject 13 Power Limited Circuit Listed in Belden Catalog 878

13

Teflon & Shielding Cable

BELDEN

TEFLON HOOK-UP WIRE

Concentrically stranded silver coated copper conductor, extruded TFE Teflon insulated. Recommended for miniature cable applications, because of thermal and electrical properties. Suitable for internal wiring soldering applications where insulation melt is a problem. Outstanding in their resistance to oil, oxidation, heat, sunlight, flame. Remain flexible at low temperatures. Resistant to ozone, water, alcohol, gasoline, acids, alkalis, aromatic carbon and solvents. Specify color: 1-10 (see color chart).

TYPE E MIL-W-16878 TEFLON 600V-200°C U/L STYLE 1213

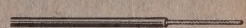
Type No.	AWG and Stranding	Nom O.D. (Inches)	Insul. Thickness	Specify Color	Stk. No.	100′	Stk. No.	500′	Stk. No.	1000′
83000	30 (7x38)	.033	.010″	1-10	36F610 WA	8.30	36F610 WF	24.38	36F610 WM	47.00
83001	28 (7x36)	.036	.010″	1-10	36F611 WA	8.70	36F611 WF	25.73	36F611 WM	49.70
83002	26 (7x34)	.039	.010″	1-10	36F612 WA	9.65	36F612 WF	29.28	36F612 WM	56.80
83003	24 (19x36)	.044	.010″	1-10	36F613 WA	11.90	36F613 WF	38.83	.....	.....
83004	24 (7x32)	.044	.010″	1-10	36F614 WA	10.15	36F614 WF	32.38	36F614 WM	63.00
83005	22 (7x30)	.050	.010″	1-10	36F615 WA	11.75	36F615 WF	38.25	36F615 WM	74.75
83006	22 (19x34)	.050	.010″	1-10	36F1187 WA	12.95	36F1187 WF	43.55	36F1187 WM	83.35
83007	20 (19x32)	.058	.010″	1-10	36F1188 WA	15.00	36F1188 WF	50.00	36F1188 WM	100.00
83008	20 (7x28)	.058	.010″	1-10	36F1189 WA	13.95	36F1189 WF	49.00	.....	.....

COLOR CHART

1. Brown	6. Light Blue
2. Red	7. Violet
3. Orange	8. Gray
4. Yellow	9. White
5. Green	10. Black

TYPE EE-MIL-16878 TEFLON 1000V-200°C U/L STYLE 1180

Type No.	AWG Stranding	Nom. O.D. (Inches)	Insul. Thickness	Specify Color	Stk. No.	100′	Stk. No.	500′	Stk. No.	1000′
83023	24 (19x36)	.053	.014″	1-10	36F1719WA	15.15	36F1719WF	50.00	.....	.....
83025	22 (7x30)	.060	.014″	1-10	36F1720WA	15.70	36F1720WF	50.00	.....	.....
83026	22 (19x34)	.060	.014″	1-10	36F1721WA	16.90	36F1721WF	51.15	36F1721WM	100.80
83027	20 (19x32)	.068	.014″	1-10	36F1722WA	19.90	36F1722WF	60.30	36F1722WM	119.10
83028	20 (7x28)	.068	.014″	1-10	36F1723WA	18.55	36F1723WF	56.70	.....	.....
83029	18 (19x30)	.079	.014″	1-10	36F1724WA	26.10	36F1724WF	83.25	36F1724WM	165.00
83030	16 (19x29)	.086	.014″	1-10	36F1176WA	29.50	36F1176WF	97.05	36F1176WM	192.60



TYPE ET-MIL-W-16878 TEFLON 250V-200°C MINIATURE HOOK-UP WIRE

83041	32 (7x40)	.021	.006″	1-10	36F1725WA	8.20	.....	.....	36F1725WM	50.50
83043	30 (7x38)	.024	.006″	1-10	36F1726WA	8.20	.....	.....	36F1726WM	49.45
83045	28 (7x36)	.027	.006″	1-10	36F1727WA	8.20	.....	.....	36F1727WM	49.20
83046	26 (7x34)	.031	.006″	1-10	36F1728WA	9.45	.....	.....	36F1728WM	54.10
83047	24 (7x32)	.036	.006″	1-10	36F1729WA	9.75	.....	.....	36F1729WM	60.20
83049	22 (7x30)	.042	.006″	1-10	36F1730WA	10.70	.....	.....	36F1730WM	68.25

TEFLON E SHIELDED TEFLON CABLES

Stranded silver coated copper conductors, type E extruded TFE teflon insulation, color coded, cabled, braided silver plated copper shield, white TFE Teflon tape wrapped jacket. Mil. Spec: MIL-W-16878 Type E. Temperature rating: −65C to 200C. 90% shield coverage. Suggested working voltage: 600 volts (RMS). Passes the FR-1 vertical flame test.

TWO CONDUCTOR

Type No.	AWG Stranding	Nom. O.D. (Inches)	Insul. Thickness	Jacket Thickness	Conductor Color Coding	Stk. No.	100′	Stk. No.	500′	Stk. No.	1000′
83315	30 (7x38)	.106	.010	.010	9, 10	36F1685WA	68.95	36F1685WF	244.03	36F1685WM	488.05
83316	28 (7x36)	.112	.010	.010	9, 10	36F1686WA	72.30	36F1686WF	250.05	36F1686WM	500.10
83317	26 (7x34)	.120	.010	.010	9, 10	36F1731WA	76.40	36F1731WF	261.50	36F1731WM	523.00
83318	24 (19x36)	.132	.010	.010	8, 10	36F1732WA	81.30	36F1732WF	278.75	36F1732WM	557.50
83319	22 (19x34)	.144	.010	.010	9, 10	36F1733WA	93.90	36F1733WF	309.60	36F1733WM	619.20
83320	20 (19x32)	.162	.010	.012	9, 10	36F1734WA	99.05	36F1734WF	349.20	36F1734WM	698.40
83321	18 (19x30)	.188	.010	.012	9, 10	36F1735WA	106.90	36F1735WF	444.28	36F1735WM	888.55
83322	16 (19x29)	.200	.011	.012	9, 10	36F1736WA	138.25	36F1736WF	577.93	36F1736WM	1155.85

THREE CONDUCTOR

83330	30 (7x38)	.111	.010	.010	2, 9, 10	36F1737WA	92.05	36F1737WF	313.10	36F1737WM	626.20
83331	28 (7x36)	.117	.010	.010	2, 9, 10	36F1738WA	93.40	36F1738WF	321.38	36F1738WM	642.75
83332	26 (7x34)	.126	.010	.010	2, 9, 10	36F1739WA	99.85	36F1739WF	352.63	36F1739WM	705.25
83333	24 (19x36)	.136	.010	.010	2, 9, 10	36F1740WA	100.00	36F1740WF	389.55	36F1740WM	779.10
83334	22 (19x34)	.156	.010	.012	2, 9, 10	36F1741WA	105.70	36F1741WF	435.53	36F1741WM	871.05
83335	20 (19x32)	.175	.010	.012	2, 9, 10	36F1742WA	123.40	36F1742WF	508.55	36F1742WM	1017.10
83336	18 (19x30)	.196	.010	.012	2, 9, 10	36F1773WA	147.10	36F1773WF	602.55	36F1773WM	1205.10
83337	16 (19x29)	.218	.011	.012	2, 9, 10	36F1774WA	207.85	36F1774WF	869.18	36F1774WM	1738.35

13

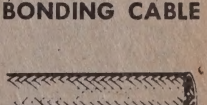
SPECIAL FEP TEFLON INSULATED INSTRUMENTATION CABLES

Tinned copper, insulated with FEP TEFLON, conductors cabled, noise reducing tape, 22 AWG (7x30) nickel coated copper drain wire, special BELDFOIL shield, red silicone rubber jacket except *yellow jacket. +150°C maximum operating temperature. Jacket working voltage: 1000V DC, shield to ground. Conductor colors: 9, 10, 2, 5.

Type No.	No. of Cond.	AWG Stranding	Nom. O.D.	Insul. Thickness	Jacket Thickness	Stk. No.	100′	Stk. No.	500′
83393*	2	20 (7x28)	.245″	.020	.030	36F1359WA	77.65	36F1359WF	321.43
83394	2	22 (7x30)	.204″	.015	.030	36F1481WA	53.90	36F1481WF	230.68
83395	3	22 (7x30)	.213″	.015	.030	36F1482WA	67.05	36F1482WF	279.88
83396	4	22 (7x30)	.222″	.015	.030	36F1483WA	78.00	36F1483WF	323.60

SHIELDING AND BONDING CABLE

Type	Oval I.D.	Flat Width	Cir. Mil area	Stk. No.	10′	Stk. No.	50′	Stk. No.	250′
8676	1/32″	3/64″	400	36F215WG	1.79	36F215WB	3.27	36F215WE	14.65
8674	3/64″	1/16″	600	36F216WG	1.96	36F216WB	4.60	36F216WE	20.50
8660	3/64″	3/16″	3800	36F220WG	2.36	36F220WB	7.00	36F220WE	33.70
8668	5/32″	7/32″	4700	36F223WG	3.22	36F223WB	8.85	36F223WE	39.65
8663	7/32″	1/4″	6700	36F225WG	3.41	36F225WB	11.30	36F225WE	50.60
8661	9/32″	5/16″	7600	36F221WG	3.27	36F221WB	10.50	36F221WE	49.55
8669	13/32″	7/16″	13,300	36F224WG	5.10	36F224WB	21.65	36F224WE	100.00
8672	.....	9/16″	13,200	36F217WG	5.85	36F217WB	24.70	36F217WE	100.00
8662	.....	19/32″	22,900	36F222WG	7.20	36F222WB	30.40	36F222WE	125.35
8670	.....	3/4″	48,000	36F218WG	11.05	36F218WB	54.25	36F218WE	202.45
8671	.....	1 3/16″	21,600	36F219WG	7.75	36F219WB	35.00	36F219WE	144.40
8655	.....	3/8″	36,000	36F2153WG	8.45	36F2153WB	41.50	36F2153WE	155.95
8656	.....	7/8″	57,600	36F2154WG	13.75	36F2154WB	66.70	36F2154WE	257.85
8657	.....	1 1/16″	76,800	36F2155WG	18.20	36F2155WB	89.55	.....	.....
8658	.....	1 3/8″	105,600	36F2156WG	25.50	36F2156WB	125.60	.....	.....
8659	.....	1 1/2″	168,000	36F2157WG	38.85	36F2157WB	195.25	.....	.....



Tinned copper braid provides approx. 90% shield coverage when applied over recommended diameter.

UL STYLE 1007 (CSA TYPE TR-64)

Type	AWG and Stranding	Insul. Thick.	Nom. O.D.	Stock Colors	Stock No.	100′	Stock No.	1000′	Stock No.	5000′
9930	30 (7 x 38)	.016″	.044″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3198WA	3.01	37F3198WM	20.30		
9928	28 (7 x 36)	.016″	.047″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3199WA	2.85	37F3199WM	19.10		
9926	26 (7 x 34)	.016″	.051″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3200WA	3.01	37F3200WM	19.95		
9923	24 (7 x 32)	.016″	.056″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3201WA	3.10	37F3201WM	20.65		
9921	22 (7 x 30)	.016″	.062″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3202WA	3.55	37F3202WM	24.50		
9922	22 (7 x 30) Unistrand	.016″	.062″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13					37F3203WX	120.75
9919	20 (7 x 28)	.016″	.069″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3204WA	4.29	37F3204WM	29.60		
9920	20 (7 x 28) Unistrand	.016″	.068″	9, 10					37F3205WX	149.75
9918	18 (16 x 30)	.016″	.079″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3206WA	4.66	37F3206WM	33.80	37F3206WX	155.75
9916	16 (26 x 30)	.016″	.092″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3207WA	6.85	37F3207WM	52.85		

UL STYLE 1015 600 V-105°C (CSA TYPE TEW)

Type	AWG and Stranding	Insul. Thick.	Nom. O.D.	Stock Colors	Stock No.	100′	Stock No.	1000′	Stock No.	5000′
9924	24 (7 x 32)	.031″	.088″	1, 2, 3, 4, 5, 9, 10, 13	36F1178WA	3.64	36F1178WM	26.25		
9720	24 (Solid)	.031″	.083″	2, 4, 5, 8, 9, 10, 13					37F3208WX	82.25
9822	22 (7 x 30) Unistrand	.031″	.093″	2, 4, 5, 9, 10, 13					37F3209WX	127.75
8920	22 (7 x 30)	.031″	.093″	1, 2, 3, 4, 5, 9, 10, 13	36F580WA	3.90	36F580WM	28.20	36F580WX	111.25
9722	22 (Solid)	.031″	.088″	2, 4, 5, 8, 9, 10, 13					37F3210WX	101.50
										4000′
9820	20 (7 x 28)	.031″	.099″	2, 5, 9, 10, 13					37F3211WT	126.80
8919	20 (10 x 30)	.031″	.100″	1, 2, 3, 4, 5, 9, 10, 13	36F581WA	4.81	36F581WM	35.55	36F581WT	115.60
9818	18 (16 x 30) Unistrand	.031″	.105″	2, 4, 9, 10					37F3212WT	170.80
8918	18 (16 x 30)	.031″	.110″	1, 2, 3, 4, 5, 9, 10, 13	36F582WA	5.95	36F582WM	42.55	36F582WT	154.00
8917	16 (26 x 30)	.031″	.123″	1, 2, 3, 4, 5, 9, 10, 13	36F583WA	7.30	36F583WM	62.15	36F583WT	205.20
8916	14 (41 x 30)	.031″	.138″	1, 2, 3, 4, 5, 9, 10, 13	36F584WA	10.45				
9912	12 (65 x 30)	.031″	.158″	1, 2, 3, 4, 5, 9, 10, 13	37F3213WA	17.25				
9910	10 (65 x 28)	.031″	.183″	2, 4, 9, 10	37F3214WA	24.35				
9908	8 (84 x 28)	.045″	.250″	2, 4, 9, 10	37F3215WA	42.45				

UL STYLE 1061 (CSA-SR PUC)

Type	AWG and Stranding	Insul. Thick.	Nom. O.D.	Stock Colors	Stock No.	100′	Stock No.	1000′
9978	30 (Solid)	.010″	.030″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	36F1179WA	2.84	36F1179WM	18.90
9987	30 (7 x 38)	.010″	.032″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3216WA	3.01	37F3216WM	20.30
9977	28 (Solid)	.010″	.033″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	36F1180WA	2.24	36F1180WM	15.05
9986	28 (7 x 36)	.010″	.035″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3217WA	2.85	37F3217WM	19.10
9976	26 (Solid)	.010″	.036″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	36F1181WA	1.96	36F1181WM	12.95
9985	26 (7 x 34)	.010″	.039″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3218WA	3.01	37F3218WM	19.95
9975	24 (Solid)	.010″	.040″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	36F1184WA	2.07	36F1184WM	13.65
9984	24 (7 x 32)	.010″	.044″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3219WA	3.10	37F3219WM	20.50
9983	22 (7 x 30)	.010″	.050″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3220WA	3.47	37F3220WM	22.25
9982	20 (7 x 28)	.010″	.057″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3221WA	4.29	37F3221WM	26.95
9981	18 (19 x 30)	.010″	.066″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3222WA	4.55	37F3222WM	34.30
9980	16 (19 x 28)	.010″	.078″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	37F3223WA	5.85	37F3223WM	45.50

UL STYLE 1095 300 V-80°C

Type	AWG and Stranding	Insul. Thick.	Nom. O.D.	Stock Colors	Stock No.	100′	Stock No.	1000′	Stock No.	5000′
9828	28 (7 x 36) Unistrand	.013″	.043″	2, 4, 5, 8, 9, 10, 13	36F1183WA	2.98	36F1183WM	21.35	36F1183WX	100.75
9826	26 (7 x 34) Unistrand	.013″	.047″	2, 4, 5, 8, 9, 10, 13	36F1185WA	3.36	36F1185WM	24.35	36F1185WX	112.00
9824	24 (7 x 32) Unistrand	.013″	.053″	2, 4, 5, 8, 9, 10, 13	36F1186WA	3.13	36F1186WM	22.40	36F1186WX	103.25

UL STYLE 3046 600 V-90°C (CSA CL 903) NEOPRENE HOOK-UP WIRE

Type	AWG and Stranding	Insul. Thick.	Nom. O.D.	Stock Colors	Stock No.	100′	Stock No.	1000′	Stock No.	5000′
9604	18 (16 x 30)	.047″	.142″	2, 4, 5, 8, 9, 10, 13	37F3224WA	8.75	37F3224WM	64.60	37F3224WX	256.50
										4000′
9605	16 (26 x 30)	.047″	.155″	2, 4, 5, 8, 9, 10, 13	37F3225WA	10.35	37F3225WM	75.45	37F3225WT	243.00
9606	14 (41 x 30)	.047″	.170″	2, 4, 5, 8, 9, 10, 13	37F3226WA	14.45	37F3226WM	100.00	37F3226WT	374.60
										3000′
9607	12 (65 x 30)	.047″	.190″	2, 4, 5, 6, 8, 9, 10	37F3227WA	19.60	37F3227WM	126.90	37F3227WS	347.40

UL STYLE 3190 300 V-105°C (CSA CL 1052) HYPALON HOOK-UP WIRE

Type	AWG and Stranding	Insul. Thick.	Nom. O.D.	Stock Colors	Stock No.	100′	Stock No.	1000′	Stock No.	5000′
9600	22 (7 x 30)	.031″	.093″	2, 4, 5, 8, 9, 10, 13	37F3228WA	5.55	37F3228WM	39.55	37F3228WX	178.50
9601	20 (10 x 30)	.031″	.100″	2, 4, 5, 8, 9, 10, 13	37F3229WA	6.55	37F3229WM	46.75	37F3229WX	214.50
9602	18 (16 x 30)	.031″	.110″	2, 4, 5, 8, 9, 10, 13	37F3230WA	7.40	37F3230WM	53.05	37F3230WX	239.00
9603	16 (26 x 30)	.031″	.123″	2, 4, 5, 8, 9, 10, 13	37F3231WA	9.65	37F3231WM	68.45	37F3231WX	302.75

Hook-Up Wire

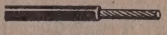
BELDEN

MIL-W-16878D TYPE B VINYL 600V-105C TIGHT NO-FRAY STRANDING

Tinned copper wire stranded for greater flexibility. Wall thickness .010 Vinyl insulation for high resistance to moisture, flame, ozone, solvents and most chemicals. SPECIFY COLOR AND COLOR NO. WHEN ORDERING. **Colors available only in sizes listed. See stock color columns. *For tracer colors add 18¢ per 100 ft.** Shipping weight 100′ 1 lb.; 1000′ 6 lbs.

TYPE B

MW VINYL



TEW

Type	AWG and Stranding	Nom. O.D.	Stock Colors	Stock No.	100 Ft.	Stock No.	1000 Ft.
8599	32 (7 x 40)	.029″	1-10	37F3232WA	4.11	37F3232WM	28.90
8598	30 (7 x 38)	.032″	1-10	37F3233WA	3.29		
8597	28 (7 x 36)	.035″	1-10	37F3234WA	3.22	37F3234WM	21.00
8505	26 (7 x 34)	.039″	1-10. 14-22*	36F595WA	3.36	36F595WM	24.50
8509	24 (19 x 36)	.045″	1-10. 14-22	36F602WA	4.11	36F602WM	25.75
8504	24 (7 x 32)	.044″	1-10. 14-22*	36F594WA	3.27	36F594WM	21.20
8503	22 (7 x 30)	.050″	1-10. 14-22*	36F593WA	3.59	36F593WM	23.10
8502	20 (7 x 28)	.058″	1-10. 14-22*	36F592WA	4.38	36F592WM	28.00
8501	18 (7 x 26)	.068″	1-10. 14-22*	36F591WA	4.69	36F591WM	35.70

MIL-W-76B TYPE MW—VINYL—1000V—80°C

Tinned copper conductor with vinyl insulation rated at 80°C. Flame and ozone resistant; inert to most chemicals, oil and solvents. Specify color and color No. when ordering—SEE CHART BELOW. ***For tracer colors add 18¢ per 100 ft.**

Type	AWG and Stranding	Nom. O.D.	Stk. Colors	Stock No.	100′	Stock No.	1000′
8538	24 (solid)	.054″	1-22	37F3235WA	2.99	37F3235WM	16.45
8525	24 (7 x 32)	.058″	1-22	36F641WA	3.13	36F641WM	20.65
8530	22 (solid)	.059″	1-22	36F640WA	2.99	36F640WM	18.75
8524	22 (7 x 30)	.064″	1-22	36F660WA	3.50	36F660WM	24.15
8529	20 (solid)	.066″	1-22	36F650WA	3.54	36F650WM	23.65
8523	20 (10 x 30)	.070″	1-22	36F670WA	4.10	36F670WM	27.50
8528	18 (solid)	.074″	1-13	36F642WA	4.60	36F642WM	32.40
8522	18 (16 x 30)	.080″	1-22	36F690WA	4.85	36F690WM	36.40
8531	16 (solid)	.085″	1-10	37F3236WA	5.70	37F3236WM	45.70
8521	16 (26 x 30)	.098″	1-22	36F632WA	6.80	36F632WM	52.50
8520	14 (41 x 30)	.111″	1-22	36F643WA	9.65	36F643WM	81.90
8527	12 (65 x 30)	.130″	1-10	36F644WA	14.65	36F644WM	101.25

MIL-16878 TYPE B VINYL-NYLON JKT. 600V-115°C

Type	AWG and Stranding	Nom. O.D.	Stk. Colors	Stock No.	100 Ft.	Stock No.	1000 Ft.
8515	26 (7 x 34)	.045″	1-10	37F3237WA	4.48	37F3237WM	31.50
8519	24 (19 x 36)	.051″	1-10	37F3238WA	4.69	37F3238WM	35.00
8514	24 (7 x 32)	.050″	1-10	37F3239WA	4.36	37F3239WM	30.10
8518	22 (19 x 34)	.057″	1-10	37F3240WA	5.30	37F3240WM	40.10
8513	22 (7 x 30)	.056″	1-10	37F3241WA	4.78	37F3241WM	34.15
8517	20 (19 x 32)	.065″	1-10	37F3242WA	5.70	37F3242WM	43.25
8512	20 (7 x 28)	.064″	1-10	37F3243WA	5.05	37F3243WM	38.35
8516	18 (19 x 30)	.075″	1-10	37F3244WA	7.00	37F3244WM	55.15
8511	18 (7 x 26)	.074″	1-10	37F3245WA	6.30	37F3245WM	47.80
8510	16 (19 x 29)	.083″	1-10	37F3246WA	6.65	37F3246WM	60.75

IRRADIATED PVC HOOK-UP WIRE

Irradiated PVC is a Polyvinyl chloride compound cross-linked through an irradiation process. Insulation is heat and burn-through resistant. Resistant to distortion caused by temporary overloads or high temperature. Abrasion resistance is superior to conventional vinyl insulations. Meets requirements for MIL-W-16878 and Appliance Wiring Material as listed below. Because the military and civilian requirements are different, voltage and temperature ratings for the same wire differ according to the information listed below.

SPECIFICATIONS	MAX. OPERATING TEMPERATURE	MAXIMUM VOLTAGE
MIL-W-16878 Type B	105°C	600 Volts RMS
MIL-W-16878 Type C	105°C	1000 Volts RMS
AWM Style 1429	80°C	150 Volts RMS for general appliance hook-up use 300 Volts peak for electronic use only
AWM Style 1430	105°C	300 Volts RMS 600 Volts peak for electronic use only

UL STYLE 1429 150V-80°C

Type	AWG and Stranding	Nom. O.D.	Stock Color	Stock No.	EACH
83402	26 (solid)	.039″	2, 4, 5, 6, 9, 10	37F3247WM	25.65
83412	26 (7 x 34)	.039″	2, 4, 5, 6, 9, 10	37F3248WM	28.45
83403	24 (Solid)	.044″	2, 4, 5, 6, 9, 10	37F3249WM	26.25
83413	24 (7 x 32)	.044″	2, 4, 5, 6, 9, 10	37F3250WM	29.15
83423	24 (19 x 36)	.043″	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	37F3251WM	34.60
83404	22 (Solid)	.050″	2, 4, 5, 6, 9, 10	37F3252WM	29.00
83414	22 (7 x 30)	.050″	2, 4, 5, 6, 9, 10	37F3253WM	33.00
83424	22 (19 x 34)	.051″	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	37F3254WM	39.50
83415	20 (7 x 28)	.058″	2, 4, 5, 6, 9, 10	37F3255WM	41.05
83425	20 (19 x 32)	.057″	9	37F3256WM	42.00
83416	18 (7 x 26)	.068″	9, 10	37F3257WM	51.75

STYLE 1430 300V-105°C

83443	24 (7 x 32)	.058″	2, 4, 5, 6, 9, 10	37F3258WM	33.25
83444	22 (7 x 30)	.064″	9, 10	37F3259WM	40.35
83445	20 (7 x 28)	.072″	9, 10	37F3260WM	47.20
83446	18 (7 x 26)	.082″	9	37F3261WM	53.30

COLOR CODING

First color in stripe combination is body color and second color is tracer. **Specify color when ordering. All colors are not available in all types. See stock color columns.**

1. Brown
2. Red
3. Orange
4. Yellow
5. Green
6. Light Blue
7. Violet
8. Gray
9. White
10. Black
11. Tan
12. Pink
13. Dark Blue

Tracer colors. Add 18¢/100 ft.

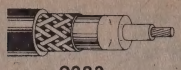
14. White/Black
15. White/Red
16. White/Green
17. White/Yellow
18. White/Blue
19. White/Brown
20. White/Orange
21. White/Gray
22. White/Violet

BELDEN

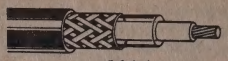
Coaxial Cables

LOW NOISE COAXIAL CABLES

9239



9223



9224

Type	AWG Stranding	Nom. O.D.	Nom. Imp.	Shield Coverage	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9239	26 (7 x 34)	.101	.....	88%	37F3262WA	11.65	37F3262WF	44.65	37F3262WM	89.25
9223	22 (7 x 30)	.195	43	95%	37F3263WA	17.85	37F3263WF	74.20	37F3263WM	127.20
9224	22 (Solid)	.242	75	93%	37F3264WA	19.25	37F3264WF	76.75	37F3264WM	131.55

MINIATURE COAXIAL CABLES

9393 UL listed 1354

9393	2-30 (Solid)	.110 x .115	93	100%	37F3265WA	12.25	37F3265WF	40.70	37F3265WM	81.40
8218	27 (7 x 35)	.150	75	93%	36F1803WA	13.30	36F1803WF	49.20	36F1803WM	98.35
9264	24 (7 x 32)	.122 x .146	50	100%	36F1177WA	9.65	36F1177WF	40.60	36F1177WM	81.20
9221	30 (7 x 38)	.097	75	90%	37F3710WA	10.95	37F3710WF	41.05	.....	.....

COAXIAL CABLES

Type	AWG Stranding	Nom. O.D.	Nom. Imp.	Shield Coverage	RG No.	JAN Spec.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
8214	11 (7 x 19)	.405	50	97%	RG-8/U	.....	37F2450WA	32.65	37F2450WF	130.95	37F2450WM	261.90
8237	13 (7 x 21)	.405	52	97%	RG-8/U	C-17 A	36F113WA	33.10	36F113WF	112.95	36F113WM	225.75
9251	13 (7 x 19)	.405	50	97%	RG-8A/U	.....	37F2455WA	41.15	37F2455WF	137.20	37F2455WM	274.35
8238	18 (7 x 26)	.405	75	97%	RG-11/U	C-17 A	36F114WA	31.35	36F114WF	105.90	36F114WM	211.80
8261	18 (7 x 26)	.405	75	97%	RG-11A/U	C-17 D*	.....	.....	37F2452WF	122.10	37F2452WM	244.20
8240	20 (solid)	.195	53.5	95%	RG-58/U	C-17 A	36F111WA	12.25	36F111WF	44.10	36F111WM	88.20
8219	20 (19 x 32)	.195	50	96%	RG-58A/U	.....	37F2451WA	14.80	37F2451WF	56.10	37F2451WM	100.00
8259	20 (19 x .0071)	.195	50	96%	RG-58A/U	C-17 A	36F118WA	14.00	36F118WF	49.00	36F118WM	98.00
8212	20 Copperweld	.242	75	95%	RG-59/U	.....	.....	.....	36F1800WF	53.75	36F1800WM	100.00
8221	22 Copperweld	.242	75	86%	RG-59/U	.....	36F1357WA	15.50	36F1357WF	51.55	36F1357WM	100.00
8241	22 Copperweld	.242	75	95%	RG-59/U	C-17 A	36F110WA	14.80	36F110WF	47.25	36F110WM	94.50
9259	22 Stranded	.242	75	95%	RG-59/U	UL 1354	37F2457WA	17.25	37F2457WF	59.70	37F2457WM	102.30
8263	.023 Solid	.242	75	95%	RG-59B/U	C-17 D	.....	.....	36F1809WF	64.95	36F1809WM	111.30
8262	20 (19 x .0071)	.195	50	95%	RG-58C/U	C-17 D*	.....	.....	36F057WF	58.05	36F057WM	100.00
8254	22 Solid	.242	93	95%	RG-62/U	C-17 A	36F1347WA	15.50	36F1347WF	58.45	36F1347WM	100.20
9268	22 Solid	.260	93	95%	RG-62A/U	.....	.....	.....	36F599WF	88.75	36F599WM	152.10
9269	22 Solid	.242	93	95%	RG-62A/U	C-17 D	.....	.....	36F598WF	62.50	36F598WM	107.10
8255	24(7 x 32)	.242	93	95%	RG-62B/U	C-17 D	.....	.....	36F1808WF	78.15	36F1808WM	133.95
9252	22 (27 x 36)	.160	50	97%	RG-122/U	C-17 D	37F2456WA	15.05	37F2456WF	57.70	36F2456WM	100.00
8216	26 (7 x 34)	.100	50	88%	RG-174/U	C-17 D	36F058WA	9.90	36F058WF	36.15	36F058WM	72.30
8267	13 (7 x 21)	.405	50	97%	RG-213/U	C-17 D	.....	.....	37F2453WF	137.20	37F2453WM	274.35
8268	13 (7 x .0296)	.425	50	98%	RG-214/U	C-17 D	.....	.....	37F2454WF	464.25	37F2454WM	928.50
9273	19 Solid	.206	50	97%	RG-223/U	C-17 D	37F2458WA	48.60	37F2458WF	180.15	37F2458WM	360.30

Cables meet MIL. Spec. MIL-C-17D; silver coated copper covered steel; TFE Teflon insulation; silver coated copper shields.

Type No.	RG No.	AWG and Stranding	Jacket	Nom. O.D. (Inches)	Nom. Imp. (Ohms)	Max. Attenuation Per 100′	Stk. No.	100′	Stk. No.	500′	Stk. No.	1000′
83241	141A/U	18 (solid)	Fiberglass	.190	50	9.0 db	36F1687WA	87.00	36F1687WF	344.38	36F1687WM	682.75
83242	142B/U	18 (solid)	Brown FEP	.195	50	9.0 db	36F1688WA	100.00	36F1688WF	431.48	36F1688WM	856.95
83265	178B/U	30 (7x38)	Brown FEP	.070	50	29.0 db	36F1689WA	24.95	36F1689WF	91.85	.....	.....
83264	179B/U	30 (7x38)	Brown FEP	.100	75	21.0 db	36F1690WA	42.90	36F1690WF	156.35	36F1690WM	308.20
83266	180B/U	30 (7x38)	Brown FEP	.140	95	17.0 db	36F1691WA	56.35	36F1691WF	216.90	.....	.....
83284	316/U	26(7x.0067)	Brown FEP	.098	50	20.0 db	36F1684WA	40.90	36F1684WF	153.30	36F1684WM	302.10

TWINAXIAL CABLES

Type	AWG Stranding	Shield Coverage	Nom. Imp. Ohms	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9860	16 Solid	2-100%	124	.440	.....	.....	36F607WF	182.65	36F607WM	365.25
9250	18 (17 x .0152)	2-96%	95	.420	36F601WA	69.15	36F601WF	246.40	36F601WM	492.75
8227	20 (7 x 28)	84%	100	.325	.....	.....	36F1804WF	123.40	36F1804WM	246.75
9207	20 (7 x 28)	96%	100	.325	37F3266WA	39.40	37F3266WF	134.95	37F3266WM	269.85
9272	20 (7 x 28)	93%	78	.242	36F600WA	19.90	36F600WF	80.00	36F600WM	137.10
9182	22 (19 x 34)	100%	150	.350	.....	.....	37F3267WF	100.75	37F3267WM	201.45
9271	25 (7 x 33)	100%	124	.242	36F605WA	10.80	36F605WF	42.70	36F605WM	85.40

TRIAXIAL CABLES

9222	20 (7 x 28)	2-96%	50	.242	37F3268WA	24.60	37F3268WF	100.00	.....	.....
9267	20 (Solid)	2-96%	75	.360	37F3269WA	48.30	37F3269WF	192.40	37F3269WM	384.75
9232	14 (19 x 26½)	2-90%	75	.520	.....	.....	37F3270WF	358.60	37F3270WM	717.15
8232	20 (Solid)	2-96%	75	.315	.....	.....	37F3271WF	105.00	37F3271WM	210.00
8233	14 (Solid)	2-93%	75	.475	.....	.....	37F3272WF	184.30	37F3272WM	368.55
9888	11 (7 x 19)	2-98%	50	.480	.....	.....	36F596WF	207.90	36F596WM	415.80

13

BELDEN

MATV COAXIAL CABLES

Satisfy the requirements of CATV-MATV applications. One or more of the cables in this group will fulfill the physical and electrical requirements of a system. A range of cable sizes including a variety of materials to meet exact needs—copper and copper covered steel center conductors, Duofoil® and braid shields, polyvinylchloride and polyethylene jackets and galvanized steel messengers for overhead runs. All cables in this group, except Type 8241, are sweep tested using the Structural Return Loss Method to insure consistent cable performance and uniform electrical characteristics.

Type	AWG	Nom. O.D.	Nom. Imp.	Shielding	RG No.	Mes-senger	Insul.	Jkt. Type	Stock No.	500′	Stock No.	1000′
9100	20 (solid)	.242	75	Duobond II and 40% Alum. Braid	59	No	Foam	Vinyl	37F3273WF	37.30	37F3273WM	74.55
8212	20 (solid)	.242	75	95% B.C.	59	No	Foam	P.E.	36F1800WF	53.75	36F1800WM	100.00
9274	20 (solid)	.242	75	95% B.C.	59	No	Foam	Vinyl	37F3274WF	49.00	37F3274WM	98.00
8241	22 (solid)	.242	75	95% B.C.	59	No	P.E.	Vinyl	36F110WF	47.25	36F110WM	94.50
9244	22 (solid)	.240	75	86% B.C.	59	No	P.E.	Vinyl	37F3275WF	43.25	37F3275WM	86.45
8221	22 (solid)	.242	75	95% B.C.	59	No	Foam	Vinyl	36F1357WF	51.55	36F1357WM	100.00
9283	18 (solid)	.275	75	Duobond and 40% Alum. Braid	6/U	No	Foam	Vinyl	37F3276WF	45.70	37F3276WM	91.35
9285	18 (solid)	.280 x .41	75	Duobond and 40% Alum. Braid	6/U	Yes	Foam	Vinyl	.....	.....	37F3277WM	100.00
FLOODED BURIAL CABLE												
9587	18 (solid)	.275	75	Duobond and 61% Alum. Braid and Flooding	6/U	No	Foam	P.E.	.....	.....	37F3278WM	89.25

TV CAMERA CABLES AND CCTV CABLES

Belden TV Broadcast and Closed Circuit TV Camera Cables assure reliable circuit isolation thereby reducing AC hum and minimizing cross-talk between circuits. Made to take rugged service and to maintain high conductor insulation resistance regardless of ambient temperature changes. Major uses are controlling, powering and transmitting sound and picture information for monochrome and color TV cameras as well as for remote control, monitor and cue line systems. Belden TV Camera Cables are engineered to be lightweight, flexible and easy to terminate. They are manufactured and tested in accordance with rigid quality control standards in order to assure reliability, performance and service life. UL listed.

Type	AWG and Stranding	Nom. O.D.	Nom. Imp.	Insul.	Shielding	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9259	22 (6 x 30)	.242	75	Foam	95% bare copper	37F2457WA	17.25	37F2457WF	59.70	37F2457WM	102.30
9265	2-22 (7 x 30)	.242 x .445	.....	Vinyl	1 pair Beldfoil shielded	.....	.....	37F3279WF	105.10	37F3279WM	210.15
	1-22 (6 x 30) coax.		75	Foam	95% bare copper						

59/U Type

59/U Type

UL LISTED

13

FLEXIBLE COAXIAL CABLE PARAMETERS

Major Imp. Group	Imp. Ohms	O.D. in.	RG No.	Mil Jkt. Type	Center Cond.	Max. Oper. Volts (Rms)	Lbs./ 100′
	50	0.328	5A/U	II	16S	3000	8.7
	50	0.328	5B/U	IIa	16S	3000	8.7
	52	0.405	8/U	I	7/21C	5000	10.6
	52	0.405	8A/U	IIa	7/21C	5000	10.6
	51	0.420	9/U	II	7/21S	5000	15
	51	0.420	9A/U	II	7/21S	5000	15
	50	0.420	9B/U	IIa	7/21S	5000	15
50	52	0.545	14A/U	IIa	10C	7000	21.6
	52	0.870	17/U	II	.188C	11000	47
	52	0.870	17A/U	IIa	.188C	11000	47
	52	1.120	19A/U	IIa	.250C	14000	74
	53	0.332	21A/U	IIa	16N	2700	8.7
	58	0.250 (max.)	54A/U	III	7/.0152C	3000	4.1
	53.5	0.206 (max.)	55/U	III	20C	1900	3.6
	53.5	0.206	55B/U	IIIa	20S	1900	3.6
	53.5	0.195	58/U	I	20C	1900	2.9
	50	0.195	58A/U	I	19/.0071TC	1900	2.9
	50	0.195	58C/U	IIa	19/.0071TC	1900	2.9
	50	0.160	122/U	IIa	27/36TC	1900	2
	50	0.100	174/U	I	7/34CW	1500	0.8
	*50	0.075 (max.)	178B/U	IX	7/38SCW	1000	0.6
	*50	0.110 (max.)	188A/U	VII	7/.0067SCW	1200	1.3
	*50	0.080 (max.)	196A/U	VII	7/38SCW	1000	0.7
	50	0.405	213/U	IIa	7/.0296C	5000	10.6
	50	0.425	214/U	IIa	7/.0296S	5000	15
	50	0.545	217/U	IIa	.106C	7000	21.6
	50	0.870	218/U	IIa	.195C	11000	49.1
	50	0.216	223/U	IIa	.035S	1900	3.6

Major Imp. Group	Imp. Ohms	O.D. in.	RG No.	Mil Jkt. Type	Center Cond.	Max. Oper. Volts (Rms)	Lbs./ 100′
	75	0.332	6A/U	IIa	21CW	2700	8.2
	75	0.405	11/U	I	7/26TC	5000	9.6
	75	0.405	11A/U	IIa	7/26TC	5000	9.6
	74	0.420	13/U	I	7/26TC	5000	12.6
75	75	0.630	34B/U	IIa	7/.0249C	6500	22.4
	73	0.242	59/U	I	22CW	2300	3.2
	75	0.242	59B/U	IIa	.023WC	2300	3.2
	78	0.235	108A/U	IIa	2—7/28TC (twin)	1000	2.9
	*75	0.233	140/U	V	.025SCW	2300	4.5
	95	0.405	22/U	I	2—7/.0152C (twin)	1000	15.1
	95	0.420	22B/U	IIa	2—7/.0152C (twin)	1000	15.1
93	93	0.242	62/U	I	22CW	750	3.8
	93	0.242	62B/U	IIa	7/32CW	750	3.8
	93	0.250 (max.)	71/U	III	22CW	750	4.6
	93	0.250 (max.)	71B/U	IIIa	22CW	750	4.6
	*95	0.145 (max.)	180B/U	IX	7/38SCW	1500	2.2
	*95	0.155 (max.)	195A/U	VII	7/38SCW	1500	2.5
125	125	0.405	63/U	I	22CW	1000	8.3
	125	0.405	63B/U	IIa	22CW	1000	8.3
185	185	0.405	114/U	I	33CW	1000	8.7
	185	0.405	114A/U	IIa	.007CW	1000	8.7

*For high temperature operation.

Abbreviations: C=Bare Copper, CW=Copperweld, N=Nichrome, S=Silver coated copper, SCW=Silver coated copperweld, TC=Tinned Copper.

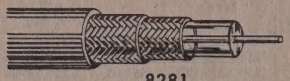
BELDEN CABLE AND MAGNET WIRE

COAXIAL CABLE JACKETS

Jacket Type	Description	Temp. Range
I	Black Vinyl	−40°C to 80°C
II	Gray Vinyl (noncontaminating)	−55°C to 80°C
IIa	Black Vinyl (noncontaminating)	−55°C to 80°C
III	Clear Polyethylene	−55°C to 80°C

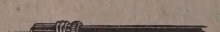
Jacket Type	Description	Temp. Range
IIIa	Black Polyethylene	−55°C to 80°C
V	Fiberglass, silicone impregnated varnish	−55°C to 250°C
VII	White TFE Teflon*	−70°C to 200°C
IX	Brown FEP Teflon*	−70°C to 200°C

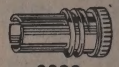
TV STUDIO CABLE



8281

PL-259





8299

Type 8281. 75 ohm precision video cable. Single #20AWG solid copper conductor; polyethylene insulated, double copper braid shield; black polyethylene jacket. Nom. O.D. .304". Nom. capacitance, 21 pF/ft. 100% sweep tested. Wt. 37 lbs. per 500'.

Type 8279. Similar to 8281 except with #23 AWG stranded conductor. Single tinned copper braid shield. O.D. .220".

Type 8280. 28 conductor TV (monochrome) camera cable. Arranged as follows: 4-#18 and 3 groups of 7-#22 AWG stranded tinned copper conductors, all color-coded, vinyl insulated; 3 color-coded coaxial cables of 51 ohm nom. imp.; tinned copper braid shield, chrome vinyl jacket. Nom. O.D. .750".

Type 8286. Miniature 75 ohm cable similar to 8280 except BELDFOIL shield over 4-#18 AWG conductors; BELDFOIL shield over 3 group of 7 conductors; 3-75 ohm coaxial cables; black hypalon jacket. Nom. O.D. .730".

ADAPTER

Type 8299. Adapter for use with 8281 cable only. Increases O.D. to fit PL-259 connector.

36F143. Box of 25. **NET** **7.25**

Type	Stk. No.	Feet	Each
8281		100	
		250	
	36F141WF	500	**183.15**
	36F141WM	1000	**366.30**

Type	Stk. No.	Feet	Each
8279	**36F1340WA**	100	**24.50**
	36F1340WE	250	**53.15**
	36F1340WF	500	**100.00**
		1000	

Type	Stk. No.	Feet	Each
8280	**36F140WA**	100	**211.15**
	36F140WE	250	**451.13**
	36F140WF	500	**902.25**
	36F140WM	1000	**1804.50**

Type	Stk. No.	Feet	Each
8286	**36F1339WA**	100	**211.15**
	36F1339WE	250	**451.88**
	36F1339WF	500	**903.75**
	36F1339WM	1000	**1807.50**

SINGLE BELDSOL-130°C MAGNET WIRE

Dual film insulated magnet wire that combines excellent dielectric characteristics of polyurethane and the known toughness and solvent resistance of nylon. May be soldered without insulation removal at 750°F. ½ lb. spool sizes 14 thru 36. ¼ lb. spool sizes 38 and 40.

Type No.	AWG	Approx. Feet	Stk. No.	NET
8048	16	63	**36F1311**	**3.89**
8049	18	100	**36F1312**	**4.10**
8050	20	160	**36F1313**	**4.10**
8051	22	254	**36F1314**	**4.10**
8052	24	404	**36F1315**	**4.18**
8053	26	645	**36F1316**	**4.36**
8054	28	1020	**36F1317**	**4.46**

Type No.	AWG	Approx. Feet	Stk. No.	NET
8055	30	1615	**36F1318**	**4.88**
8056	32	2515	**36F1319**	**5.30**
8057	34	4060	**36F1320**	**5.65**
8058	36	6400	**36F1321**	**6.45**
8045	38	5070	**36F1322**	**4.60**
8046	40	8050	**36F1323**	**6.30**

HEAVY ARMORED POLYTHERMALEZE HIGH TEMPERATURE MAGNET WIRE

Dual polyester film insulated magnet wire, rated for use to 180°C. Has exceptional ability to resist chemical solvents and abuse in intricate windings. One pound spools.

8073	14	80	**36F767**	**6.45**
8074	16	126	**36F768**	**6.70**
8075	18	199	**36F769**	**6.95**
8076	20	315	**36F770**	**7.00**
8077	22	501	**36F771**	**7.00**
8078	24	793	**36F772**	**7.25**
8079	26	1260	**36F773**	**7.55**

8080	28	1990	**36F774**	**8.25**
8081	30	3140	**36F775**	**9.40**
8082	32	4880	**36F776**	**10.80**
8083	34	7860	**36F777**	**12.20**
8084	36	12400	**36F778**	**14.45**
8085	38	19400	**36F779**	**16.90**
8086	40	32100	**36F780**	**21.90**

75 OHM VIDEO RETRACTILE CABLE

Stranded tinned copper conductor, polyethylene insulation. 100% Beldfoil and serve shield. Nom. cap. 21 pF/ft. (68.9 pF/m). Nickel gray PVC shield.

Type	AWG (stranding)	Nom. O.D.	Retracted length (in.)	Extended length (ft.)	Jacket Material	No. of Conductors	Stock No.	NET
9447	25 (7 x 33)	.242	6	2	Vinyl	1	**37F3280**	**2.35**
9448	25 (7 x 33)	.242	12	4	Vinyl	1	**37F3281**	**3.08**
9449	25 (7 x 33)	.242	24	8	Vinyl	1	**37F3282**	**4.80**

HIGH VOLTAGE AND CATHODE RAY TUBE CABLE

Type 8866. Small dia. 40 KVDC tinned copper cable. Repairs cathode ray tube leads in color TV and oscilloscopes. Breakdown voltage 110,000 KVDC.

36F1362WC. 25'. **NET** **4.97**

36F1362WA. 100'. **NET** **14.35**

36F1362WF. 500'. **NET** **60.15**

Type 8870. 80 KVDC cable. #22 AWG solid copperweld conductor, polyethylene dielectric and jacket. Breakdown: 160 KVDC. Nom. O.D. .440".

36F059WA. 100'. **NET** **83.65**

Type 8868. CRT cable. #22 (7x30) conductor. Polyethylene insulation, red vinyl jacket. 50 KV breakdown Voltage. O.D. .150".

36F070WC. 25'. **NET** **3.29**

36F070WA. 100'. **NET** **8.35**

36F070WF. 500'. **NET** **31.50**

Type 8869. #22 AWG. Polyethylene insulation. Black vinyl jacket. 35 KV breakdown Voltage. O.D. .120".

36F1325WC. 25'. **NET** **2.64**

36F1325WA. 100'. **NET** **6.70**

36F1325WF. 500'. **NET** **24.50**

Type 9867. Underwriter's Laboratories Inc. listed, style 3239. 30 kVDC tinned copper cable. Passes the FR-1 vertical flame test.

36F1116. 25'. **NET** **4.34**

36F1116. 100'. **NET** **10.60**

36F1116. 500'. **NET** **40.90**

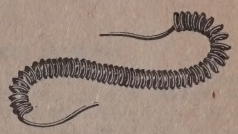
BELDEN

RETRACTILE (COILED) MICROPHONE CABLES—SHIELDED AND UNSHIELDED

USES: CB, HAM, MICROPHONES, LANGUAGE LABS, MUSIC EQUIPMENT, ETC.

Cadmium bronze wire microphone cables with neoprene or vinyl jacket. Retracts when not in use. Neoprene cables are resistant to effects of sun, oil and ozone and are recommended for outside use.

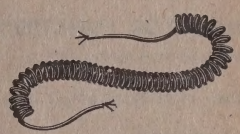
Type	Stock No.	AWG (stranding)	Retracted Length (in.)	Extended Length (ft.)	Nom. O.D. (in.)	Jacket Material	Conductors	NET
8409	36F1329	28 (7x36)	12	6	.165	Neoprene	4 unshielded	3.08
8415	36F038	23 (21x36)	11½	6	.250	Neoprene	4 unshielded	3.59
9415	36F1238	23 (21x36)	30	15	.250	Neoprene	4 unshielded	7.70
8497	36F207	23 (21x36)	11½	6	.250	Neoprene	3 cond-1 shield	3.94
9417	36F1239	23 (21x36)	30	15	.250	Neoprene	3 cond-1 shield	8.15
8499	36F208	24 (45x40)	7½	4	.170	Neoprene	1 shielded	2.59
8491	36F1330	23 (21x36)	12	6	.275	Neoprene	4 cond-2 shield	4.57
9416	36F1240	23 (21x36)	30	15	.275	Neoprene	4 cond-2 shield	10.80
8490	36F1331	23 (21x36)	11½	6	.265	Neoprene	5 unshielded	3.94
9470	36F1106	33 (tinsel)	10½	5	.105	Vinyl	2 unshielded	2.43
9468	36F1107	31 (tinsel)	20	10	.150	Vinyl	3 cond-1 shield	7.30
9469	36F1108	31 (tinsel)	20	10	.150	Vinyl	4 unshielded	6.35
9466	36F1109	28 (7x36)	12	6	.160	Neoprene	3 cond-1 shield	3.52
9467	36F1110	28 (7x36)	12	6	.175	Neoprene	5 cond-1 shield	4.18
9499	36F1111	24 (45x40)	24	12	.170	Neoprene	1 shielded	5.70



RETRACTILE NEOPRENE POWER CONTROL CABLES—UNSHIELDED—UL/CSA LISTED

12" straight portion on each end (8601, 8602, and 8603 have 6" straight portion). Jacket removed 1½" each end.

Type	Stock No.	AWG (stranding)	Retracted Length (in.)	Extended Length (ft.)	Nom. O.D. (in.)	Jacket Material	Conductors	NET
8601	36F1342	18 (41x34)	12	6	.270	Neoprene	2 "SVO"	3.01
9476	36F1241	18 (41x34)	24	12	.270	Neoprene	2 "SVO"	5.50
9477	36F1242	18 (41x34)	48	25	.270	Neoprene	2 "SVO"	8.70
9478	36F1243	18 (41x34)	24	12	.275	Neoprene	3 "SVO"	6.90
9479	36F1244	18 (41x34)	48	25	.275	Neoprene	3 "SVO"	12.00
8602	36F1343	18 (41x34)	12	6	.360	Neoprene	3 "SJO"	4.57
9480	36F1245	18 (41x34)	24	12	.360	Neoprene	3 "SJO"	8.00
9481	36F1246	18 (41x34)	48	25	.360	Neoprene	3 "SJO"	13.25
8603	36F1344	16 (65x34)	12	6	.370	Neoprene	3 "SJO"	4.62
9484	36F1345	16 (65x34)	24	12	.370	Neoprene	3 "SJO"	9.05
9485	36F1247	16 (65x34)	48	25	.370	Neoprene	3 "SJO"	15.50
9482	36F1248	18 (41x34)	24	12	.385	Neoprene	4 "SJO"	9.20
9483	36F1249	18 (41x34)	48	25	.385	Neoprene	4 "SJO"	15.50



TELEPHONE CORDS WITH STRAIN RELIEF

Tinsel conductors, vinyl insulated, vinyl jacket. One end stripped 7", spade terminals attached and hook strain relief clamped over jacket. Other end has red and black conductors pulled out of jacket and cut to 3" length, spade terminals attached, molded plastic strain relief, 6¾" jacket remains on 2 white conductor spade terminals attached. 8495-Cadmium bronze, black vinyl jacket. One end stripped 2¾" spade terminals attached and hook strain relief clamped over jacket. Other end stripped 3⁹⁄₁₆" and spade terminals attached. Only Black jacket color stocked.

Type	AWG (stranding)	No. of Cond.	Insulation thickness (in.)	Jacket thickness (in.)	Nom. O.D. (in.)	Nom. CoilO.D. (in.)	Retracted Length (in.)	Extended Length (in.)	Stock No.	NET
9443	31 (Tinsel)	4	.010	.031	.195	¾	10½	5	36F1076	5.50
9440	31 (Tinsel)	4	.010	.031	.195	¾	22	10	36F1077	6.90
9441	31 (Tinsel)	4	.010	.031	.195	¾	33	15	36F1078	8.95
9442	31 (Tinsel)	4	.010	.031	.195	¾	48	25	36F1079	10.80
8495	23 (21x36)	3	.020	.041	.220	⅞	10	4½	36F204	3.62

TELEPHONE CABLES

UL LISTED WIRES

NOT PAIRED

Type	AWG (Solid)	No. of Cond.	Nom. O.D.	Stk. No.	500'	Stk. No.	1000'
8795	22	2	.160"	36F1103WF	22.95	36F1080WM	49.55
8794	22	3	.168"	36F1104WF	28.45	36F1081WM	59.15
9794	22	4	.190"	36F1105WF	35.10	36F1082WM	73.15

PAIRED

Type	AWG (Solid)	No. of pairs	Nom. O.D.	Stk. No.	500'	Stk. No.	1000'
9561	24	1	.150"	36F1132WF	20.50	36F1132WM	40.95
9562	24	2	.195"	36F1133WF	34.60	36F1133WM	69.15
9566	24	6	.285"	36F1134WF	84.20	36F1134WM	144.30
9568	24	8	.300"	36F1100WF	100.00	36F1100WM	182.25
9570	24	10	.350"	36F1101WF	111.70	36F1101WM	223.35
9585	24	25	.495"	36F1102WF	324.70	36F1102WM	649.35

WIRE AND GPIB CABLE

GPIB CABLES AND ASSEMBLIES

Belden GPIB cables provide a way to interface computer power with test and measurement hardware—without resorting to time-consuming patchwork wiring. Belden IEEE 488 UL recognized GPIB cables are becoming essential tools in research and development, quality control and on-the-job troubleshooting. Belden GPIB cables can interconnect up to 15 programmable instruments at a time in star or daisy chain networks. Recommended for applications involving counters, signal generators, calculators, digital multimeters—any instrument equipped with standard IEEE 488 interfaces. Complete UL approved molded cable assemblies available in five standard lengths, longest is 16 m (52.5'). Bulk put-ups also available.

PHYSICAL SPECIFICATIONS

24 conductor cable (including all functions)
6 pair (26 AWG, 10 single conductor (26 AWG), 1 single conductor (26 AWG), braid shield with 24 AWG drain wire (91 % coverage)
Semi-rigid PVC jacket (gray), OD: 8.9mm (.350")
24-pin AMP connectors-male and female-at ends (UL recognized)
Contact pins: Gold over nickel-plated beryllium copper, connectors: self-extinguishing plastic
Mounting screws: Metric cadmium-plated finish

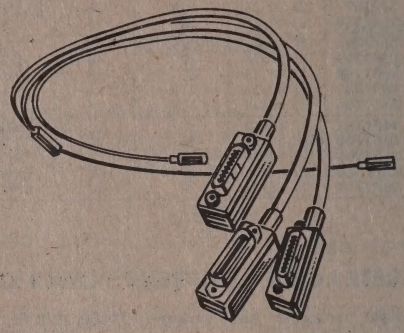
ELECTRICAL/ELECTRONIC SPECIFICATIONS

Capacitance—	10 single conductor:	35 pf/ft nom.
	6 pair:	38 pf/ft nom.
Impedance—	10 single conductor:	70 ohms nom.
	6 pair:	75 ohms nom.

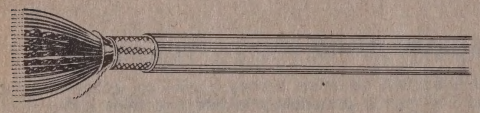
Pin-to-pin voltage rating: 300 vdc/conductor
Maximum effective cable length: 20 m (66')

CONDUCTOR FUNCTIONS

General interface management	8 conductors (3 pairs, 2 single): 5 lines 3 grounds
Data byte transfer control	6 conductors (3 pair): 3 lines 3 grounds
Data input/output	8 conductors (all single): 8 lines
Logic ground	1 conductor (24 AWG)
Earth ground	1 conductor (drain wire)
Total	24



Type	Length ft.	Length m	Stock No.	NET
MOLDED CABLE ASSEMBLIES				
9642	3.3	1	**37F3283**	**51.00**
9643	6.6	2	**37F3284**	**54.00**
9644	13.1	4	**37F3285**	**60.00**
9645	26.2	8	**37F3286**	**72.00**
9646	52.5	16	**37F3287**	**96.00**
BULK PUT-UPS				
9641	100	30.5	**37F3288WA**	**78.75**
	500	152.4	**37F3288WF**	**271.50**
	1000	304.8	**37F3288WM**	**543.00**



BUS BAR WIRE

Made in accordance with Federal spec. QQ-W-343. Solid tinned copper; available in standard spools of 100' and 1000' only.

Type	AWG	Stk. No.	100′	Stk. No.	1000′	Type	AWG	Stk. No.	100′	Stk. No.	1000′
8025	30	**36F1022WA**	**2.07**	**36F1022WM**	**8.75**	8020	20	**36F1027WA**	**2.75**	**36F1027WM**	**19.25**
8024	28	**36F1023WA**	**2.07**	**36F1023WM**	**9.30**	8019	18	**36F1028WA**	**3.64**	**36F1028WM**	**27.85**
8023	26	**36F1024WA**	**2.14**	**36F1024WM**	**10.70**	8013	16	**36F1029WA**	**5.10**	**36F1029WM**	**43.75**
8022	24	**36F1025WA**	**2.21**	**36F1025WM**	**11.55**	8012	14	**36F1030WA**	**7.75**	**36F1030WM**	**64.40**
8021	22	**36F1026WA**	**2.29**	**36F1026WM**	**14.20**	8011	12	**36F1031WA**	**11.65**	.....	.....

TEST. PROD WIRE—STRAIGHT AND COILED

Stranded tinned copper conductors, separator wrapping, red or black rubber insulated. Working voltages listed are AC RMS values

Straight types. 8897 is manufactured per MIL-W-13169 specs; 8890 is miniature type. See following page for retractible types.

Type	Color	A.W.G.	Nom. O.D.	WV	10′	NET	25′	NET	100′	NET	500′	NET	1000′	NET
8898	Black	18-65x36	.230"	10000	**36F001WG**	**2.77**	**36F001WC**	**4.92**	**36F001WA**	**12.90**	**36F001WF**	**53.90**	.....	.....
8898	Red	18-65x36	.230"	10000	**36F000WG**	**2.77**	**36F000WC**	**4.92**	**36F000WA**	**12.90**	**36F000WF**	**53.90**	.....	.....
8899	Red	18-65x36	.144"	5000	**36F005WG**	**1.89**	**36F005WC**	**3.01**	**36F005WA**	**9.75**	**36F005WF**	**35.45**	**36F005WM**	**70.90**
8899	Black	18-65x36	.144"	5000	**36F006WG**	**1.89**	**36F006WC**	**3.01**	**36F006WA**	**9.75**	**36F006WF**	**35.45**	**36F006WM**	**70.90**
8897	Red	18-65x36	.144"	5000	.....	.....	.....	.....	.....	.....	**36F128WF**	**40.45**	.....	.....
8897	Black	18-65x36	.144"	5000	.....	.....	.....	.....	.....	.....	**36F129WF**	**40.45**	.....	.....
8890	Black	24-45x40	.066"	1000	.....	.....	**36F007WC**	**2.50**	**36F007WA**	**6.15**	**36F007WF**	**26.25**	.....	.....
8890	Red	24-45x40	.066"	1000	.....	.....	**36F008WC**	**2.50**	**36F008WA**	**6.15**	**36F008WF**	**26.25**	.....	.....

36F004J. Type 8899. 14 Ft. Spool, consists of 7 Ft. Red and 7 Ft. Black. Ready for use. **NET** **2.12**

COILED (RETRACTILE) TEST PROD WIRE

Retracted length 8". Stretches to 5'. 8878 with prods. 8879 without prods. One black, one red lead.

Type	AWG (Stranding)	O.D.	WV	Stk. No.	NET
8878	20 (42x36)	.173"	5000	**36F130**	**8.05**
8879	20 (42x36)	.173"	5000	**36F131**	**3.43**

BELDEN

2, 3, AND 4-CONDUCTOR PRIMARY WIRE

Cable designed for primary circuits and applications needing well insulated high amperage cable. Color coded. Sold only in lengths listed. Duplex: two parallel conductors, stranded and tinned, with vinyl insulation and chrome vinyl jacket.

Mfr. No.	AWG & Cond.	Nom. Width	Insul. Thickness	Stk. No.	100 Ft.	Stk. No.	500 Ft.
8677	16-2	.164 x .276	.032"	36F170WA	14.65	36F170WF	62.75
8675	14-2	.189 x .326	.037"	36F171WA	19.00	36F171WF	87.50
8673	12-2	.213 x .384	.040"	36F172WA	27.65	36F172WF	111.70

BELDEN WORKBENCH HOOKUP WIRE KITS

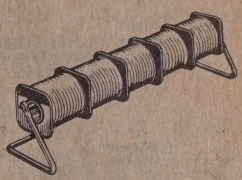
Designed for R&D labs, engineers, servicemen, and hobbyists. Belden hookup wire comes in an assortment of colors. Each kit contains a portable rack for work bench or wall mounting. The dispenser rack provides a complete, compact, and convenient wire department for every working area.

Type	Stk. No.	No. of Spools	Spool Lgth.	Type of Wire	Colors in kit	NET
8822	36F179	10	25'	20 solid Type MW vinyl (8529-25)	1-10	15.25
8823	36F180	5	100'	20 solid Type MW vinyl (8529-100)	2, 5, 6, 9, 10	16.40
8824	36F181	8	25'	20 strd. Type MW vinyl (8523-25)	1-6, 9, 10	14.00
8825	36F182	5	100'	20 strd. Mil-W-16878D vinyl (8502-100)	2, 4, 5, 9, 10	20.25

Type	Stock No.	No. of Spools	Spool Lgth.	Type of Wire	Colors in Kit	NET
8816	36F1350	8	25'	18 stranded vinyl (8522-25)	1-6, 9, 10	15.35
9530	36F2158	10	25'	22 Solid vinyl (8530-25)	1-10	14.20
9531	36F2159	5	100'	22 stranded vinyl (8524-100)	2, 5, 6, 9, 10	16.20

COLORS

1. Brown **2.** Red **3.** Orange **4.** Yellow **5.** Green **6.** Lt. Blue **7.** Violet **8.** Gray **9.** White **10.** Black



CORDS

ELECTRONIC CORDS, PORTABLE CORDAGE

UL ELECTRICAL RATINGS

18 AWG Cond.	1250 Watts 10A-125V	16 AWG Cond.	1625 Watts 13A-125V	14 AWG Cond.	1875 Watts 15A-125V

The concept of shielding the power cord has proven highly effective as a means of minimizing the error-generating effects of ambient electrical interference. This is an important benefit where interference-sensitive electronic devices such as computers and laboratory test equipment are concerned. It's been demonstrated that shielded cords can improve performance in applications like these and cut costs at the same time. For example, when substituted for conventional power cords such as those used in microprocessing equipment and computer systems, shielded cords have proven that they can reduce spurious electrical signals and cut manufacturing costs by eliminating the need for some or all noise filters. In one test a 60 db noise reduction was obtained simply by replacing an ordinary cord with a Belden shielded cord.

SHIELDING

Based on experience gained in designing and manufacturing shielded interconnecting coaxial and multi-connector cables, Belden developed prototypes for shielded power cords. Belden turned these prototypes into production models. The standard shielding used on Belden cords is Beldfoil shielding which consists of aluminum/polyester film providing 100% shield coverage. Spiral-wound drain wire provides termination to the ground. While this type of shielding is used on the standard Belden items in this catalog, a copper serve shield is also available on a special order basis.

CSA CERTIFICATION

Indicated "Certified to CSA Standards," Belden cord sets and power supply cords have been certified by CSA as meeting their Label Service or Re-examination Service requirements. Certification under the applicable CSA Standards is mandatory by most provincial or municipal authorities in Canada.

CEE

All Belden cords are recognized by CEE (European color coding standards), UL listed, CSA certified, OSHA acceptable.

OSHA

Belden cords meet applicable OSHA requirements.

3 CONDUCTOR ELECTRONIC LINE CORDS

NEMA 5-15P

MOLDED VINYL GROUNDING PLUG PH-2908

OUTER JACKET STRIPPED 2" CONDUCTORS STRIPPED AND TWISTED 5/8"

SHIELDED

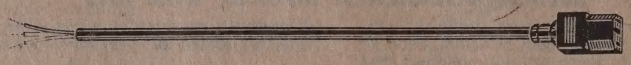
Type	AWG and Stranding	O.D.	Length ft.	Length m	UL Type	Stock No.	NET
17740	18 (41 x 34)	.270"	6' 6"	2	SVT	37F3289	2.47
17741	18 (41 x 34)	.270"	9' 8"	3	SVT	37F3290	2.93
17612	18 (41 x 34)	.337"	6' 6"	2	SJT	37F3291	2.63
17613	18 (41 x 34)	.337"	9' 8"	3	SJT	37F3292	3.17
17614	16 (65 x 34)	.367"	6' 6"	2	SJT	37F3293	2.88
17615	16 (65 x 34)	.367"	9' 8"	3	SJT	37F3294	3.59
17616	14 (41 x 30)	.406"	6' 6"	2	SJT	37F3295	3.41
17617	14 (41 x 30)	.406"	9' 8"	3	SJT	37F3296	4.24

UNSHIELDED

Type	AWG and Stranding	O.D.	Length ft.	Length m	UL Type	Stock No.	NET
17512	18 (41 x 34).	.328"	6' 6"	2	SJT	37F3297	1.60
17513	18 (41 x 34)	.328"	9' 8"	3	SJT	37F3298	2.00
17514	16 (65 x 34)	.353"	6' 6"	2	SJT	37F3299	1.84
17515	16 (65 x 34)	.353"	9' 8"	3	SJT	37F3300	2.37
17516	14 (41 x 30)	.385"	6' 6"	2	SJT	37F3301	2.24
17517	14 (41 x 30)	.385"	9' 8"	3	SJT	37F3303	2.88

ELECTRICAL POWER CORDS, CORD SETS AND EXTENSION CORDS MEET O.S.H.A. REQUIREMENTS

3 CONDUCTOR ELECTRONIC LINE CORDS



OUTER JACKET STRIPPED 2" CONDUCTORS STRIPPED AND TWISTED 5/8"

MOLDED VINYL GROUNDING CONNECTOR SPH-386

CONTACT VIEW

SHIELDED

Type	AWG and Stranding	O.D.	Length ft.	Length m	UL Type	Stock No.	NET
17749	18 (41 x 34)	.270"	6' 6"	2	SVT	37F3303	3.06
17750	18 (41 x 34)	.270"	9' 8"	3	SVT	37F3304	3.52
17618	18 (41 x 34)	.337"	6' 6"	2	SJT	37F3305	3.22
17619	18 (41 x 34)	.337"	9' 8"	3	SJT	37F3306	3.76
17620	16 (65 x 34)	.367"	6' 6"	2	SJT	37F3307	3.48
17621	16 (65 x 34)	.367"	9' 8"	3	SJT	37F3308	4.18
17622	14 (41 x 30)	.406"	6' 6"	2	SJT	37F3309	4.00
17623	14 (41 x 30)	.406"	9' 8"	3	SJT	37F3310	4.84

UNSHIELDED

Type	AWG and Stranding	O.D.	Length ft.	Length m	UL Type	Stock No.	NET
17254	18 (41 x 34)	.253"	7' 8"	2.29	SVT	36F890	2.04
17518	18 (41 x 34)	.328"	6' 6"	2	SJT	37F3311	2.08
17519	18 (41 x 34)	.328"	9' 8"	3	SJT	37F3312	2.48
17520	16 (65 x 34)	.353"	6' 6"	2	SJT	37F3313	2.32
17521	16 (65 x 34)	.353"	9' 8"	3	SJT	37F3314	2.85
17522	14 (41 x 30)	.385"	6' 6"	2	SJT	37F3315	2.72
17523	14 (41 x 30)	.385"	9' 8"	3	SJT	37F3316	3.36

OUTER JACKET STRIPPED 2" CONDUCTORS STRIPPED AND TWISTED 5/8"

MOLDED VINYL RIGHT ANGLE GROUNDING FEMALE CONNECTOR SPH-390

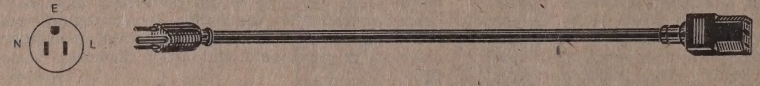
CONTACT VIEW

17751	18 (41 x 34)	.270"	6' 6"	2	SVT	37F3317	2.90
17752	18 (41 x 34)	.270"	9' 8"	3	SVT	37F3318	3.35
17636	18 (41 x 34)	.337"	6' 6"	2	SJT	37F3319	3.38
17637	18 (41 x 34)	.337"	9' 8"	3	SJT	37F3320	3.92
17638	16 (65 x 34)	.367"	6' 6"	2	SJT	37F3321	3.64
17639	16 (65 x 34)	.367"	9' 8"	3	SJT	37F3322	4.34
17641	14 (41 x 30)	.406"	6' 6"	2	SJT	37F3323	4.16
17642	14 (41 x 30)	.406"	9' 8"	3	SJT	37F3324	5.00

17536	18 (41 x 34)	.328"	6' 6"	2	SJT	37F3325	2.24
17537	18 (41 x 34)	.328"	9' 8"	3	SJT	37F3326	2.64
17538	16 (65 x 34)	.353"	6' 6"	2	SJT	37F3327	2.48
17539	16 (65 x 34)	.353"	9' 8"	3	SJT	37F3328	3.01
17541	14 (41 x 30)	.385"	6' 6"	2	SJT	37F3329	2.88
17542	14 (41 x 30)	.385"	9' 8"	3	SJT	37F3330	3.52

13

3 CONDUCTOR SPECIAL USE ELECTRONIC CORDS



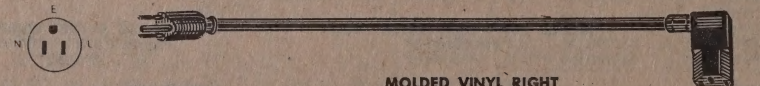
NEMA 5-15P MOLDED VINYL GROUNDING PLUG PH-290B

MOLDED VINYL GROUNDING CONNECTOR SPH-386

CONTACT VIEW

17742	18 (41 x 34)	.270"	6' 6"	2	SVT	37F3331	3.56
17743	18 (41 x 34)	.270"	9' 8"	3	SVT	37F3332	4.02
17600	18 (41 x 34)	.337"	6' 6"	2	SJT	37F3333	3.72
17601	18 (41 x 34)	.337"	9' 8"	3	SJT	37F3334	4.26
17602	16 (65 x 34)	.367"	6' 6"	2	SJT	37F3335	3.97
17603	16 (65 x 34)	.367"	9' 8"	3	SJT	37F3336	4.68
17604	14 (41 x 30)	.406"	6' 6"	2	SJT	37F3337	4.50
17605	14 (41 x 30)	.406"	9' 8"	3	SJT	37F3338	5.33

17251	18 (41 x 34)	.253"	7' 8"	2.29	SVT	36F889	2.21
17500	18 (41 x 34)	.328"	6' 6"	2	SJT	37F3339	2.37
17501	18 (41 x 34)	.328"	9' 8"	3	SJT	37F3340	2.77
17502	16 (65 x 34)	.353"	6' 6"	2	SJT	37F3341	2.61
17503	16 (65 x 34)	.353"	9' 8"	3	SJT	37F3342	3.14
17504	14 (41 x 30)	.385"	6' 6"	2	SJT	37F3343	3.01
17505	14 (41 x 30)	.385"	9' 8"	3	SJT	37F3344	3.65



NEMA 5-15P MOLDED VINYL GROUNDING PLUG PH-290B

MOLDED VINYL RIGHT ANGLE GROUNDING FEMALE CONNECTOR SPH-390

CONTACT VIEW

17745	18 (41 x 34)	.270"	6' 6"	2	SVT	37F3345	3.72
17746	18 (41 x 34)	.270"	9' 8"	3	SVT	37F3346	4.18
17606	18 (41 x 34)	.337"	6' 6"	2	SJT	37F3347	3.88
17607	18 (41 x 34)	.337"	9' 8"	3	SJT	37F3348	4.42
17608	16 (65 x 34)	.367"	6' 6"	2	SJT	37F3349	4.13
17609	16 (65 x 34)	.367"	9' 8"	3	SJT	37F3350	4.84
17610	14 (41 x 30)	.406"	6' 6"	2	SJT	37F3351	4.66
17611	14 (41 x 30)	.406"	9' 8"	3	SJT	37F3352	5.49

17506	18 (41 x 34)	.328"	6' 6"	2	SJT	37F3353	2.53
17507	18 (41 x 34)	.328"	9' 8"	3	SJT	37F3354	2.93
17508	16 (65 x 34)	.353"	6' 6"	2	SJT	37F3355	2.77
17509	16 (65 x 34)	.353"	9' 8"	3	SJT	37F3356	3.30
17510	14 (41 x 30)	.385"	6' 6"	2	SJT	37F3357	3.17
17511	14 (41 x 30)	.385"	9' 8"	3	SJT	37F3358	3.81

ELECTRICAL POWER CORDS, CORD SETS AND EXTENSION CORDS MEET O.S.H.A. REQUIREMENTS

3 CONDUCTOR SPECIAL USE ELECTRONIC CORDS

PIN VIEW

MOLDED VINYL GROUNDING MALE PLUG SPH-388

MOLDED VINYL GROUNDING FEMALE CONNECTOR SPH-386

CONTACT VIEW

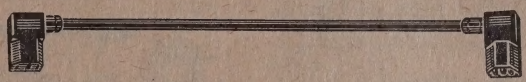
SHIELDED

Type	AWG and Stranding	O.D.	Length ft., in.	Length m	UL Type	Stk. No.	NET
17753C	18 (41 x 34)	.270	3' 3"	1	SVT	**37F3000**	**3.94**
17624C	18 (41 x 34)	.337	3' 3"	1	SJT	**37F3001**	**4.03**
17625C	16 (65 x 34)	.367	3' 3"	1	SJT	**37F3002**	**4.16**
17626C	14 (65 x 34)	.406	3' 3"	1	SJT	**37F3003**	**4.51**

UNSHIELDED

Type	AWG and Stranding	O.D.	Length ft., in.	Length m	UL Type	Stk. No.	NET
17524C	18 (41 x 34)	.328	3' 3"	1	SJT	**37F3004**	**3.15**
17525C	16 (65 x 34)	.353	3' 3"	1	SJT	**37F3005**	**3.28**
17526C	14 (114 x 30)	.385	3' 3"	1	SJT	**37F3006**	**3.60**

PIN VIEW


MOLDED VINYL LEFT ANGLE CONNECTOR SPH-391

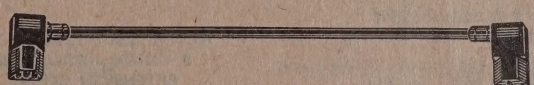
MOLDED VINYL RIGHT ANGLE PLUG SPH-388C

CONTACT VIEW

17754C	18 (41 x 34)	.270	3' 3"	1	SVT	**37F3007**	**4.19**
17627C	18 (41 x 34)	.337	3' 3"	1	SJT	**37F3008**	**4.27**
17628C	16 (65 x 34)	.367	3' 3"	1	SJT	**37F3009**	**4.42**
17630C	14 (41 x 30)	.406	3' 3"	1	SJT	**37F3010**	**4.77**

17527C	18 (41 x 34)	.328	3' 3"	1	SJT	**37F3011**	**3.52**
17528C	16 (65 x 34)	.353	3' 3"	1	SJT	**37F3012**	**3.63**
17530C	14 (41 x 30)	.385	3' 3"	1	SJT	**37F3013**	**3.95**

PIN VIEW


MOLDED VINYL LEFT ANGLE GROUNDING MALE PLUG SPH-388D

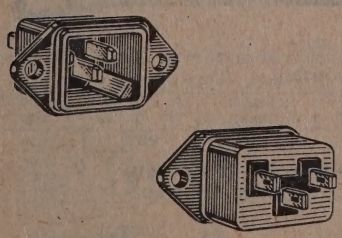
MOLDED VINYL RIGHT ANGLE GROUNDING FEMALE CONNECTOR SPH-390

CONTACT VIEW

17755C	18 (41 x 34)	.270	3' 3"	1	SVT	**37F3014**	**4.19**
17631C	18 (41 x 34)	.337	3' 3"	1	SJT	**37F3015**	**4.27**
17632C	16 (65 x 34)	.367	3' 3"	1	SJT	**37F3016**	**4.42**
17633C	14 (41 x 30)	.406	3' 3"	1	SJT	**37F3017**	**4.77**

17531C	18 (41 x 34)	.328	3' 3"	1	SJT	**37F3018**	**3.52**
17532C	16 (65 x 34)	.353	3' 3"	1	SJT	**37F3019**	**3.63**
17533C	14 (41 x 34)	.385	3' 3"	1	SJT	**37F3020**	**3.95**

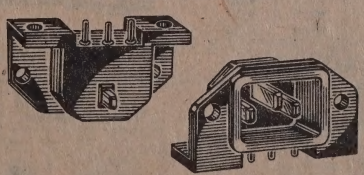
RECEPTACLES



17252 RECESSED POWER RECEPTACLE

The recessed power receptacle mates with any Belden cord having the SPH-386, SPH-390, or SPH-391 molded vinyl connector. May be used for equipment in the U.S., Canada and European countries. Rating: 15 AMPS, 125 VAC—6 AMPS, 250 VAC.

37F3021. NET ..... **.80**

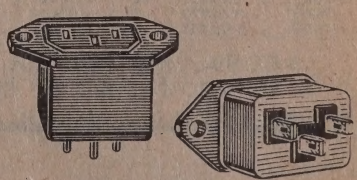


17265 AC RECEPTACLE

6A, 250VAC. SPH-386 390 391

Primary power receptacle with 6A, 250V rtng. for U.S. and European equipment. 3-pin type grounding. 2, .136" dia. holes allow fastening to PC board; 2 more .136" dia. holes allow fastening to panel or chassis, PC pins have ⅛" projection to fit thru PC board. Ground pin can connect to lug on rear of housing. Mates with connectors SPH-386, 390 & 391.

37F3022. NET ..... **.96**



17267 AC RECEPTACLE

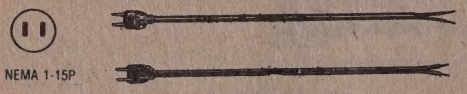
15A, 250VAC. SPH-388

Primary power receptacle with rating for U.S.A. and European equipment. Grounding, 3-contact type; front mount. Mounts with 2, #5 screws or ⅛" dia. rivets (not supplied). U.L. listed; C. S.A. Mates with Belden molded vinyl plugs SPH-388, SPH-388C and SPH-388D. Rating: 15 AMPS, 125 VAC—6 AMPS, 250VAC.

37F3023. NET ..... **.96**

ELECTRICAL POWER CORDS, CORD SETS AND EXTENSION CORDS MEET O.S.H.A. REQUIREMENTS

2 CONDUCTOR POWER SUPPLY



10 amps—125V 1250 watts (*)13A-125V 1625 watts

Mfr. No.	Stk. No.	Lgth. ft.	AWG & Stranding	U/L Type	Specify Color	Each
17106B	**36F950**	6	18(41x34)	SPT-1	Brown, Gray, Ivory	**.61**
17109B	**36F953**	9	18(41x34)	SPT-1	Brown, White	**.72**
17112B	**36F955**	12	18(41x34)	SPT-1	Brown, White	**.93**
17205B	**36F840**	6	18(41x34)	SVT	Black	**.90**
17206B	**36F851**	6	18(41x34)	SV	Gray	**1.90**
17308B	**36F973**	8	18(16x30)	SJ	Black	**1.30**
17328B*	**36F975**	8	16(26x30)	SJ	Black	**1.51**

3 CONDUCTOR POWER SUPPLY

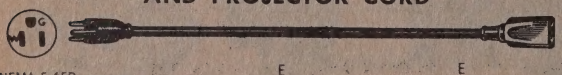
NEMA 5-15P

SV & SVT for small tools, business machines and instruments. SJ, SJT & SJO for tools such as sanders, saws, grinders and polishers. S for heavy duty power tools and equipment.

10 AMPS-125V-1250W (†)13 A-125V-1625W (*)15A-125V-1875W

Mfr. No.	Stock No.	Lgth. ft.	AWG & Stranding	U/L Type	Color	Each
17236B	**36F1037**	6	18 (41x34)	SV	Black	**1.40**
17238B	**36F1038**	8	18 (41x34)	SV	Black	**1.59**
17237B	**36F1821**	6	18 (41x34)	SVT	Gray	**1.22**
17239B	**36F1822**	8	18 (41x34)	SVT	Gray	**1.36**
17406B	**36F842**	6	18 (16x30)	SJ	Black	**1.51**
17405B	**36F957**	6	18 (16x30)	SJT	Gray	**1.27**
17408B	**36F857**	8	18 (16x30)	SJ	Black	**1.70**
17407B	**36F958**	8	18 (16x30)	SJT	Gray	**1.57**
17409B	**36F959**	8	18 (16x30)	SJO	Black	**1.78**
17412B	**36F960**	12	18 (41x34)	SJ	Black	**2.42**
17419B†	**36F843**	9	16 (65x34)	SJ	Black	**2.32**
17422B†	**36F961**	12	16 (65x34)	SJ	Black	**2.88**
17425S†	**36F849**	15	16 (65x34)	SJ	Black	**3.97**
17276C†	**36F1251**	20	16 (26x30)	SJT	Gray	**4.05**
4017403C†	**36F1252**	32	16 (26x30)	SJT	Gray	**4.80**
17629B*	**36F1823**	9	14 (41x30)	S	Black	**4.12**
17635S*	**36F1253**	15	14 (41x30)	S	Black	**7.22**

3-CONDUCTOR BUSINESS MACHINE AND PROJECTOR CORD



NEMA 5-15P

17205

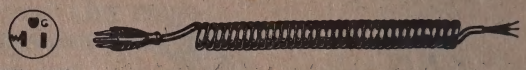
17280

17952

Mfr. No.	Stock No.	Lgth. ft.	AWG & Stranding	U/L Type	Spec. Color	Each
17250B†	**36F1255**	7½	18 (41x34)	SVT	Black	**2.36**
EAC302	**36F1256**	Recessed 3 blade con. for 17250.				**.80**
17255B	**36F888**	7½	16 (65x34)	SJT	Black	**2.84**
17952S	**36F986**	7½	18 (41x34)	SVT	Gray	**2.52**
17280S/#	**36F987**	7½	18 (41x34)	SVT	Gray	**2.28**

(#) CEE Color Coding

3-CONDUCTOR RETRACTILE CORDS



NEMA 5-15P

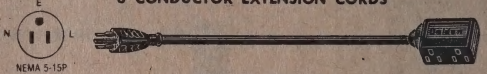
17447

13 AMPS-125 V-1625 WATTS (†)10 AMPS-125V-1250 WATTS RETRACTILE CORDS

Stay neat, allow free movement of the appliance or tool and prevent accidents.

Mfr. No.	Stock No.	Lgth. ft.	AWG & Stranding	U/L Type	Spec. Color	Each
17249S	**36F841**	1-6	18 (41x34)	SVO	Black	**2.53**
17447S†	**36F844**	1-6	18 (41x34)	SJO	Black	**3.38**
17448S	**36F845**	1-6	16 (65x34)	SJO	Black	**3.57**
17449S	**36F1250**	2-12	16 (65x34)	SJO	Black	**5.00**

3 CONDUCTOR EXTENSION CORDS



NEMA 5-15P

SJO NEOPRENE

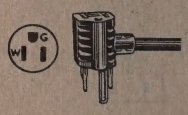
17475S	**37F3024**	25	16 (26x30)	SJO	Black	**8.20**
17476S	**37F3025**	50	16 (26x30)	SJO	Black	**13.52**

SJT VINYL

17675S	**37F3026**	25	14 (41x30)	SJT	Black	**15.96**
17676S	**37F3027**	50	14 (41x30)	SJT	Black	**28.12**

ADD-A-LINE EXTENSION CORD

10 AMP-250V-1250 WATTS 3 COND. ADD-A-LINE EXTENSION CORDS



Added convenience of an outlet in the adapter plug so you can Add-A-Line.

Type	Stk. No.	Lgth. Ft.	AWG and Stranding	U/L Type	Spec. Color	Each
17462S	**36F965**	8	18 (16x30)	SJT	Black	**3.83**
17463S	**36F1257**	15	18 (16x30)	SJT	Black	**5.17**

HEAVY DUTY EXTENSION CORD

For use with heavy-duty floor maintenance equipment and other appliances requiring grounding.

17460S	**36F1039**	10	18 (16x30)	SJ	Black	**2.79**
17461S	**36F964**	10	16 (26x30)	SJ	Black	**3.20**

AIR CONDITIONER CORDS WITH PLUG, OTHER END STRIPPED

15725

15 AMP 125V 1875W

15726

15 AMP 250V 3750W

For room air conditioners and domestic automatic washers.

15725	**36F1295**	6	14 (41x30)	SPT-3	Gray	**2.16**
15726	**36F1296**	6	14 (41x30)	SPT-3	Gray	**2.16**

ELECTRICAL POWER CORDS, CORD SETS AND EXTENSION CORDS MEET O.S.H.A. REQUIREMENTS

U/L APPROVED 3-CONDUCTOR POWER SUPPLY CORD

WITH STRAIN RELIEF, MOLDED PLUG—OTHER END STRIPPED

For most portable tools requiring a strain relief. Fits Black & Decker, PET, Ram, Sioux, Thor and others.

Mfr. No.	Stock No.	Lgth. ft.	AWG & Stranding	U/L Type	Color	Each
4017410B	**36F1380**	6	18 (16x30)	SJT	Black	**1.26**
4017420B†	**36F1381**	10	16 (26x30)	SJT	Black	**2.06**
4017430B†	**36F1382**	10	16 (26x30)	SJO	Black	**2.82**

4017410

4017420 4017430

10 AMPS-125V-1250 WATTS (†) 13A-125V-1625 WATTS

INDOOR, OUTDOOR EXTENSION CORDS

INDOOR EXTENSION CORD, FLAT YELLOW

Suited for most medium and light duty power tools. Resistant to temperature extremes.

Type	AWG	Ft.	Rating	Stk. No.	NET
SPT-2, 2 cond.					
17142	16 ga.	25	1625 W, 13A-125V	**37F3028**	**2.98**
17143	16 ga.	50	1625 W, 13A-125V	**37F3029**	**4.47**
17144	16 ga.	100	1250 W, 10A-125V	**37F3030**	**8.21**
SPT-2, 3 cond.					
17194	16 ga.	25	1625 W, 13A-125V	**37F3031**	**3.72**
17195	16 ga.	50	1625 W, 13A-125V	**37F3032**	**5.97**
17191	16 ga.	100	1250 W, 10A-125V	**37F3033**	**11.20**
SPT-3, 3 cond.					
17196	14 ga.	25	1875 W, 15A-125V	**37F3034**	**6.37**
17198	14 ga.	50	1875 W, 15A-125V	**37F3035**	**10.47**
17192	14 ga.	100	1625 W, 13A-125V	**37F3036**	**17.96**

OUTDOOR EXTENSION CORD, ROUND ORANGE

Used with all 2-conductor double-insulated and portable power tools. Resistant to extreme temp.

Type	AWG	Ft.	Rating	Stk. No.	NET
SJTW-A, 3 cond.					
17145	18 ga.	25	1250 W, 10A-125V	**37F3037**	**4.12**
17146	18 ga.	50	1250 W, 10A-125V	**37F3038**	**7.46**
17147	16 ga.	25	1625 W, 13A-125V	**37F3039**	**5.22**
17148	16 ga.	50	1625 W, 13A-125V	**37F3040**	**8.95**
17149	16 ga.	100	1250 W, 10A-125V	**37F3041**	**14.18**
17150	14 ga.	25	1875 W, 15A-125V	**37F3042**	**6.72**
17151	14 ga.	50	1875 W, 15A-125V	**37F3043**	**11.19**
17152	14 ga.	100	1625 W, 13A-125V	**37F3044**	**19.44**
17153	12 ga.	25	1875 W, 15A-125V	**37F3045**	**11.96**
17154	12 ga.	50	1875 W, 15A-125V	**37F3059**	**22.44**
17155	12 ga.	100	1875 W, 15A-125V	**37F3060**	**39.12**

HEAVY DUTY TOOL BENCH POWER CORD, ROUND ORANGE

Used with power tools. Recommended for use with electric sanders, drills and portable power tools including saws. Available in choice of 2 or 3-conductors. 2-conductor models recommended for use with double-insulated power tools only.

Type	AWG	Ft.	Rating	Stk. No.	NET
SJTW-A, 2 cond.					
17130	16 ga.	10	1625 W, 13A-125V	**37F3046**	**2.24**
SJTW-A, 3 cond.					
17131	18 ga.	10	1250 W, 10A-125V	**37F3047**	**2.24**
17132	16 ga.	10	1625 W, 13A-125V	**37F3048**	**2.40**

INDOOR/OUTDOOR 2 CONDUCTOR EXTENSION CORD, ROUND ORANGE

Especially designed for use with all 2-conductor, double-insulated electric sanders, drills, portable saws and portable power tools. Resistant to temperature extremes.

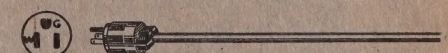
Type	AWG	Ft.	Rating	Stk. No.	NET
SJTW-A, 2 cond.					
17133	18 ga.	25	1250 W, 10A-125V	**37F3049**	**3.72**
17134	18 ga.	50	1250 W, 10A-125V	**37F3050**	**6.72**
17135	16 ga.	25	1625 W, 13A-125V	**37F3051**	**4.47**
17136	16 ga.	50	1625 W, 13A-125V	**37F3052**	**7.46**
17137	16 ga.	100	1250 W, 10A-125V	**37F3053**	**12.71**

13

TYPE SJT VINYL LOW-LEAKAGE & HOSPITAL GRADE CORD

This power cord reduces the hazards of shock due to current leakage between the two conductors and from the conductors out through the jacket.

Type	AWG	Nom. O.D.	Ft.	Color	Stk. No.	EACH
17005S	18 (41 x 34)	.430	8	Brown	**37F3054**	**11.28**
17006S	16 (65 x 34)	.475	8	Brown	**37F3055**	**11.72**
17009S	18 (41 x 34)	.328	8	Gray	**37F3056**	**8.80**

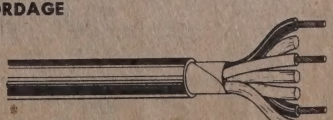


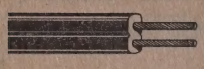
NEMA-5-15P IMPACT RESISTANT NYLON GROUNDING PLUG CUT BLUNT

HOSPITAL GRADE PORTABLE CORDAGE

Specify color; brown, blue or gray.

Type	AWG	Nom. O.D.	No. of Cond.	Stk. No.	100′	Stk. No.	500′	Stk. No.	1000′
9997	18 (41x34)	.430	3	**37F3057WA**	**44.10**	**37F3057WF**	**164.25**	**37F3057WM**	**328.50**
9998	16 (65x34)	.475	3	**37F3058WA**	**52.95**	**37F3058WF**	**197.25**	**37F3058WM**	**394.50**





RUBBER-VINYL MULTICONDUCTOR PORTABLE CORDAGE—300V —60°C

Types 8462 and 8888 are standard household "lamp cord;" other types have color-coded rubber insulation, black rubber jacket overall. All conductors are of stranded copper. *Rubber insulated, in brown, white or black—specify color. †Vinyl insulation, in brown, white or grey—specify color.

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Stock Number	100′	Stock Number	250′	Stock Number	500′	Stock Number	1000′
8462*	SP-1	18-2	.223″	36F047WA	9.90	36F047WE	23.05				
8888†	SPT-1	18-2	.207″	36F048WA	8.75	36F048WE	18.85				
8452	SV	18-2	.245″	36F030WA	15.00	36F030WE	33.35	36F030WF	66.70	36F030WM	114.30
8453	SV	18-3	.265″	36F031WA	20.50			36F031WF	96.35		
8454		18-4	.265″	36F032WA	23.05			36F032WF	100.00	36F032WM	180.90
8478	SJ	18-2	.298″	36F1811WA	16.45	36F1811WE	39.05			36F1811WM	133.65
8472	SJ	16-2	.325″	36F049WA	22.75	36F049WE	53.15				
8474		14-2	.360″	36F050WA	25.00	36F050WE	59.10				
8479		14-3	.380″	36F1352WA	33.45	36F1352WE	81.65				

SPT-1 PLASTIC PARALLEL LAMP CORD

Type	AWG Stranding	Nom. O.D. & Color	Stock No.	250′ Length 1-3	4-19	20-Up
19122	2-18 (41 x 34)	.110 x .250 Brown Black	37F3061 37F3062	13.12	12.22	11.30

SPT-2 PLASTIC PARALLEL LAMP CORD 300V-60°C

19123	2-18 (41 x 34)	.144 x .296 Brown Black	37F3063 37F3064	17.15	15.96	14.76
19126	2-16 (65 x 34)	.155 x .314 Brown Black	37F3065 36F1820	22.78	21.20	19.62

SP-1 RUBBER PARALLEL LAMP CORD 300V-60°C

19115	2-18 (41 x 34)	.123 x .277 Brown Black	36F161 36F160	17.82	16.58	15.35

HPN-2 CONDUCTOR-NEOPRENE HEATER CORD

19328	2-18 (41 x 34)	.140 x .276 Black	37F3066	24.28	22.60	20.91
19326	2-16 (65 x 34)	.152 x .300 Black	37F3067	32.10	29.87	27.65

SVT-2 CONDUCTOR-PLASTIC JACKET 300V-60°C
Color Code-Black, White

19140	2-18 (41 x 34)	.243 Black	37F3068	21.82	20.31	18.80

SV-2 CONDUCTOR-RUBBER JACKET 300V-60°C
Color Code-Black, White

19120	2-18 (41 x 34)	.245 Black	37F3069	27.90	25.97	24.03

SJO-2 CONDUCTOR-NEOPRENE JACKET 300V-60°C (*) Flex

19227	18 (16 x 30)*	.298 Black	36F984	36.62	34.08	31.55
19228	16 (26 x 30)*	.323 Black	36F985	44.45	41.36	38.27

SO-2 CONDUCTOR-NEOPRENE JACKET 600V-60°C

19204	18 (41 x 34)	.386 Black	36F1366	59.12	55.02	50.92
19203	16 (65 x 34)	.401 Black	36F1367	68.70	63.93	59.17
19202	14 (41 x 30)	.528 Black	36F1368	107.98	100.50	93.00
19201	12 (65 x 30)	.599 Black	37F3070	150.88	140.41	129.95

SJT-3 CONDUCTOR-VINYL JACKET 300V-60°C

19348	18 (41 x 34)	.328 Black	36F1167	38.45	35.77	33.11
19349	16 (65 x 34)	.353 Black	36F1169	47.18	43.91	40.63

Type	AWG Stranding	Nom. O.D.	Stock No.	250′ Length 1-3	4-19	20-Up

SVT-3 CONDUCTOR-PLASTIC JACKET 300V-60°C

19350	18 (41 x 34)	.253	36F1172	28.32	26.36	24.40
19351	17 (52 x 34)	.268	36F1175	32.98	30.70	28.41

SJ-3 CONDUCTOR-RUBBER JACKET 300V-60°C (*) Flex

19129	18 (16 x 30)*	.328	36F1372	39.00	36.30	33.60
19130	16 (26 x 30)*	.353	36F1373	50.22	46.73	43.26
19125	18 (41 x 34)	.328	37F3071	44.78	41.67	38.57

S-3 CONDUCTOR-RUBBER JACKET 600V-60°C

19109	18 (41 x 34)	.401	36F1363	53.18	49.50	45.81
19108	16 (65 x 34)	.426	36F1364	66.40	61.80	57.18
19107	14 (41 x 30)	.558	36F1365	107.48	100.02	92.57
19124	16 (65 x 34)	.353	37F3072	54.65	50.85	47.06
19106	12 (65 x 30)	.634	37F3073	143.65	133.67	123.71
19105	10 (105 x 30)	.689	37F3074	195.52	181.96	168.40

SJO-3 CONDUCTOR-NEOPRENE JACKET 300V-60°C (*) Flex

19229	18 (16 x 30)*	.328	36F1374	45.42	42.27	39.12
19230	16 (26 x 30)*	.353	36F1375	58.40	54.35	50.30

SO-3 CONDUCTOR-NEOPRENE JACKET 600V-60°C

19209	18 (41 x 34)	.401	36F1369	67.56	62.87	58.18
19208	16 (65 x 34)	.426	36F1370	83.20	77.43	71.66
19207	14 (41 x 30)	.558	36F1371	138.70	129.08	119.46
19206	12 (65 x 30)	.634	37F3075	184.28	171.50	158.71
19205	10 (105 x 30)	.689	37F3076	242.98	226.12	209.27

SJT-3 CONDUCTOR-PLASTIC JACKET 300V-60°C+UNSHIELDED
CEE Color Code-Light Blue, Brown, Green/Yellow

19352	3-18 (41 x 34)	.328	37F3077	38.45	35.77	33.11
19353	3-16 (65 x 34)	.353	37F3078	47.18	43.91	40.63
19354	3-14 (41 x 30)	.385	37F3079	54.92	51.11	47.30

SJT-3 CONDUCTOR-PLASTIC JACKET 300V-60°C+SHIELDED
CEE Color Code-Light Blue, Brown, Green/Yellow

19362	3-18 (41 x 34)	.337	37F3080	46.80	43.56	40.31
19363	3-16 (65 x 34)	.367	37F3081	57.80	53.80	49.78
19364	3-14 (65 x 34)	.406	37F3082	68.88	64.11	59.32

SO-4 CONDUCTOR-NEOPRENE JACKET 600V-60°C 50′ Coil

Color Code-Black, White, Green, Red				1-19	20-99	100-Up
19217	4-14 (41 x 30)	.603	37F3083	32.36	30.11	27.87
19216	4-12 (65 x 30)	.690	37F3084	44.50	41.42	38.33

13

NUMERICAL INDEX

Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page
BLD-5	546	1736-1797	540	5041-5080/60	536
FCC	543	1805-1859	544	5121-5139/27	537
FCT	543	1891-1899	540	5200-5258	535
STRP-25	546	2132-2182	541	5261-5279/02	537
286-299	546	2254-2260	540	5283-5299/27	537
615-760/4	546	2402-2461	541	5300-5358	535
1120-1122	541	2824-2837/3	539	5504-5549/25	536
1172-1181/60	540	2840-2845/19	544	5600/1601-5646/1801	538
1221-1242/4	541	3050-3079	544	5851-5954	544
1244-1255/20	539	3210-3247	539	6000-6027	541
1300-1329	540	3302-3430	537	7053-9196A	545
1449-1452/16	539	3530-3573	540	9212-9848	545
1550-1565	544	3580-3585	542		
1635-1639	546	5002-5020/00	536		
1702-1728	539	5021-5039/27	537		

UL and OSHA Computer Cables

UNSHIELDED UL STYLE 2343 CABLE

Stranded tinned copper conductor with .010" color-coded PVC insulation. Cabled singly or in pairs, with gray vinyl jacket overall. Specifications: Individual conductors rated 80°C, 300 volts.

24 GAUGE, MULTI. Strand, 7/32.

Alpha No.	No. of Cond.	Nom. O.D.	Stock No.	NET 100'	Stock No.	NET 500'
5200	5	.250	37F1692WA	68.24	37F1692WF	279.13
5201	7	.265	37F1693WA	72.48	37F1693WF	296.44
5202	12	.320	37F1694WA	100.15	37F1694WF	409.51
5203	15	.340	37F1695WA	136.11	37F1695WF	556.76
5204	19	.360	37F1696WA	147.51	37F1696WF	603.46
5205	27	.410	37F1697WA	177.49	37F1697WF	806.82
5206	37	.445	37F1821WA	244.62	37F1821WF	1111.87
5207	48	.495	37F1822WA	307.51	37F1822WF	1397.79
5208	60	.535	37F1823WA	367.09	37F1823WF	1668.64

24 GAUGE, PAIRED. Strand, 7/32.

5230	5 pr.	.345	37F1824WA	96.60	37F1824WF	395.07
5231	7 pr.	.355	37F1825WA	110.87	37F1825WF	453.43
5232	12 pr.	.445	37F1826WA	159.73	37F1826WF	653.49
5233	15 pr.	.485	37F1827WA	183.72	37F1827WF	835.14
5234	19 pr.	.505	37F1828WA	208.68	37F1828WF	948.52
5235	27 pr.	.575	37F1829WA	283.11	37F1829WF	1286.94
5236	37 pr.	.640	37F1830WA	379.59	37F1830WF	1725.36
5237	48 pr.	.710	37F1831WA	473.82	37F1831WF	2153.77
5238	60 pr.	.760	37F1832WA	605.11	37F1832WF	2750.55

22 GAUGE, MULTI. Strand, 7/30.

5210	5	.270	37F1833WA	72.56	37F1833WF	296.71
5211	7	.285	37F1834WA	77.83	37F1834WF	318.39
5212	12	.345	37F1835WA	109.63	37F1835WF	448.62
5213	15	.370	37F1836WA	147.11	37F1836WF	601.77
5214	19	.390	37F1837WA	161.78	37F1837WF	661.80
5215	27	.440	37F1838WA	193.99	37F1838WF	881.83
5216	37	.490	37F1839WA	267.73	37F1839WF	1216.90
5217	48	.545	37F1840WA	334.45	37F1840WF	1520.31
5218	60	.580	37F1841WA	414.93	37F1841WF	1886.10

22 GAUGE, PAIRED. Strand, 7/30.

5240	5 pr.	.370	37F1842WA	105.95	37F1842WF	433.42
5241	7 pr.	.385	37F1843WA	122.65	37F1843WF	501.75
5242	12 pr.	.485	37F1844WA	162.10	37F1844WF	736.81
5243	15 pr.	.535	37F1845WA	213.07	37F1845WF	968.52
5244	19 pr.	.565	37F1846WA	239.47	37F1846WF	1088.53
5245	27 pr.	.645	37F1847WA	317.58	37F1847WF	1443.61
5246	37 pr.	.735	37F1848WA	426.51	37F1848WF	1938.70
5247	48 pr.	.815	37F1849WA	551.22	37F1849WF	2505.48
5248	60 pr.	.915	37F1885WA	682.12	37F1885WF	3100.62

20 GAUGE, MULTI. Strand, 19/32.

5220	5	.295	37F1886WA	82.31	37F1886WF	336.75
5221	7	.320	37F1887WA	92.08	37F1887WF	376.75
5222	12	.390	37F1888WA	133.59	37F1888WF	546.45
5223	15	.415	37F1889WA	158.57	37F1889WF	721.80
5224	19	.440	37F1890WA	180.06	37F1890WF	818.47
5225	27	.510	37F1891WA	239.47	37F1891WF	1088.53
5226	37	.560	37F1892WA	329.68	37F1892WF	1498.65
5227	48	.630	37F1893WA	416.98	37F1893WF	1895.37
5228	60	.680	37F1894WA	506.85	37F1894WF	2303.82

20 GAUGE, PAIRED. Strand, 19/32.

5250	5 pr.	.420	37F1895WA	126.35	37F1895WF	516.78
5251	7 pr.	.435	37F1896WA	152.03	37F1896WF	621.79
5252	12 pr.	.555	37F1897WA	205.00	37F1897WF	931.86
5253	15 pr.	.610	37F1898WA	248.64	37F1898WF	1130.23
5254	19 pr.	.650	37F1899WA	310.96	37F1899WF	1413.61
5255	27 pr.	.750	37F1901WA	415.89	37F1901WF	1890.37
5256	37 pr.	.890	37F1902WA	571.38	37F1902WF	2597.17
5257	48 pr.	.990	37F1903WA	719.89	37F1903WF	3272.34
5258	60 pr.	1.065	37F1904WA	890.05	37F1904WF	4045.78

SHIELDED UL STYLE 2343 CABLE

Stranded tinned copper conductor has .010" color-coded PVC insulation and braided tinned copper shield. Cabled singly or in pairs, with gray vinyl jacket overall. Specs.: Individual conductors rated 80°C, 300 volts.

24 GAUGE. MULTI. Strand 7/32.

Alpha No.	No. of Cond.	Nom. O.D.	Stock No.	NET 100'	Stock No.	NET 500'
5300	5	.275	37F1905WA	80.66	37F1905WF	330.06
5301	7	.290	37F1906WA	88.81	37F1906WF	363.40
5302	12	.345	37F1907WA	120.22	37F1907WF	491.77
5303	15	.365	37F1908WA	158.16	37F1908WF	646.78
5304	19	.380	37F1909WA	154.39	37F1909WF	701.80
5305	27	.430	37F2560WA	203.16	37F2560WF	923.50
5306	37	.470	37F2561WA	276.19	37F2561WF	1255.24
5307	48	.520	37F2562WA	345.84	37F2562WF	1571.98
5308	60	.555	37F2563WA	409.27	37F2563WF	1860.39

24 GAUGE, PAIRED. Strand, 7/32.

5330	5 pr.	.365	37F2564WA	101.30	37F2564WF	459.23
5331	7 pr.	.380	37F2565WA	115.55	37F2565WF	525.27
5332	12 pr.	.465	37F2566WA	168.84	37F2566WF	767.45
5333	15 pr.	.510	37F2567WA	209.99	37F2567WF	954.60
5334	19 pr.	.525	37F2568WA	236.64	37F2568WF	1075.70
5335	27 pr.	.595	37F2569WA	314.84	37F2569WF	1431.11
5336	37 pr.	.670	37F2570WA	412.05	37F2570WF	1873.02
5337	48 pr.	.740	37F2571WA	508.94	37F2571WF	2313.38
5338	60 pr.	.815	37F2572WA	639.36	37F2572WF	2906.24

22 GAUGE, MULTI. Strand, 7/30.

5310	5	.290	37F2573WA	88.81	37F2573WF	363.40
5311	7	.310	37F2574WA	96.18	37F2574WF	393.42
5312	12	.380	37F2575WA	132.05	37F2575WF	540.10
5313	15	.390	37F2576WA	154.74	37F2576WF	703.48
5314	19	.410	37F2577WA	169.42	37F2577WF	770.16
5315	27	.470	37F2578WA	225.52	37F2578WF	1025.22
5316	37	.510	37F2579WA	306.61	37F2579WF	1393.60
5317	48	.570	37F2580WA	378.84	37F2580WF	1722.03
5318	60	.610	37F2581WA	457.69	37F2581WF	2080.41

22 GAUGE, PAIRED. Strand, 7/30.

5340	5 pr.	.395	37F2582WA	111.75	37F2582WF	507.99
5341	7 pr.	.410	37F2583WA	128.01	37F2583WF	581.87
5342	12 pr.	.510	37F2584WA	190.98	37F2584WF	868.11
5343	15 pr.	.555	37F2585WA	232.31	37F2585WF	1055.93
5344	19 pr.	.590	37F2586WA	271.59	37F2586WF	1234.55
5345	27 pr.	.680	37F2587WA	353.61	37F2587WF	1607.25
5346	37 pr.	.770	37F2588WA	465.71	37F2588WF	2116.79
5347	48 pr.	.890	37F2589WA	591.96	37F2589WF	2690.79
5348	60 pr.	.950	37F2590WA	730.37	37F2590WF	3319.85

20 GAUGE, MULTI. Strand, 19/32.

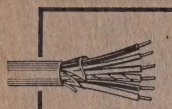
5320	5	.325	37F2591WA	100.65	37F2591WF	411.73
5321	7	.345	37F2592WA	112.08	37F2592WF	458.43
5322	12	.410	37F2593WA	156.48	37F2593WF	640.12
5323	15	.440	37F2594WA	183.72	37F2594WF	835.14
5324	19	.465	37F1948WA	204.64	37F1948WF	930.18
5325	27	.530	37F1949WA	277.60	37F1949WF	1261.90
5326	37	.585	37F1975WA	372.61	37F1975WF	1693.66
5327	48	.660	37F1976WA	428.64	37F1976WF	1948.30
5328	60	.715	37F1977WA	562.56	37F1977WF	2557.17

20 GAUGE, PAIRED. Strand, 19/32.

5350	5 pr.	.440	37F1978WA	131.13	37F1978WF	596.04
5351	7 pr.	.460	37F1979WA	160.19	37F1979WF	727.94
5352	12 pr.	.580	37F1980WA	236.64	37F1980WF	1075.70
5353	15 pr.	.645	37F1981WA	299.27	37F1981WF	1360.34
5354	19 pr.	.680	37F1982WA	345.27	37F1982WF	1569.50
5355	27 pr.	.785	37F1983WA	454.28	37F1983WF	2064.89
5356	37 pr.	.930	37F1984WA	609.96	37F1984WF	2772.57
5357	48 pr.	1.030	37F1985WA	767.75	37F1985WF	3489.71
5358	60 pr.	1.100	37F1986WA	936.92	37F1986WF	4258.71

13

alpha UL/CSA/OSHA Cables



Listed
Certified
OSHA Acceptable

All conductors stranded tinned copper with color coded PVC insulation. Conductors cabled singly. Shielded items have braided tinned copper (80-85% coverage). All items have overall gray PVC jacket.

80°C MULTICONDUCTOR 300V UL 2464
24AWG (7/32) UNSHIELDED

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100′ EACH	Stock No.	500′ EACH
5012	2	.160	37F1776WA	17.38	37F1776WF	75.28
5013	3	.165	37F1777WA	19.90	37F1777WF	86.13
5014	4	.180	37F1778WA	22.37	37F1778WF	96.79
5016	6	.205	37F1779WA	27.55	37F1779WF	119.20
5018	8	.220	37F1780WA	32.93	37F1780WF	142.51
5020	10	.245	37F1781WA	38.50	37F1781WF	166.62
5020/15	15	.275	37F1451WA	56.52	37F1451WF	244.52
5020/20	20	.300	37F1452WA	72.19	37F1452WF	312.39
5020/25	25	.340	37F1453WA	88.06	37F1453WF	380.98
5020/30	30	.360	37F1454WA	103.83	37F1454WF	449.26
5020/40	40	.400	37F1455WA	135.54	37F1455WF	586.38
5020/50	50	.440	37F1456WA	150.67	37F1456WF	724.45
5020/60	60	.470	37F1457WA	179.74	37F1457WF	864.10
5020/70	70	.510	37F1458WA	209.31	37F1458WF	1002.30
5020/80	80	.530	37F1459WA	236.82	37F1459WF	1138.60
5020/90	90	.560	37F1460WA	265.29	37F1460WF	1275.54
5020/00	100	.640	37F1461WA	300.51	37F1461WF	1444.77

22AWG (7/30) UNSHIELDED

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100′ EACH	Stock No.	500′ EACH
5002	2	.170	37F1462WA	18.07	37F1462WF	78.22
5003	3	.180	37F1463WA	21.12	37F1463WF	91.44
5004	4	.195	37F1464WA	25.70	37F1464WF	111.16
5006	6	.225	37F1465WA	30.52	37F1465WF	132.06
5008	8	.240	37F1466WA	36.95	37F1466WF	160.00
5010	10	.270	37F1467WA	43.69	37F1467WF	189.03
5010/15	15	.300	37F1468WA	64.02	37F1468WF	277.03
5010/20	20	.340	37F1469WA	82.34	37F1469WF	356.28
5010/25	25	.375	37F1470WA	100.82	37F1470WF	436.18
5010/30	30	.400	37F1471WA	119.14	37F1471WF	515.41
5010/40	40	.445	37F1472WA	155.93	37F1472WF	674.61
5010/50	50	.485	37F1473WA	174.24	37F1473WF	837.75
5010/60	60	.525	37F1474WA	207.18	37F1474WF	1015.12
5010/70	70	.610	37F1475WA	246.63	37F1475WF	1185.81
5010/80	80	.630	37F1476WA	279.67	37F1476WF	1344.55
5010/90	90	.660	37F1477WA	314.49	37F1477WF	1511.92
5010/00	100	.710	37F1478WA	346.87	37F1478WF	1667.73

20AWG (10/30) UNSHIELDED

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100′ EACH	Stock No.	500′ EACH
5052	2	.220	37F1479WA	19.95	37F1479WF	86.38
5053	3	.225	37F1480WA	24.27	37F1480WF	104.95
5054	4	.245	37F1483WA	28.62	37F1483WF	123.81
5056	6	.285	37F1484WA	38.34	37F1484WF	165.88
5058	8	.315	37F1485WA	46.04	37F1485WF	199.17
5060	10	.360	37F1486WA	55.69	37F1486WF	240.99
5060/15	15	.405	37F1487WA	80.58	37F1487WF	348.66
5060/20	20	.450	37F1488WA	103.97	37F1488WF	449.80
5060/25	25	.500	37F1489WA	129.74	37F1489WF	561.33
5060/30	30	.535	37F1490WA	153.79	37F1490WF	665.32
5060/40	40	.635	37F1491WA	187.90	37F1491WF	903.42
5060/50	50	.695	37F1492WA	232.20	37F1492WF	1116.39
5060/60	60	.750	37F1493WA	275.71	37F1493WF	1325.58
5060/70	70	.885	37F1496WA	334.59	37F1496WF	1608.61
5060/80	80	.915	37F1497WA	378.73	37F1497WF	1820.82
5060/90	90	.955	37F1498WA	423.07	37F1498WF	2034.03
5060/00	100	1.030	37F1499WA	468.73	37F1499WF	2253.64

18AWG (16/30) UNSHIELDED

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100′ EACH	Stock No.	500′ EACH
5062	2	.230	37F1698WA	23.58	37F1698WF	102.06
5063	3	.245	37F1699WA	29.73	37F1699WF	128.71
5064	4	.265	37F1700WA	36.02	37F1700WF	155.82
5066	6	.320	37F1701WA	48.74	37F1701WF	210.91
5068	8	.345	37F1702WA	61.27	37F1702WF	265.17
5070	10	.395	37F1703WA	74.36	37F1703WF	321.76
5070/15	15	.445	37F1704WA	108.25	37F1704WF	468.34
5070/20	20	.495	37F1705WA	142.24	37F1705WF	615.40
5070/25	25	.555	37F1706WA	158.11	37F1706WF	760.20
5070/30	30	.625	37F1707WA	193.84	37F1707WF	931.99
5070/40	40	.700	37F1708WA	254.47	37F1708WF	1223.49
5070/50	50	.770	37F1709WA	315.54	37F1709WF	1517.04
5070/60	60	.895	37F1710WA	390.33	37F1710WF	1876.60
5070/70	70	.975	37F1711WA	453.09	37F1711WF	2178.33
5070/80	80	1.010	37F1713WA	513.15	37F1713WF	2467.05
5070/90	90	1.055	37F1714WA	573.96	37F1714WF	2759.41
5070/00	100	1.135	37F1715WA	636.28	37F1715WF	3059.10

16AWG (26/30) UNSHIELDED

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100′ EACH	Stock No.	500′ EACH
5072	2	.260	37F1716WA	29.57	37F1716WF	127.98
5073	3	.275	37F1717WA	39.17	37F1717WF	169.51
5074	4	.300	37F1718WA	48.62	37F1718WF	210.31
5076	6	.365	37F1719WA	67.69	37F1719WF	292.89
5078	8	.395	37F1720WA	86.45	37F1720WF	374.07
5080	10	.455	37F1721WA	118.59	37F1721WF	513.06
5080/15	15	.515	37F1722WA	155.79	37F1722WF	673.99
5080/20	20	.610	37F1723WA	189.84	37F1723WF	912.72
5080/25	25	.680	37F1724WA	234.72	37F1724WF	1128.48
5080/30	30	.725	37F1725WA	278.47	37F1725WF	1338.87
5080/40	40	.875	37F1726WA	381.45	37F1726WF	1833.99
5080/50	50	.960	37F1727WA	471.51	37F1727WF	2266.87
5080/60	60	1.030	37F1728WA	561.39	37F1728WF	2699.08

COMBINATION GAUGES UNSHIELDED

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100′ EACH	Stock No.	500′ EACH
5041	4-22 (7/30) 2-18 (16/30)	.280	37F1729WA	29.38	37F1729WF	127.12
5042	5-22 (7/30) 2-18 (16/30)	.295	37F1730WA	40.15	37F1730WF	173.70
5043	6-22 (7/30) 2-18 (16/30)	.365	37F1731WA	43.92	37F1731WF	190.08

105°C MULTICONDUCTOR 600V UL 2501
22AWG (7/30) SHIELDED

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100′ EACH	Stock No.	500′ EACH
5504	4	.390	37F1732WA	57.24	37F1732WF	247.63
5505	5	.420	37F1733WA	64.64	37F1733WF	279.70
5507	7	.450	37F1734WA	75.38	37F1734WF	326.13
5509	9	.510	37F1735WA	95.35	37F1735WF	412.57
5509/12	12	.555	37F1736WA	113.83	37F1736WF	492.52
5509/15	15	.610	37F1737WA	137.27	37F1737WF	593.86
5509/19	19	.650	37F1738WA	161.03	37F1738WF	696.58
5509/25	25	.745	37F1739WA	180.24	37F1739WF	866.49

20AWG (10/30) SHIELDED

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100′ EACH	Stock No.	500′ EACH
5514	4	.410	37F1740WA	62.82	37F1740WF	271.89
5515	5	.440	37F1741WA	76.74	37F1741WF	332.04
5517	7	.470	37F1742WA	89.11	37F1742WF	385.53
5519	9	.535	37F1743WA	109.15	37F1743WF	472.17
5519/12	12	.595	37F1744WA	133.59	37F1744WF	577.90
5519/15	15	.640	37F1745WA	158.76	37F1745WF	686.86
5519/19	19	.685	37F1746WA	170.25	37F1746WF	818.56
5519/25	25	.735	37F1747WA	227.73	37F1747WF	1094.86

18AWG (16/30) SHIELDED

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100′ EACH	Stock No.	500′ EACH
5524	4	.435	37F1748WA	74.08	37F1748WF	320.49
5525	5	.465	37F1749WA	87.91	37F1749WF	380.34
5527	7	.500	37F1750WA	107.65	37F1750WF	465.79
5529	9	.570	37F1751WA	130.09	37F1751WF	562.86
5529/12	12	.635	37F1752WA	162.61	37F1752WF	703.59
5529/15	15	.685	37F1753WA	175.99	37F1753WF	846.21
5529/19	19	.735	37F1754WA	207.34	37F1754WF	996.90
5529/25	25	.885	37F1755WA	272.68	37F1755WF	1311.03

16AWG (26/30) SHIELDED

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100′ EACH	Stock No.	500′ EACH
5534	4	.465	37F1756WA	93.11	37F1756WF	402.85
5535	5	.500	37F1757WA	108.87	37F1757WF	471.01
5537	7	.540	37F1758WA	135.29	37F1758WF	585.37
5539	9	.630	37F1759WA	150.76	37F1759WF	724.86
5539/12	12	.690	37F1760WA	189.48	37F1760WF	910.99
5539/15	15	.750	37F1761WA	224.65	37F1761WF	1080.03
5539/19	19	.805	37F1762WA	271.92	37F1762WF	1307.29
5539/25	25	.965	37F1763WA	374.95	37F1763WF	1802.73

14AWG (41/30) SHIELDED

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100′ EACH	Stock No.	500′ EACH
5544	4	.505	37F1764WA	118.87	37F1764WF	514.27
5545	5	.545	37F1765WA	138.84	37F1765WF	600.66
5547	7	.600	37F1766WA	159.30	37F1766WF	765.94
5549	9	.690	37F1768WA	197.58	37F1768WF	949.96
5549/12	12	.765	37F1770WA	249.78	37F1770WF	1200.91
5549/15	15	.835	37F1771WA	300.40	37F1771WF	1444.32
5549/19	19	.930	37F1773WA	378.43	37F1773WF	1819.47
5549/25	25	1.070	37F1775WA	484.93	37F1775WF	2331.48

13

80°C TWISTED PAIRS 300V UL2464 —UNSHIELDED

All conductors stranded tinned, copper, color coded PVC insulation, conductors paired, pairs cabled, Mylar wrap gray PVC jacket, all cables pass FR-1 vertical flame test.

24 AWG (7/32) Tinned Copper

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
5261	1	.160	37F1209WA	17.38	37F1209WF	75.28
5262	2	.215	37F1210WA	23.55	37F1210WF	101.88
5263	3	.235	37F1211WA	29.72	37F1211WF	128.61
5264	4	.270	37F1212WA	36.14	37F1212WF	156.31
5265	5	.275	37F1213WA	42.29	37F1213WF	182.98
5266	6	.285	37F1214WA	48.47	37F1214WF	209.76
5269	9	.355	37F1215WA	67.71	37F1215WF	292.92
5269/11	11	.370	37F1216WA	80.14	37F1216WF	346.72
5269/15	15	.425	37F1217WA	106.62	37F1217WF	461.31
5269/19	19	.440	37F1200WA	131.15	37F1200WF	567.37
5269/27	27	.510	37F1201WA	163.68	37F1201WF	786.94
5269/51	51	.710	37F1202WA	307.15	37F1202WF	1476.72
5269/77	77	.905	37F1203WA	479.20	37F1203WF	2303.92
5269/02	102	1.005	37F1204WA	631.75	37F1204WF	3037.35

22 AWG (7/30) Tinned Copper

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
5021	1	.170	37F1205WA	18.07	37F1205WF	78.22
5022	2	.230	37F1206WA	25.57	37F1206WF	110.59
5023	3	.260	37F1207WA	32.77	37F1207WF	141.85
5024	4	.295	37F1208WA	40.29	37F1208WF	174.33
5025	5	.310	37F1218WA	47.45	37F1218WF	205.33
5026	6	.320	37F1219WA	54.66	37F1219WF	236.40
5029	9	.395	37F1220WA	76.96	37F1220WF	333.06
5029/11	11	.415	37F1221WA	91.38	37F1221WF	395.40
5029/15	15	.470	37F1222WA	122.40	37F1222WF	529.56
5029/19	19	.505	37F1223WA	151.06	37F1223WF	653.61
5029/27	27	.620	37F1224WA	193.95	37F1224WF	932.52
5029/51	51	.785	37F1225WA	353.49	37F1225WF	1699.51
5029/77	77	1.000	37F1226WA	550.29	37F1226WF	2645.62
5029/02	102	1.115	37F1227WA	725.22	37F1227WF	3486.63

20 AWG (10/30) Tinned Copper

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
5283	3	.345	37F1228WA	40.85	37F1228WF	176.77
5286	6	.425	37F1229WA	69.93	37F1229WF	302.53
5289	9	.525	37F1230WA	100.50	37F1230WF	434.80
5289/12	12	.570	37F1231WA	129.34	37F1231WF	559.51
5289/15	15	.675	37F1232WA	166.58	37F1232WF	720.67
5289/19	19	.720	37F1233WA	184.66	37F1233WF	887.83
5289/27	27	.900	37F1234WA	269.79	37F1234WF	1297.11

18 AWG (16/30) Tinned Copper

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
5033	3	.375	37F1235WA	52.36	37F1235WF	226.60
5036	6	.470	37F1236WA	93.30	37F1236WF	403.66
5039	9	.620	37F1237WA	142.56	37F1237WF	616.80
5039/12	12	.670	37F1238WA	165.10	37F1238WF	793.74
5039/15	15	.745	37F1239WA	202.45	37F1239WF	973.33
5039/19	19	.795	37F1240WA	250.93	37F1240WF	1206.48
5039/27	27	.990	37F1241WA	365.76	37F1241WF	1758.51

80°C TWISTED PAIRS 300V UL2464 —SHIELDED

All conductors stranded, tinned copper, color coded PVC insulation, conductors paired, pairs cabled, overall braided tinned copper shield, overall gray PVC jacket, all cables pass FR-1 vertical flame test.

24 AWG (7/32)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
5271	1	.180	37F1242WA	28.70	37F1242WF	124.26
5272	2	.240	37F1243WA	38.02	37F1243WF	164.53
5273	3	.260	37F1244WA	45.67	37F1244WF	197.62
5274	4	.290	37F1245WA	54.94	37F1245WF	237.70
5275	5	.300	37F1246WA	61.36	37F1246WF	265.50
5276	6	.315	37F1247WA	67.69	37F1247WF	292.80
5279	9	.380	37F1248WA	90.65	37F1248WF	392.17
5279/11	11	.395	37F1249WA	103.47	37F1249WF	447.66
5279/15	15	.445	37F1250WA	137.67	37F1250WF	595.60
5279/19	19	.465	37F1251WA	150.22	37F1251WF	722.28
5279/27	27	.540	37F1252WA	201.13	37F1252WF	966.99
5279/51	51	.745	37F1253WA	358.24	37F1253WF	1722.30
5279/77	77	.945	37F1254WA	546.10	37F1254WF	2625.58
5279/02	102	1.045	37F1255WA	709.87	37F1255WF	3412.92

22 AWG (7/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
5121	1	.195	37F1256WA	31.28	37F1256WF	135.48
5122	2	.255	37F1257WA	41.74	37F1257WF	180.63
5123	3	.280	37F1258WA	50.32	37F1258WF	217.72
5124	4	.325	37F1259WA	60.34	37F1259WF	260.98
5125	5	.335	37F1119WA	68.13	37F1119WF	294.79
5126	6	.345	37F1120WA	75.23	37F1120WF	325.47
5129	9	.415	37F1121WA	106.13	37F1121WF	459.16
5129/11	11	.435	37F1124WA	121.99	37F1124WF	527.76
5129/15	15	.495	37F1125WA	158.39	37F1125WF	685.33
5129/19	19	.535	37F1126WA	173.17	37F1126WF	832.65
5129/27	27	.655	37F1127WA	237.27	37F1127WF	1140.67
5129/51	51	.885	37F1128WA	422.98	37F1128WF	2033.62
5129/77	77	.975	37F1129WA	623.13	37F1129WF	2995.93
5129/02	102	1.160	37F1130WA	810.60	37F1130WF	3897.13

20 AWG (10/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
5293	3	.365	37F1167WA	60.91	37F1167WF	263.50
5296	6	.445	37F1169WA	98.98	37F1169WF	428.28
5299	9	.555	37F1172WA	140.29	37F1172WF	606.84
5299/12	12	.635	37F1175WA	159.18	37F1175WF	765.36
5299/15	15	.705	37F1177WA	191.68	37F1177WF	921.55
5299/19	19	.755	37F1179WA	231.73	37F1179WF	1114.12
5299/27	27	.940	37F1181WA	326.70	37F1181WF	1570.59

18 AWG (16/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
5133	3	.400	37F1182WA	80.19	37F1182WF	346.99
5136	6	.490	37F1183WA	129.54	37F1183WF	560.40
5139	9	.650	37F1185WA	172.42	37F1185WF	828.93
5139/12	12	.700	37F1186WA	210.21	37F1186WF	1010.64
5139/15	15	.780	37F1187WA	255.34	37F1187WF	1227.64
5139/19	19	.895	37F1188WA	323.10	37F1188WF	1553.43
5139/27	27	1.030	37F1189WA	439.95	37F1189WF	2115.10

MULTICONDUCTOR SHIELDED CABLE PER MIL-W-16878D

Multiconductor shielded cable has stranded tinned copper-conductor, color coded PVC insulation, cabled with mylar wrap. Shield is braided tinned copper with 90% coverage. Jacket is chrome-gray PVC. Specifications: −55°C to +105°C, 600 volts and 1000 volts. Designed for applications including instrumentation and control, telemetry data transmission, remote control.

HEAVY DUTY—1000 VOLTS

Alpha No.	Cond. No.	Nom. Jacket	Nom. O.D.	Stock No.	100 Feet	Stock No.	1000 Feet
3405	5	.025″	.300″	37F1281WA	127.25	37F1281WM	1110.24
3408	8	.025″	.350″	37F1987WA	172.42	37F1987WM	1492.98
3410	10	.035″	.405″	37F1282WA	202.41	37F1282WM	1985.13
3412	12	.035″	.430″	37F1988WA	275.13	37F1988WM	2381.88
3415	15	.040″	.450″	37F1283WA	275.01	37F1283WM	2710.45
3420	20	.045″	.530″	37F1284WA	370.32	37F1284WM	3664.87
3430	30	.050″	.650″	37F1285WA	553.63	37F1285WM	5420.97

MINIATURE—600 VOLTS

Alpha No.	Cond. No.	Nom. Jacket	Nom. O.D.	Stock No.	100 Feet	Stock No.	1000 Feet
3302	2	.012″	.125″	37F1272WA	31.98	37F1272WM	264.27
3303	3	.012″	.130″	37F1273WA	41.54	37F1273WM	352.83
3304	4	.012″	.140″	37F1274WA	50.16	37F1274WM	430.68
3306	6	.015″	.170″	37F1275WA	63.36	37F1275WM	550.48
3308	8	.015″	.175″	37F1276WA	71.86	37F1276WM	626.83
3310	10	.018″	.210″	37F1277WA	90.71	37F1277WM	796.02
3312	12	.018″	.215″	37F1278WA	104.48	37F1278WM	901.02
3315	15	.022″	.230″	37F1279WA	125.64	37F1279WM	1094.86
3320	20	.022″	.260″	37F1280WA	156.14	37F1280WM	1366.74

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Instrumentation Cables

INSTRUMENTATION CABLES

Constructed with stranded, tinned conductors and black PVC jackets. Pairs color coded black and white. Multi-pairs and multi-triples numbered at 1-inch intervals. Triples color-coded black, white and red. Aluminum-polyester tape shield and drain wire for 100% coverage. A nylon rip cord simplifies jacket removal. 24, 22, 20, and 18 AWG-7 strand. 16, 14, and 12 AWG-19 strand.

FOR INSULATION SAFETY AND RELIABILITY:
PVC—Passes UL FR-1 vertical flame test. UL listed under subject 13; complies with NEC Article 725.
PE—UL 2667
PVC/Nylon—Passes IEEE 383 vertical flame test. UL listed under subject 1227; complies with NEC Article 340.

90°C, 300V PVC—SINGLE PAIR, UNSHIELDED

Alpha No.	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5600/2001	20	.205″	37F3413WA	33.39	37F3413WM	124.53
5600/1801	18	.237″	37F3414WA	42.64	37F3414WM	159.00
5600/1601	16	.255″	37F3415WA	52.98	37F3415WM	197.56

90°C, 300V PVC—SINGLE PAIR, SHIELDED

Alpha No.	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5610/2401*	24	.159″	37F3416WA	18.25	37F3416WM	68.14
5610/2201	22	.191″	37F3417WA	28.42	37F3417WM	94.63
5610/2001	20	.207″	37F3418WA	37.38	37F3418WM	139.42
5610/1801	18	.239″	37F3419WA	49.66	37F3419WM	185.23
5610/1601	16	.257″	37F3420WA	59.91	37F3420WM	223.42
5610/1401*	14	.309″	37F3421WA	71.07	37F3421WM	264.90
5610/1201*	12	.347″	37F3422WA	83.24	37F3422WM	310.42

80°C 300V PE—SINGLE PAIR, SHIELDED

5611/2401	24	.151″	37F3423WA	17.25	37F3423WM	64.35
5611/2201	22	.165″	37F3424WA	23.35	37F3424WM	87.06
5611/2001	20	.181″	37F3425WA	34.52	37F3425WM	128.70
5611/1801	18	.201″	37F3426WA	45.68	37F3426WM	170.34

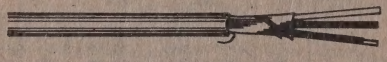
90°C, 600V PVC/NYLON—SINGLE PAIR, SHIELDED

5616/2001*	20	.219″	37F3427WA	47.72	37F3427WM	177.91
5616/1801	18	.279″	37F3428WA	66.66	37F3428WM	248.55
5616/1601	16	.297″	37F3429WA	85.48	37F3429WM	318.75
5616/1401	14	.327″	37F3430WA	96.46	37F3430WM	359.64
5616/1201	12	.365″	37F3431WA	106.59	37F3431WM	397.50

*Not UL Listed.

13

90°C, 300V PVC—SINGLE TRIPLE, UNSHIELDED



Alpha No.	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5630/2001	20	.215″	37F3432WA	32.48	37F3432WM	121.14
5630/1801	18	.250″	37F3433WA	50.75	37F3433WM	189.28
5630/1601	16	.269″	37F3434WA	70.45	37F3434WM	262.65

90°C, 300V PVC—SINGLE TRIPLE SHIELDED

Alpha No.	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5640/2201	22	.200″	37F3435WA	40.60	37F3435WM	151.42
5640/2001	20	.217″	37F3436WA	52.79	37F3436WM	196.84
5640/1801	18	.252″	37F3437WA	64.97	37F3437WM	242.28
5640/1601	16	.271″	37F3438WA	54.05	37F3438WM	291.00

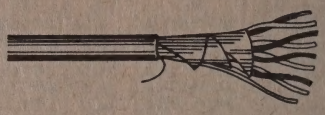
80°C, 300V PE—SINGLE TRIPLE, SHIELDED

5641/2201	22	.175″	37F3439WA	26.71	37F3439WM	143.85
5641/2001	20	.192″	37F3440WA	35.16	37F3440WM	189.27
5641/1801	18	.213″	37F3441WA	43.58	37F3441WM	234.67

90°C, 600V PVC/NYLON—SINGLE TRIPLE, SHIELDED

5646/1801	18	.293″	37F3442WA	58.38	37F3442WM	314.16
5646/1601	16	.313″	37F3443WA	71.03	37F3443WM	210.25
5646/1401	14	.345″	37F3444WA	83.48	37F3444WM	449.34

90°C, 300V PVC—MULTI-PAIR, OVERALL SHIELDED



Alpha No.	No. Prs.	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5610/2002	2	20	.310″	37F3445WA	62.69	37F3445WM	353.37
5610/2004	4	20	.409″	37F3446WA	96.46	37F3446WM	519.18
5610/2008	8	20	.486″	37F3447WA	147.69	37F3447WM	795.00
5610/2010	10	20	.540″	37F3448WA	199.03	37F3448WM	1071.24
5610/2012	12	20	.566″	37F3449WA	192.92	37F3449WM	1038.36
5610/2016	16	20	.650″	37F3450WA	268.26	37F3450WM	1443.96
5610/2020	20	20	.702″	37F3451WA	279.22	37F3451WM	1622.44
5610/2024	24	20	.755″	37F3452WA	331.58	37F3452WM	1784.68
5610/2036	36	20	.914″	37F3453WA	482.30	37F3453WM	2595.90
5610/2050	50	20	1.048″	37F3454WA	711.38	37F3454WM	3828.96
5610/1602	2	16	.415″	37F3455WA	97.04	37F3455WM	522.43
5610/1604	4	16	.522″	37F3456WA	144.69	37F3456WM	778.47
5610/1608	8	16	.648″	37F3457WA	223.05	37F3457WM	1200.60
5610/1612	12	16	.760″	37F3458WA	313.49	37F3458WM	1687.33
5610/1616	16	16	.849″	37F3459WA	403.93	37F3459WM	2174.08
5610/1624	24	16	1.015″	37F3460WA	602.87	37F3460WM	3244.89
5610/1636	36	16	1.208″	37F3461WA	904.30	37F3461WM	4867.33

90°C, 600V PVC/NYLON—MULTI-PAIR, OVERALL SHIELDED

5616/1602	2	16	.436″	37F3462WA	123.59	37F3462WM	665.22
5616/1604	4	16	.587″	37F3463WA	166.38	37F3463WM	895.59
5616/1608	8	16	.705″	37F3464WA	256.82	37F3464WM	1382.32
5616/1612	12	16	.870″	37F3465WA	361.72	37F3465WM	1946.92
5616/1624	24	16	1.131″	37F3466WA	693.31	37F3466WM	3731.62

90°C, 300V PVC—MULTI-PAIR, INDIVIDUALLY SHIELDED

Alpha No.	No. Prs.	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5620/2002	2	20	.365″	37F3467WA	78.36	37F3467WM	421.83
5620/2004	4	20	.442″	37F3468WA	125.39	37F3468WM	674.92
5620/2008	8	20	.561″	37F3469WA	192.92	37F3469WM	1038.36
5620/2012	12	20	.693″	37F3470WA	295.40	37F3470WM	1590.00
5620/2016	16	20	.766″	37F3471WA	349.65	37F3471WM	1882.03
5620/2020	20	20	.847″	37F3472WA	403.93	37F3472WM	2174.08
5620/2024	24	20	.959″	37F3473WA	533.53	37F3473WM	2871.72
5620/2036	36	20	1.092″	37F3474WA	663.15	37F3474WM	3569.38
5620/2050	50	20	1.254″	37F3475WA	889.23	37F3475WM	4786.21
5620/1602	2	16	.487″	37F3476WA	120.57	37F3476WM	648.96
5620/1604	4	16	.563″	37F3477WA	195.32	37F3477WM	1051.33
5620/1608	8	16	.747″	37F3478WA	331.58	37F3478WM	1784.68
5620/1612	12	16	.920″	37F3479WA	482.30	37F3479WM	2595.90
5620/1616	16	16	1.021″	37F3480WA	602.87	37F3480WM	3244.89
5620/1624	24	16	1.279″	37F3481WA	904.30	37F3481WM	4867.33

90°C, 300V PVC—MULTI-TRIPLE, OVERALL SHIELDED

Alpha No.	No. Triples	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5640/2004	4	20	.454″	37F3482WA	125.39	37F3482WM	674.92
5640/2012	12	20	.714″	37F3483WA	250.19	37F3483WM	1346.62
5640/2024	24	20	.989″	37F3484WA	431.04	37F3484WM	2320.09

Shielded Wire & Cable

BRAIDED SHIELDED CONTROL CABLE

20 gauge stranded tinned copper conductor with color-coded polyethylene insulation, cabled with nylon wrap. Nominal wall thickness, .015". Shield is braided tinned copper. Jacket is .014" polyvinyl chloride except 1712, .030". Specifications: −20°C to +80°C, 600 volts.

Alpha No.	No. Cond.	Conductor Size	Conductor Strand	Nom. O.D.	Stock No.	100 Feet	Stock No.	500 Feet
1712	2	20	26/34	.245"	37F1515WA	24.62	37F1515WF	108.45
1713	3	20	26/34	.250"	37F1410WA	26.90	37F1410WF	106.70
1715	4	20	26/34	.260"	37F1411WA	28.95	37F1411WF	117.35
1716	5	20	26/34	.275"	37F473WA	33.00	37F473WF	137.30
1717	6	20	26/34	.300"	37F474WA	68.04	37F474WF	296.97
1719	8	20	26/34	.330"	37F475WA	90.21	37F475WF	402.67
1721	10	20	26/34	.375"	37F476WA	111.93	37F476WF	494.41
1723	12	20	26/34	.380"	37F1516WA	157.84	37F1516WF	856.53
1726	15	20	26/34	.410"	37F1517WA	243.39	37F1517WF	1210.08
1728	20	20	26/34	.455"	37F1518WA	317.20	37F1518WF	1575.54

RUBBER JACKETED SHIELDED CABLES

Stranded tinned copper conductor with color-coded rubber wall, nominal thickness, .020". Cabled with fillers where necessary, cotton wrap. Shield is braided tinned copper with cotton wrap. Jacket is black rubber or heavy duty neoprene. Specifications: −20°C to +60°C, 300 volts. For use in video and audio interconnecting systems, broadcast applications, and heavy duty studio use.

Alpha No.	No. Cond.	Conductor Size	Conductor Strand	Nom. O.D.	Stock No.	100 Feet	Stock No.	500 Feet
1250/18	2	18	41/34	.295"	37F1519WA	56.24	37F1519WF	247.41
1250	2	20	26/34	.270"	37F1520WA	29.10	37F1520WF	119.20
1251	3	20	26/34	.285"	37F1521WA	32.00	37F1521WF	134.55
1252	4	20	26/34	.305"	37F1522WA	36.00	37F1522WF	151.75
1253	5	20	26/34	.330"	37F1523WA	44.45	37F1523WF	189.40
1254	6	20	26/34	.345"	37F1524WA	54.60	37F1524WF	234.30
1255/8	8	20	26/34	.385"	37F1526WA	67.25	37F1526WF	287.20
1255/10	10	20	26/34	.440"	37F1527WA	158.08	37F1527WF	754.75
1255/12	12	20	26/34	.525"	37F1528WA	230.19	37F1528WF	1113.30
1255/15	15	20	26/34	.595"	37F1529WA	298.12	37F1529WF	1452.78
1255/20	20	20	26/34	.660"	37F1530WA	370.23	37F1530WF	1811.40

RUBBER JACKETED UNSHIELDED CABLE

20 gauge, 26/34 tinned copper conductor with color-coded rubber wall, nominal thickness .020", cabled with cotton wrap. Jacket is black rubber with .035" nominal thickness wall. Specifications: −20°C to +60°C, 300 volts. Suggested applications include heavy duty control and interconnecting systems, audio-visual control, and instrumentation.

Alpha No.	No. of Cond.	Nom. Cond.	Stock No.	100 Ft.	Stock No.	500 Ft.
1244	2	.240"	37F1350WA	34.24	37F1350WF	146.58
1245	3	.255"	37F1351WA	36.79	37F1351WF	160.12
1246	4	.275"	37F1352WA	41.42	37F1352WF	181.44
1247	5	.300"	37F1353WA	56.57	37F1353WF	239.61
1247/6	6	.315"	37F1354WA	67.58	37F1354WF	289.56
1247/7	7	.325"	37F1355WA	81.88	37F1355WF	350.92
1247/8	8	.360"	37F1356WA	85.15	37F1356WF	368.50
1247/10	10	.410"	37F1357WA	139.29	37F1357WF	582.24
1247/12	12	.435"	37F1358WA	174.07	37F1358WF	832.47

NEOPRENE JACKETED SHIELDED CABLE

Shielded control cable has stranded tinned copper conductor with color-coded rubber insulation, .040" nominal wall thickness. Cabled with fillers where necessary, cotton wrap. Jacket is heavy duty black neoprene. Specifications: −20°C to +60°C, 300 volts. Braided tinned copper shield with cotton wrap. Designed for application in such areas as heavy duty control and interconnection. Oil and grease resistant.

Alpha No.	No. Cond.	Conductor Size	Conductor Strand	Nom. O.D.	Stock No.	100 Feet	Stock No.	500 Feet
1449	1	18	41/34	.240"	37F689WA	49.10	37F689WF	213.73
1450	2	18	41/34	.295"	37F690WA	64.52	37F690WF	284.92
1451	3	18	41/34	.305"	37F691WA	119.39	37F691WF	493.18
1452	4	18	41/34	.330"	37F692WA	146.16	37F692WF	613.72
1450/16	2	16	65/34	.335"	37F470WA	124.24	37F470WF	515.13
1451/16	3	16	65/34	.355"	37F471WA	149.41	37F471WF	628.39
1452/16	4	16	65/34	.385"	37F472WA	153.09	37F472WF	721.50

TEFLON MULTICONDUCTOR CABLE

Stranded silver plated copper conductors conform to MIL-W-16878D. Extruded color-coded Type E Teflon insulation, .010" wall. Jacket is white, TFE cables tape wrapped, FEP cables extruded. Braided silver-plated copper shield. −65°C to +200°C, 600 V.

TFE

Alpha No.	Stock No.	No. Cond.	Conductor Size	Conductor Strand	Nom. O.D.	100 Feet
2824	37F1029WA	1	22	19/34	.102"	50.20
2824/2	37F1042WA	2	22	19/34	.154"	78.20
2824/3	37F2256WA	3	22	19/34	.162"	102.70
2824/4	37F2257WA	4	22	19/34	.176"	137.70
2826	37F1028WA	1	16	19/29	.130"	78.40
2826/2	37F1027WA	2	16	19/29	.210"	134.25
2827	37F1045WA	1	20	19/32	.110"	56.25
2827/2	37F1046WA	2	20	19/32	.170"	82.45
2827/3	37F2258WA	3	20	19/32	.180"	119.85
2827/4	37F2259WA	4	20	19/32	.195"	149.40
2829	37F1049WA	1	18	19/30	.120"	67.05
2829/2	37F1050WA	2	18	19/30	.190"	103.90

FEP

2831	37F1053WA	1	24	19/36	.085"	54.51
2831/2	37F1054WA	2	24	19/36	.130"	75.69
2831/3	37F1055WA	3	24	19/36	.135"	104.13
2834	37F1056WA	1	22	19/34	.091"	54.51
2834/2	37F1057WA	2	22	19/34	.150"	80.52
2834/3	37F1058WA	3	22	19/34	.158"	117.78
2837	37F1059WA	1	20	19/32	.100"	59.34
2837/2	37F1060WA	2	20	19/32	.168"	88.98
2837/3	37F1061WA	3	20	19/32	.178"	129.58

MIL-SPEC CABLES

Stranded tinned copper conductors meet MIL-W-16878D Type B. Color-coded PVC wall has .010" nominal thickness. Clear nylon jacket, cabled. Braided tinned copper shield has 90% coverage. Gray PVC jacket. Specifications: −55°C to +105°C, 600 volts. Color code: 1—white, 2—black, 3—red. Resistant to acids, alkalis, oil, flame, moisture, fungus, solvents.

Alpha No.	No. Cond.	Conductor Size	Conductor Strand	Nom. O.D.	Stock No.	100 Feet	Stock No.	500 Feet
3210	1	24	19/36	.092"	37F1260WA	10.85	37F1260WF	45.30
3211	2	24	19/36	.152"	37F1261WA	15.20	37F1261WF	65.10
3212	3	24	19/36	.161"	37F1262WA	19.50	37F262WF	83.70
3213	4	24	19/36	.172"	37F1504WA	24.20	37F1504WF	101.70
3220	1	22	19/34	.100"	37F1263WA	12.10	37F1263WF	48.85
3221	2	22	19/34	.168"	37F1264WA	20.35	37F1264WF	82.80
3222	3	22	19/34	.178"	37F1265WA	27.70	37F1265WF	115.90
3230	1	20	19/32	.106"	37F1266WA	12.70	37F1266WF	51.40
3231	2	20	19/32	.186"	37F1505WA	23.45	37F1505WF	94.60
3232	3	20	19/32	.196"	37F1268WA	28.60	37F1268WF	124.40
3240	1	18	19/30	.120"	37F1269WA	17.75	37F1269WF	72.90
3241	2	18	19/30	.210"	37F1270WA	28.35	37F1270WF	120.90
3242	3	18	19/30	.227"	37F1271WA	37.35	37F1271WF	161.85
3245	1	16	19/29	.137"	37F1508WA	16.80	37F1508WF	69.10
3246	2	16	19/29	.236"	37F1509WA	28.15	37F1509WF	122.30
3247	3	16	19/29	.240"	37F1510WA	38.90	37F1510WF	167.20

SHIELDED MICROPHONE CABLE UL Style 1150

Numbers 1702 to 1706, single conductor, stranded tinned copper, white PE insulation, tinned copper shield, gray PVC jacket overall. Numbers 1709 to 1710, each conductor stranded tinned copper, color coded PE insulation cabled with fillers, tinned copper shield, gray PVC jacket. Suggested operating temperature −20°C to +80°C.

Alpha No.	Size & Strand	Nom. O.D.	Stk. No.	100 Feet	Stk. No.	1000 Feet
1702*	26 (4)	.110"	37F1376WA	13.90	37F1376WM	98.91
1703	24 (10)	.145"	37F1377WA	10.75	37F1377WM	75.00
1704	24 (10)	.190"	37F1378WA	13.25	37F1378WM	98.70
1705*	24 (10)	.110"	37F1379WA	16.95	37F1379WM	114.24
1706*	20 (26)	.175"	37F1380WA	25.97	37F1380WM	191.08
1709*	24 (10)	.190"	37F1381WA	23.70	37F1381WM	186.76
1710	22 (16)	.230"	37F1382WA	19.25	37F1382WM	142.75

*Spiral wrapped

Audio Cable

UNSHIELDED INTERCOM CABLE

Has 22 gauge tinned copper conductor, color-coded PVC insulation with conductors paired. Wall is .010" thick. Jacket of gray PVC. Specifications: −20°C to +80°C. Applications include balanced intercoms, telephones, call systems, control circuits, computers, speakers, alarm & signal systems. Suitable for outdoor installations. UL 2576. 80°C; 150V.

22 GAUGE—SOLID CONDUCTORS—150 V.

Alpha No.	No. of Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
1300	1	.154″	37F1383WA	5.50	37F1383WF	17.70
1302	2	.222″	37F1384WA	9.20	37F1384WF	33.10
1307	6	.289″	37F1386WA	20.00	37F1386WF	81.35
1307/9	9	.334″	37F1388WA	29.20	37F1388WF	121.75
1309	13	.374″	37F1390WA	41.45	37F1390WF	177.10
1309/15	15	.397″	37F1391WA	50.15	37F1391WF	209.80
1310	16	.425″	37F1392WA	64.50	37F1392WF	278.25
1313	27	.521″	37F1393WA	80.50	37F1393WF	362.15

22 GAUGE—STRANDED CONDUCTORS

1316	1	.164″	37F2235WA	8.25	37F2235WF	31.35
1317	2	.239″	37F2236WA	10.60	37F2236WF	38.95
1318	3	.252″	37F2237WA	15.25	37F2237WF	57.80
1319	4	.274″	37F2238WA	18.35	37F2238WF	71.05
1320	5	.304″	37F2239WA	22.70	37F2239WF	94.65
1322	6	.320″	37F2240WA	24.10	37F2240WF	99.30
1323	9	.370″	37F2241WA	36.05	37F2241WF	152.20
1324	11	.400″	37F2242WA	52.10	37F2242WF	227.70
1327	15	.450″	37F2243WA	60.20	37F2243WF	255.70
1327/19	19	.480″	37F2244WA	73.30	37F2244WF	322.20
1328	23	.530″	37F2245WA	93.70	37F2245WF	414.20
1329	27	.708″	37F2246WA	112.55	37F2246WF	484.35

UNSHIELDED AUDIO CABLE

22 gauge 7/30 stranded tinned copper conductor with color-coded PVC insulation. .010" wall. Conductors twisted in gray PVC jacket. Specifications: −20°C to +80°C. Applications include unbalanced intercoms, control cables, P.A. systems, computers, alarm & signal systems. UL 2576. 80°C; 150V.

Alpha No.	No. of Cond.	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
1172	2	.164″	37F1336WA	5.80	37F1336WF	20.20
1173	3	.169″	37F1337WA	6.80	37F1337WF	24.80
1174	4	.194″	37F1338WA	9.10	37F1338WF	33.85
1175	5	.199″	37F1339WA	10.65	37F1339WF	40.40
1176	6	.209″	37F1340WA	13.75	37F1340WF	52.45
1177	7	.214″	37F1341WA	14.25	37F1341WF	54.10
1178	8	.224″	37F1342WA	18.50	37F1342WF	70.65
1179	9	.249″	37F1343WA	20.20	37F1343WF	77.40
1180	10	.259″	37F1344WA	21.80	37F1344WF	88.55
1181	12	.279″	37F1345WA	24.65	37F1345WF	100.65
1181/15	15	.304″	37F1346WA	39.00	37F1346WF	155.00
1181/20	20	.324″	37F1347WA	46.10	37F1347WF	200.25
1181/25	25	.364″	37F1348WA	60.85	37F1348WF	250.30
1181/30	30	.379″	37F1349WA	63.70	37F1349WF	287.40
1181/40	40	.439″	37F1512WA	84.20	37F1512WF	380.10
1181/50	50	.500″	37F1513WA	105.25	37F1513WF	475.10
1181/60	60	.530″	37F1514WA	157.65	37F1514WF	670.15

UNSHIELDED AUDIO CABLE

14 to 22 AWG solid or stranded conductors; color coded PVC insulation and overall gray PVC jacket. Specifications as follows: 1793, 1794-80°C; 200 V. Non UL. 1795, 1797—UL Style 2509. 80°C; 300 V. 1893, 1894, 1894/4—UL Style 2576. 80°C; 150 V. 1895-1899—UL Style 2509. 80°C; 300V. 1891, 1891/3—80°C; 350 V. Non UL.

SOLID

Alpha No.	No. of Cond.	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
1793	2	22	.130″	37F1642WA	7.85	37F1642WF	25.50
1794	3	22	.140″	37F1643WA	13.75	37F1643WF	51.30
1795	2	20	.170″	37F1645WA	16.45	37F1645WF	63.45
1797	2	18	.190″	37F1648WA	18.20	37F1648WF	69.60

STRANDED

Alpha No.	No. of Cond.	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
1893	2	22	.135″	37F1654WA	5.85	37F1654WF	20.20
1894	3	22	.145″	37F1655WA	8.70	37F1655WF	25.80
1894/4	4	22	.170″	37F1656WA	8.80	37F1656WF	32.80
1895	2	20	.180″	37F1657WA	7.50	37F1657WF	23.70
1896	3	20	.190″	37F1658WA	9.70	37F1658WF	37.30
1896/4	4	20	.215″	37F1659WA	12.85	37F1659WF	47.25
1897	2	18	.200″	37F1660WA	10.20	37F1660WF	35.10
1898	3	18	.210″	37F1661WA	13.45	37F1661WF	54.55
1898/4	4	18	.240″	37F1662WA	17.60	37F1662WF	66.00
1899	2	16	.225″	37F1663WA	12.70	37F1663WF	50.40
1891	2	14	.260″	37F1666WA	19.35	37F1666WF	80.10
1891/3	3	14	.280″	37F1667WA	45.15	37F1667WF	194.60

BRAIDED SHIELDED PLASTIC CABLE

14 to 22 gauge stranded tinned copper conductor with color-coded PVC .016" wall thickness, except (†) .020". Gray PVC jacket. Copper shield, 75% coverage for high flexibility and cable strength. Specifications: −20°C to +80°C, 300 volts except 1750, 1751, 450 volts. Applications include Public Address systems, sound systems, audio circuits, shielded power lines, or RF circuits. Suitable for outdoor installations in such applications as amateur radio transmitters or wherever economical shielded cable is required. UL Style 2095. 80°C; 300 V.

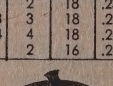
Alpha No.	No. Cond.	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
1736	2	22	.185″	37F1075WA	13.06	37F1075WF	51.03
1737	3	22	.200″	37F1076WA	13.50	37F1076WF	51.00
1738	4	22	.210″	37F1299WA	20.52	37F1299WF	86.76
1741	2	20	.200″	37F1077WA	23.58	37F1077WF	96.55
1742	3	20	.220″	37F1078WA	27.07	37F1078WF	112.90
1746	2	18	.235″	37F1079WA	28.28	37F1079WF	118.29
1747	3	18	.245″	37F1080WA	40.20	37F1080WF	172.02
1748	2	16	.250″	37F1081WA	39.89	37F1081WF	170.10
1750*†	2	14	.290″	37F1082WA	50.24	37F1082WF	216.75
1751*†	3	14	.295″	37F1409WA	75.73	37F1409WF	340.36

*Non UL.

SPIRAL WRAP SHIELDED PLASTIC CABLE

16 to 22 gauge stranded tinned copper conductor with color coded PVC wall .020" thick. Gray PVC jacket. Shield is spiral wrapped tinned copper, for easy pigtailing, 85% shield coverage. Specifications: −20°C to +80°C, 350 volts. Easily strippable shield makes this wire ideal for production line work in such areas as audio interconnecting, PA and sound system use, radio receiving and transmitting equipment and shielded power applications. Single conductor cables UL Style 1108. 80°C; 300 V. 2 or more conductors: UL 2095. 80°C; 300 V.

Alpha No.	No. Cond.	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
2254/1	1	22	.115″	37F2247WA	8.33	37F2247WF	31.83
2254	2	22	.175″	37F1086WA	9.85	37F1086WF	37.75
2254/3	3	22	.190″	37F1087WA	23.53	37F1087WF	94.39
2254/4	4	22	.200″	37F2248WA	37.47	37F2248WF	157.30
2254/6	6	22	.235″	37F2249WA	47.44	37F2249WF	202.84
2256/1	1	20	.130″	37F1089WA	9.78	37F1089WF	37.05
2256	2	20	.195″	37F1090WA	12.45	37F1090WF	44.35
2256/3	3	20	.210″	37F1091WA	24.78	37F1091WF	100.81
2258	2	18	.230″	37F1092WA	15.35	37F1092WF	58.35
2258/3	3	18	.235″	37F1093WA	18.75	37F1093WF	73.95
2258/4	4	18	.245″	37F2250WA	22.92	37F2250WF	98.26
2260	2	16	.240″	37F2251WA	19.20	37F2251WF	75.45



RIBBON CABLE

Meets MIL-W-16878D. Each conductor is stranded tinned copper with color-coded PVC insulation with conductors specially bonded into flat configuration. Specifications: Type B, 600 volts, −55°C to +105°C. Conductors coded as follows: (1) brown, (2) red, (3) orange, (4) yellow, (5) green, (6) blue, (7) violet, (8) grey, (9) white, (10) black. Nominal Wall Thickness .010"

MIL-W-16878D Type B

Alpha No.	Stock No.	No. of Cond.	Conductor Size	Conductor Strand	Width x Thick.	Net 100′
3530	37F143WA	10	22	19/34	.510 x .051″	37.65
3530/7	37F3485WA	10	22	7/30	.510 x .051″	30.40
3531	37F144WA	15	22	19/34	.765 x .051″	56.47
3531/7	37F3486WA	15	22	7/30	.765 x .051″	45.67
3532	37F145WA	20	22	19/34	1.020 x .051″	75.21
3532/7	37F3487WA	20	22	7/30	1.020 x .051″	60.81
3533	37F146WA	30	22	19/34	1.530 x .051″	12.75
3533/7	37F3488WA	30	22	7/30	1.530 x .051″	91.11
3540	37F147WA	10	24	19/36	.440 x .044″	32.13
3540/7	37F3489WA	10	24	7/32	.440 x .044″	23.37
3541	37F148WA	15	24	19/36	.660 x .044″	48.25
3541/7	37F3490WA	15	24	7/32	.660 x .044″	35.07
3542	37F149WA	20	24	19/36	.880 x .044″	64.27
3542/7	37F3491WA	20	24	7/32	.880 x .044″	46.74
3543	37F150WA	30	24	19/36	1.320 x .044″	98.58
3543/7	37F3492WA	30	24	7/32	1.320 x .044″	70.13
3550	37F151WA	10	26	7/34	.392 x .039″	19.68
3550/14	37F3493WA	14	26	7/34	.546 x .039″	27.57
3551	37F152WA	15	26	7/34	.587 x .039″	29.53
3551/16	37F3494WA	16	26	7/34	.624 x .039″	33.60
3552	37F153WA	20	26	7/34	.783 x .039″	39.39
3553	37F154WA	30	26	7/34	1.19 x .039″	59.07
3560	37F155WA	10	28	7/36	.351 x .035″	24.30
3561	37F156WA	15	28	7/36	.523 x .035″	36.42
3562	37F157WA	20	28	7/36	.701 x .035″	48.60
3563	37F158WA	30	28	7/36	1.06 x .035″	72.91
3570	37F200WA	10	30	7/38	.311 x .032″	24.97
3571	37F201WA	15	30	7/38	.482 x .032″	37.45
3572	37F202WA	20	30	7/38	.640 x .032″	49.94
3573	37F203WA	30	30	7/38	.965 x .032″	74.89

13

Audio & Data Cables, Braid

alpha

ALUMINUM FOIL SHIELDED PLASTIC CABLE

16 to 22 gauge stranded tinned copper conductor with color-coded polyethylene insulation with .016" wall except (*) .008". Shield is mylar supported aluminum foil. Drain wire is parallel, with foil facing outward for maximum ground. 100% shield. Gray PVC jacket. Specifications: −20°C to +60°C. May be used where light weight and 100% shielding are required. Audio, RF, sound circuits.
2 conductor cables—UL 2092; 60°C, 300V.
3 conductor cables—UL 2093; 60°C, 300V.
4 conductor cables—UL 2094; 60°C, 300V.

Alpha No.	No. of Cond.	Conductor Size	Conductor Strand	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
2402	2	22	7/30	.170"	37F1286WA	10.20	37F1286WF	36.60
2403	3	22	7/30	.185"	37F1287WA	10.50	37F1287WF	38.40
2404	4	22	7/30	.210"	37F1288WA	23.85	37F1288WF	99.85
2411	2	20	10/30	.186"	37F2252WA	10.50	37F2252WF	38.40
2412	2	20	10/30	.186"	37F1289WA	11.50	37F1289WF	45.75
2413	3	20	10/30	.205"	37F1290WA	13.25	37F1290WF	48.45
2414	4	20	10/30	.225"	37F1291WA	23.05	37F1291WF	95.70
2421	2	18	16/30	.210"	37F2253WA	12.70	37F2253WF	46.00
2422	2	18	16/30	.210"	37F1292WA	12.70	37F1292WF	51.60
2423	3	18	16/30	.230"	37F1293WA	16.90	37F1293WF	61.65
2424	4	18	16/30	.255"	37F1294WA	27.20	37F1294WF	114.10
2432	2	16	26/30	.245"	37F1531WA	15.10	37F1531WF	69.30
2433	3	16	26/30	.270"	37F1532WA	22.35	37F1532WF	92.80
2460	2	22	Solid	.118"*	37F2254WA	8.90	37F2254WF	28.95
2461	2	22	7/30	.135"*	37F2255WA	9.70	37F2255WF	33.70

SHIELDED AUDIO & DATA CABLE

Each conductor tinned copper high density PE insulation. Each pair with AL/Mylar foil shield and drain wire overall gray PVC Jacket. UL Style 2493. 60°C.

#22—SOLID

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
6000	3	.275	37F1535WA	22.10	37F1535WF	90.25
6002	6	.348	37F1536WA	45.20	37F1536WF	188.35
6004	9	.401	37F1537WA	61.25	37F1537WF	267.75
6006	11	.434	37F1538WA	73.85	37F1538WF	317.70
6008	15	.495	37F1539WA	101.50	37F1539WF	435.75

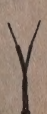
#22—STRANDED

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
6010	3	.292	37F1540WA	25.00	37F1540WF	104.85
6012	6	.372	37F1541WA	50.50	37F1541WF	220.05
6014	9	.430	37F1542WA	81.85	37F1542WF	322.75
6016	11	.467	37F1543WA	89.20	37F1543WF	382.50
6018	15	.563	37F1544WA	117.10	37F1544WF	507.35
6020	19	.590	37F1545WA	158.75	37F1545WF	676.75
6022	27	.697	37F1546WA	213.70	37F1546WF	961.75

#18—Stranded

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
6023	3	.392	37F1190WA	39.75	37F1190WF	162.00
6024	6	.585	37F1191WA	81.00	37F1191WF	331.20
6025	9	.630	37F1192WA	123.10	37F1192WF	499.80
6026	12	.765	37F1193WA	162.58	37F1193WF	665.85
6027	15	.830	37F1194WA	202.65	37F1194WF	831.15

MINIATURE SHIELDED CABLE



Each conductor is stranded tinned copper with color-coded PVC insulation. Conductors are twisted, with fine braided tinned copper shield overall. Clear polyvinyl-chloride jacket overall. Recommended operating temperature: −20°C to −80°C. Suggested operating voltage: 200 volts, 28 ga., 7/36 strand

Alpha No.	No. of Cond.	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
1120	2	.105"	37F2020WA	23.10	37F2020WF	95.10
1121	3	.115"	37F2021WA	26.72	37F2021WF	111.87
1122	4	.120"	37F2022WA	33.15	37F2022WF	141.00

TINNED COPPER FLAT BRAID

Woven braid is rolled flat at time of manufacture to a specific width. High current capacity and extreme flexibility. May be used for battery grounding, bonding strap, and electrical connection to moving parts.

Alpha No.	Flat Width	Thick	Cir. MILS	Amps	Stock No.	Net 100′	Stock No.	Net 1000′
1221	.025"	.015	200	4	37F1144WA	11.25	37F1144WM	91.93
1222	1/32"	.020	400	6	37F1145WA	12.07	37F1145WM	98.34
1223	3/64"	.020	600	7	37F1146WA	12.79	37F1146WM	104.95
1224	3/32"	.020	1200	11	37F1147WA	14.22	37F1147WM	123.24
1229	1/8"	.020	1800	16	37F1148WA	16.02	37F1148WM	137.67
1230	3/16"	.020	3000	25	37F1149WA	17.44	37F1149WM	153.25
1231	1/4"	.030	4200	32	37F1150WA	23.67	37F1150WM	213.87
1232	3/8"	.030	7200	46	37F1151WA	37.87	37F1151WM	352.65
1233/2	1/2"	.030	9600	53	37F1152WA	48.01	37F1152WM	454.71
1233	5/8"	.030	9600	53	37F1153WA	50.80	37F1153WM	480.40
1234	3/4"	.040	20800	85	37F1154WA	114.36	37F1154WM	1105.33
1235	1"	.045	20800	85	37F1155WA	122.40	37F1155WM	1185.73
1239	1 3/8"	.050	33700	100	37F1547WA	138.78	37F1547WM	1349.55
1240	1 1/2"	.060	53064	150	37F1548WA	194.44	.....	.....
1241	1 3/4"	.080	125424	280	37F1549WA	388.90	.....	.....
1242	2"	.120	154368	310	37F1550WA	488.10	.....	.....
1242/4	3"	.200	225000	390	37F1554WA	941.65	.....	.....

TINNED COPPER TUBULAR BRAID

Manufactured completely round as outlined in Mil Spec QQ-B-575. Each strand is soft drawn tinned copper wire. Shield provides 95% minimum coverage. Current rating below is in free air at 86°F.

Alpha No.	Stock No.	I.D.	AWG Equiv.	Cir. MIL	Amp.	Net 100′
2160	37F1156WA	1/32"	22	600	7	8.70
2162	37F1157WA	1/16"	19	1200	11	18.36
2164	37F1158WA	7/64"	16	2400	19	28.11
2166	37F1159WA	1/8"	15	3000	25	29.32
2168	37F1160WA	11/64"	14	4200	32	37.33
2170	37F1161WA	13/64"	11	7630	46	51.97
2172	37F1162WA	3/16"	10	9600	53	72.46
2174	37F1163WA	1/2"	9	13200	62	99.31
2176	37F1164WA	25/32"	7	21600	88	134.46

TINNED COPPER OVAL BRAID

Woven tinned copper braid left in tubular configuration as it leaves braiding equipment. May be used as electrostatic shield over conductor or series of conductors, cable, or other components.

Alpha No.	Stock No.	Nom. I.D.	AWG Equiv.	Circ. Mills	Amps	Net 100′
2132	37F2026WA	1/16	19	1192	11.0	11.25
2138	37F2027WA	11/64	14	4770	32.0	28.44
2140	37F2028WA	3/16	13	5724	38.0	30.52
2142	37F2029WA	1/4	12	6678	41.0	36.94
2144	37F2030WA	3/8	11	7632	46.0	41.22

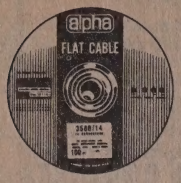
EXTRA LARGE TINNED COPPER TUBULAR BRAID

Tubular braids manufactured to standards of QQ-B-575 although these sizes are not listed in the specification. Each strand 30 AWG.

Alpha No.	Stock No.	Nom. I.D.	AWG Equiv.	Circ. Mills	Amps.	Net 50′
2177	37F3495WB	7/8"	5	33700	100	100.09
2178	37F3496WB	1"	4	38600	120	110.58
2179	37F3497WB	1 1/8"	4	43330	130	117.85
2180	37F3498WB	1 1/4"	3	48150	145	129.97
2181	37F3499WB	1 3/8"	3	53000	150	150.45
2182	37F3500WB	1 1/2"	2	57775	165	161.34

13

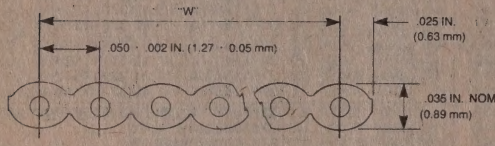
Flat Cable



- **Long flex life**
- **Mates with mass termination connectors**
- **Lightweight, extremely flexible**
- **Accurately spaced conductors**

All of the flat cable listed is compatible with all mass termination insulation displacement connectors designed for cable with .050" conductor spacing. The long flex life of the cable enables it to be folded back on itself without damage to the insulation or conductors. Excellent teardown characteristics makes it easy to cleanly separate the conductors. Exclusive footage estimator gives a visual indication of the amount of cable remaining on the spool. UL listed. Self-extinguishing PVC insulation passes UL's FR-1 vertical flame test.

FCC GREY LAMINATED FLAT CABLE

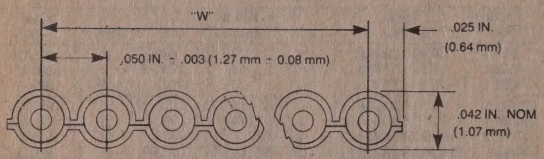


Laminated Grey Flat Cable consisting of stranded conductors laminated between layers of PVC film to form a flat ribbon. 28 AWG stranded tinned copper conductor. UL listed. Passes FR-1 vert. flame test. Temp. rating: 105°C. Voltage rating: 300 volts. Capacitance: 14 pF/ft. nom. 105 ohms nom. impedance. Leading edge has red stripe for wire identification. Standard pkg: 100 ft. roll.

FCC GREY LAMINATED FLAT CABLE

Stock No.	Type	No. Cond.	Nom. Width	Approx. Wt./Roll	NET
37F3501WA	3580/10	10	.45"	1.2 lbs.	**19.25**
37F1111WA	3580/14	14	.65"	1.7 lbs.	**27.00**
37F1112WA	3580/16	16	.75"	2.0 lbs.	**30.77**
37F1113WA	3580/20	20	.95"	2.4 lbs.	**38.50**
37F1114WA	3580/26	26	1.25"	3.2 lbs.	**49.95**
37F1115WA	3580/34	34	1.65"	4.2 lbs.	**65.28**
37F1116WA	3580/40	40	1.95"	4.9 lbs.	**76.85**
37F1117WA	3580/50	50	2.45"	6.1 lbs.	**96.10**
37F3502WA	3580/60	60	2.95"	7.3 lbs.	**117.25**

FCC COLOR-CODED FLAT CABLE

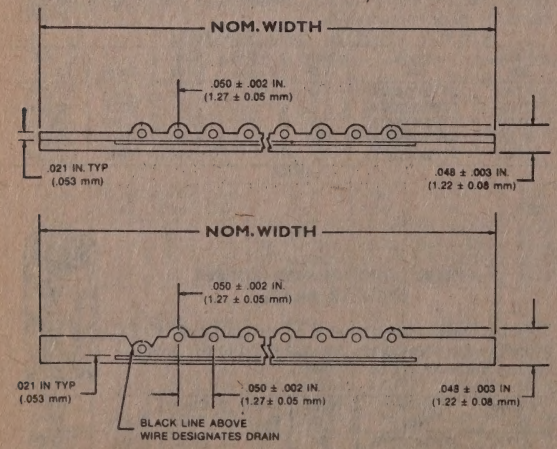


28 AWG stranded tinned copper conductor laminated to clear PVC film. Color Code: brown, red, orange, yellow, green, blue, violet, gray, white, black. Code repeats beyond 10 conductors. UL listed. Passes FR-1 vert. flame test. Temp. rating: 80°C. Rated 300 Volts. Prop. delay: 1.4ns/ft. 103 ohm impedance. 14 pF/ft capac. Can be terminated with IDC's. Standard package 100 foot roll.

FCC COLOR-CODED FLAT CABLE

Stock No.	Type	No. Cond.	Nom. Width	Approx. Wt./Roll	NET
37F3503WA	3581/10	10	.45"	1.10 lbs.	**32.00**
37F3504WA	3581/14	14	.65"	1.50 lbs.	**44.80**
37F3505WA	3581/16	16	.75"	1.70 lbs.	**51.20**
37F3506WA	3581/20	20	.95"	2.20 lbs.	**64.00**
37F3507WA	3581/26	26	1.25"	2.90 lbs.	**83.20**
37F3508WA	3581/34	34	1.65"	3.70 lbs.	**108.80**
37F3509WA	3581/40	40	1.95"	4.40 lbs.	**128.00**
37F3510WA	3581/50	50	2.45"	5.50 lbs.	**160.00**
37F3511WA	3581/60	60	2.95"	6.60 lbs.	**192.00**

FCC GROUND PLANE FLAT CABLE



Available in three types: 30 AWG Solid, 28 AWG Stranded, 28 AWG Stranded w/drain wire. Applicable for computer and communications utilizing high speed logic signals. Cable designed for reduced cross-talk. Standard package 100 foot roll.

FCC GROUND PLANE FLAT CABLE

Stock No.	Type/ No. Cond.	Inches Dim. A	Inches Dim. B	Pounds Wt./Roll	NET
	AWG 30 SOLID				
37F3512WA	3583/40	2.25	1.95	13.3	**133.94**
37F3513WA	3583/50	2.75	2.45	16.7	**188.95**
	AWG 28 STRANDED				
37F3514WA	3584/10	.75	.45	3.6	**68.73**
37F3515WA	3584/14	.95	.65	5.0	**96.20**
37F3516WA	3584/16	1.05	.75	5.7	**109.96**
37F3517WA	3584/20	1.25	.95	7.2	**137.45**
37F3518WA	3584/24	1.45	1.15	8.6	**165.00**
37F3519WA	3584/26	1.55	1.25	9.3	**178.70**
37F3520WA	3584/34	1.95	1.65	12.2	**233.70**
37F3521WA	3584/40	2.25	1.95	14.3	**274.95**
37F3522WA	3584/50	2.75	2.45	17.9	**343.70**
37F3523WA	3584/60	3.25	2.95	21.5	**412.45**
	AWG 28 STRANDED W/DRAIN WIRE				
37F3524WA	3585/10	.75	.45	3.6	**68.73**
37F3525WA	3585/14	.95	.65	5.0	**96.20**
37F3526WA	3585/16	1.05	.75	5.7	**109.96**
37F3527WA	3585/20	1.25	.95	7.2	**137.45**
37F3528WA	3585/24	1.45	1.15	8.6	**165.00**
37F3529WA	3585/26	1.55	1.25	9.3	**178.70**
37F3530WA	3585/34	1.95	1.65	12.2	**233.70**
37F3531WA	3585/40	2.25	1.95	14.3	**274.95**
37F3532WA	3585/50	2.75	2.45	17.9	**343.70**
37F3533WA	3585/60	3.25	2.95	21.5	**412.45**

Flat Cable Connectors

Designed to provide superior reliability, ease of assembly, and compatibility with other flat cable systems. Design enables the cable to be crimped onto the connector prior to snapping on the cover. This allows for visual inspection during the assembly process. Patented off-set tines place forces on the conductor in opposite direction in two different planes, keeping the conductor under constant tension, ensuring a gas-tight connection. Each tine is micro-etched to remove any burrs or rough edges which could sever strands of conductors during the termination process. Female Socket Connectors feature dual cantilevered contacts insuring good electrical contact when inserted into a header. Card edge connectors have bifurcated contacts insuring reliable mating with irregular P.C. pads.

Fig. A

Fig. B

Fig. C

Fig. D

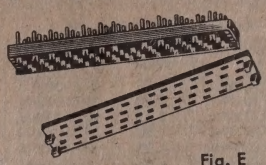


Fig. E

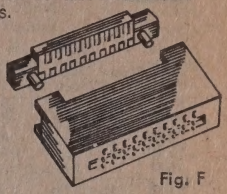


Fig. F

DIP CONNECTORS—FIG. A

Patented off-set tines insure reliable gas-tight termination; mates with all standard DIP sockets; accepts 28-30 AWG stranded or solid conductors. *Denotes strain relief

Stock No.	Alpha No.	No. Pins	1-19	20-99
64F200	FCC-130-14	14	1.40	1.25
64F201	FCC-130-16	16	1.60	1.45
40F6400	FCC-130-24	24*	2.50	2.40

FEMALE SOCKET CONNECTORS—FIG. B

Mates with all standard headers and 0.025" wire wrap posts; recessed cover design allows cable to remain within connector profile; self-locking cover; patented off-set tine design insures reliable gas-tight termination; terminations can be inspected before cover is put on.

With Strain Relief

Stock No.	Alpha No.	No. Pins	1-19	20-99
40F6401	FCC-110-10	10	2.20	1.08
64F202	FCC-110-20	20	2.95	2.80
64F203	FCC-110-26	26	3.60	3.45
64F204	FCC-110-34	34	4.45	4.30
64F205	FCC-110-40	40	5.25	5.10
64F206	FCC-110-50	50	6.20	6.05

Without Strain Relief

40F6402	FCC-120-10	10	1.74	1.63
64F207	FCC-120-20	20	2.45	2.30
64F208	FCC-120-26	26	3.15	3.00
64F209	FCC-120-34	34	4.05	3.90
64F210	FCC-120-40	40	4.70	4.55
64F211	FCC-120-50	50	5.85	5.70

PCB CONNECTORS—FIG. E

Integral strain relief; patented tine design insures reliable gas-tight termination; terminations can be inspected before cover is put on.

Stock No.	Alpha No.	No. Pins	1-19	20-99
40F6403	FCC-140-10	10	1.10	.96
64F212	FCC-140-20	20	1.25	1.10
64F213	FCC-140-26	26	1.60	1.45
64F214	FCC-140-34	34	1.85	1.70
64F215	FCC-140-40	40	2.15	2.00
64F216	FCC-140-50	50	2.65	2.50

CARD EDGE CONNECTORS—FIG. F

Card edge connectors are mateable with standard .062" PC boards and will mate with boards ranging in thickness from .032" to .075". The connectors will accept #28 or #30 AWG solid or stranded conductors on .050" centers providing a direct, reliable access to PCB pads on .100" centers. Connectors are available with and without mounting flanges.

Stock No.	Alpha No.	No. Pins	1-19	20-99
WITHOUT MOUNTING FLANGES				
40F6404	FCC-170-10	10	2.51	2.41
40F6405	FCC-170-20	20	4.00	3.90
40F6406	FCC-170-26	26	4.50	4.40
40F6407	FCC-170-34	34	5.50	5.40
40F6408	FCC-170-40	40	6.40	6.30
40F6409	FCC-170-50	50	6.90	6.80
WITH MOUNTING FLANGES				
40F6410	FCC-171-10	10	2.51	2.41
40F6411	FCC-171-20	20	4.00	3.90
40F6412	FCC-171-26	26	4.50	4.40
40F6413	FCC-171-34	34	5.50	5.40
40F6414	FCC-171-40	40	6.40	6.30
40F6415	FCC-171-50	50	6.90	6.80
40F6416	FCC-Key-2 Polarizing Key Ea.			.08

HEADER CONNECTORS—FIG. C, D

Mates with all standard female socket connectors. Gold-plated phosphor bronze contact. UL 94 VE-0 flame retardant plastic body.

Header Connectors—Right Angle Style

Stock No.	Alpha No.	No. Pins	1-19	20-99
40F6417	FCC-151-10†	10	1.34	1.22
64F220	FCC-151-20†	20	1.60	1.45
64F221	FCC-151-26†	26	2.00	1.85
64F222	FCC-151-34†	34	2.45	2.30
64F223	FCC-151-40†	40	2.85	2.70
64F224	FCC-151-50†	50	3.40	3.25
40F6418	FCC-152-10*	10	1.87	1.79
64F225	FCC-152-20*	20	3.50	3.35
64F226	FCC-152-26*	26	4.25	4.10
64F227	FCC-152-34*	34	4.95	4.80
64F228	FCC-152-40*	40	5.65	5.50
64F229	FCC-152-50*	50	6.50	6.35

Right Angle—With Locking Tabs

40F6419	FCC-153-10†	10	1.97	1.84
64F230	FCC-153-20†	20	2.30	2.15
64F231	FCC-153-26†	26	2.70	2.55
64F232	FCC-153-34†	34	3.25	3.10
64F233	FCC-153-40†	40	3.55	3.40
64F234	FCC-153-50†	50	4.10	3.95
40F6420	FCC-154-10*	10	2.24	2.16
64F235	FCC-154-20*	20	4.20	4.05
64F236	FCC-154-26*	26	4.95	4.80
64F237	FCC-154-34*	34	5.65	5.50
64F238	FCC-154-40*	40	6.25	6.10
64F239	FCC-154-50*	50	7.20	7.05

Header Connectors—Straight Style

40F6421	FCC-161-10†	10	1.34	1.22
64F240	FCC-161-20†	20	1.60	1.45
64F241	FCC-161-26†	26	2.00	1.85
64F242	FCC-161-34†	34	2.45	2.30
64F243	FCC-161-40†	40	2.85	2.70
64F244	FCC-161-50†	50	3.40	3.25
40F6422	FCC-162-10*	10	1.87	1.79
64F245	FCC-162-20*	20	3.50	3.35
64F246	FCC-162-26*	26	4.25	4.10
64F247	FCC-162-34*	34	4.95	4.80
64F248	FCC-162-40*	40	5.65	5.50
64F249	FCC-162-50*	50	6.50	6.35

Straight Headers with Locking Tabs

40F6423	FCC-163-10†	10	1.97	1.84
64F250	FCC-163-20†	20	2.30	2.15
64F251	FCC-163-26†	26	2.70	2.55
64F252	FCC-163-34†	34	3.15	3.10
64F253	FCC-163-40†	40	3.55	3.40
64F254	FCC-163-50†	50	4.10	3.95
40F6424	FCC-164-10*	10	2.24	2.16
64F255	FCC-164-20*	20	4.20	4.05
64F256	FCC-164-26*	26	4.95	4.80
64F257	FCC-164-34*	34	5.65	5.50
64F258	FCC-164-40*	40	6.25	6.10
64F259	FCC-164-50*	50	7.20	7.05

†Solder Terminals *Wire Wrap Terminals

ASSEMBLY TOOLS

Designed to be easy to use, reduce set-up time, and improve through-put, thereby reducing costs. FCT-60 Universal Adapter adapts other bench presses to the Alpha System without modification.

Stock No.	Alpha No.	Description	1-99
64F217	FCT-10	Bench Press & Universal Adapter	225.00
64F218	FCT-60	Universal Adapter	100.00
64F219	FCT-30	Accepts 14 & 16 Pin Connectors	24.95

13

alpha Mil-Spec & UL Hook-Up Wire and Cable

VINYL HOOK-UP WIRE

Solid or extra-flexible stranded tinned copper, color-coded medium wall PVC insulation (Norm. wall thickness is .016"). Temperature rating −40°C to +80°C, voltage rating 1000 volts. Resistant to acids, alkalis, oil, flame, moisture and fungus. Colors from chart below. (*) Solid conductor.

Stocked in Colors 1-10. Specify color

Alp. No.	Cond. Size	Nom. O.D.	Stock No.	Net 100 Ft.	Stock No.	Net 1000 Ft.
1550	24	.059"	37F500WA	2.85	37F500WM	16.65
1551	22	.064"	37F501WA	3.20	37F501WM	18.85
1553	20	.073"	37F502WA	3.85	37F502WM	21.55
1555	18	.084"	37F503WA	4.50	37F503WM	29.35
1557	16	.095"	37F504WA	6.20	37F504WM	41.10
1559	14	.110"	37F505WA	8.85	37F505WM	64.30
1560	12	.125"	37F506WA	13.50	37F506WM	92.80
1561*	22	.060"	37F507WA	2.75	37F507WM	15.10
1563*	20	.066"	37F508WA	3.25	37F508WM	19.15
1565*	18	.074"	37F509WA	4.25	37F509WM	26.20

PVC HOOK-UP WIRE

Meets MIL-W-16878D. Stranded tinned copper conductor, Type B color-coded PVC, .010" wall; Specifications: −55°C to +105°C. Type B: 600 volts. Specify color 1-10.

Alp. No.	Cond. Size	Nom. O.D.	Stock No.	Net 100 Ft.	Stock No.	Net 1000 Ft.
1850	32	.028"	37F593WA	3.80	37F593WM	23.25
1851	30	.032"	37F544WA	3.05	37F544WM	17.85
1852	28	.034"	37F545WA	3.00	37F545WM	16.45
1853	26	.038"	37F546WA	2.95	37F546WM	18.40
1854	24	.043"	37F547WA	2.90	37F547WM	17.10
1854/19	24	.043"	37F1326WA	3.80	37F1326WM	20.20
1855	22	.050"	37F548WA	3.30	37F548WM	18.10
1855/19	22	.050"	37F1327WA	4.55	37F1327WM	25.80
1856	20	.058"	37F549WA	4.05	37F549WM	22.65
1856/19	20	.058"	37F1328WA	4.00	37F1328WM	25.65
1857	18	.068"	37F570WA	4.35	37F570WM	28.75
1857/19	18	.068"	37F1329WA	5.20	37F1329WM	34.65
1858/19	16	.077"	37F571WA	5.55	37F571WM	37.35
1859/19	14	.091"	37F1331WA	13.60	37F1331WM	90.45

Tefzel® Computer Wire

Solid silver plated OFHC copper conductor. Tefzel insulation provides high-temperature, thin wall suitable for wire wrap insulation. Low dielectric constant of 2.6. Temperature range: −100°C to +150°C continuous. Tefzel is chemically inert and rated non-burning. .005" wall. Stock colors: 1-10. Specify color.

Alp. No.	Cond. Size	Nom. O.D.	Stock No.	Net 100 Ft.	Stock No.	Net 1000 Ft.
1805	30	.019"	37F119WA	12.35	37F119WM	85.74
1806	28	.023"	37F120WA	13.16	37F120WM	92.40
1807	26	.026"	37F121WA	14.00	37F121WM	99.40
1808	24	.029"	37F122WA	15.56	37F122WM	112.03

GENERAL STOCK COLORS

1—White	8—Orange	15—White/Blue
2—Black	9—Gray (slate)	16—White/Brown
3—Red	10—Violet (purple)	17—White/Orange
4—Green	11—White/Black	18—White/Gray
5—Yellow	12—White/Red	19—White/Violet
6—Light Blue	13—White/Green	
7—Brown	14—White/Yellow	

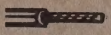
KYNAR WIRE, 125° C, 300 VOLTS FOR WIRE WRAP CONNECTIONS

Solid, silver-plated, oxygen-free high conductivity copper conductor, extruded Kynar insulation. High cut-through resistance. Won't support combustion. Ultra-violet and weathering resistance. Used in computer and related industries. Temp. rating through 125° continuous. Nom. wall thickness, .005".

Stocked in white only—other colors available.

Alpha No.	Cond. Size	Nom. O.D.	Stock No.	Net 1000
5951	30	.020"	37F1995WM	35.11
5952	28	.023"	37F3400WM	40.63
5953	26	.026"	37F3401WM	41.56
5954	24	.030"	37F3402WM	51.37

TYPE 1007 UL/CSA LISTED HOOKUP WIRE



Stranded tinned copper conductor with color-coded PVC .016" wall insulation. Specifications: −10°C to +80°C 300 volts. Std. spool put-up: 100 or 1000 ft. Stock Colors: 1-19. Specify color.

Alp. No.	Cond. Size	Nom. O.D.	Stock No.	Net 100 Ft.	Stock No.	Net 1000 Ft.
3050	24	.057"	37F1300WA	3.75	37F1300WM	19.30
3051	22	.065"	37F1301WA	4.70	37F1301WM	23.80
3053	20	.071"	37F1302WA	5.60	37F1302WM	31.45
3055	18	.080"	37F1303WA	7.85	37F1303WM	46.55
3057	16	.095"	37F1304WA	10.95	37F1304WM	70.90

TYPE 1015 UL/CSA LISTED HOOKUP WIRE

Combines stranded tinned copper conductor with color-coded Polyvinylchloride .032" wall insulation. Specifications: −10° to +105°C, 600 volts. Stock Colors: 1-10. Specify color.

Alp. No.	Cond. Size	Nom. O.D.	Stock No.	Net 100 Ft.	Stock No.	Net 1000 Ft.
3071	22	.095"	37F1305WA	3.75	37F1305WM	23.55
3073	20	.102"	37F1306WA	4.60	37F1306WM	28.95
3075	18	.112"	37F1307WA	5.75	37F1307WM	36.40
3077	16	.125"	37F1308WA	7.05	37F1308WM	50.65
3079	14	.142"	37F1309WA	10.00	37F1309WM	72.30

TEFLON HOOK-UP WIRE

Conforms to MIL-W-16878D. Solid or stranded silver-plated copper conductor. Extruded Teflon insulation; Type ET, .006" wall; Type E, .010" wall; Type EE. .014" wall. Specify color 1-10. Specifications: −65°C to +200°C.

E-STRANDED

Alpha No.	Cond. Size	Nom. O.D.	Stock No.	Net 100 Ft.	Stock No.	Net 1000 Ft.
5851	30	.028"	37F650WA	7.85	37F650WM	39.45
5852	28	.031"	37F651WA	8.20	37F651WM	40.13
5853	26	.035"	37F652WA	9.05	37F652WM	45.90
5854	24	.040"	37F653WA	11.20	37F653WM	62.70
5854/7	24	.039"	37F561WA	9.55	37F561WM	50.92
5855	22	.046"	37F654WA	12.20	37F654WM	68.93
5855/7	22	.045"	37F562WA	11.05	37F562WM	60.38
5856	20	.054"	37F655WA	14.10	37F655WM	83.18
5856/7	20	.053"	37F563WA	13.50	37F563WM	79.20
5857	18	.064"	37F656WA	19.00	37F656WM	118.95
5858	16	.073"	37F657WA	23.10	37F657WM	149.63

EE-STRANDED

5874	24	.055"	37F564WA	14.30	37F564WM	81.68
5875	22	.062"	37F565WA	15.95	37F565WM	95.03
5877	18	.080"	37F567WA	24.60	37F567WM	155.62

E SOLID

5853/1	26	.036"	37F1964WA	5.90	37F1964WM	40.11
5854/1	24	.040"	37F1965WA	6.21	37F1965WM	44.28
5855/1	22	.045"	37F1966WA	8.63	37F1966WM	60.00
5856/1	20	.052"	37F1967WA	10.05	37F1967WM	72.63
5857/1	18	.060"	37F1968WA	12.55	37F1968WM	94.74

ET STRANDED

2840/7	32	.021"	37F1954WA	7.70	37F1954WM	40.80
2841/7	30	.024"	37F1955WA	7.70	37F1955WM	39.97
2842/7	28	.027"	37F1956WA	7.70	37F1956WM	39.75
2842/19	28	.027"	37F1957WA	10.06	37F1957WM	75.90
2843/7	26	.031"	37F1958WA	8.85	37F1958WM	43.72
2843/19	26	.032"	37F1959WA	8.83	37F1959WM	65.23
2844/7	24	.036"	37F1960WA	9.10	37F1960WM	48.67
2844/19	24	.037"	37F1961WA	10.25	37F1961WM	55.80
2845/7	22	.042"	37F1962WA	10.10	37F1962WM	55.12
2845/19	22	.044"	37F1963WA	10.70	37F1963WM	58.42

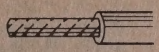
ET SOLID

2841/1	30	.022"	37F1950WA	5.80	37F1950WM	38.94
2842/1	28	.025"	37F1951WA	5.65	37F1951WM	37.87
2843/1	26	.028"	37F1952WA	5.80	37F1952WM	39.99
2844/1	24	.032"	37F1953WA	6.25	37F1953WM	43.90

Hook-Up Wire and Coaxial Cable

SPECIFICATION MIL-W-16878D HOOK-UP WIRE

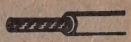
RX-7000 IRRADIATED-HEAT RESISTANT HOOK-UP WIRE



RX-7000 is a wire developed with an insulation made of irradiated Polyvinylchloride compound (PVC), far superior to ordinary PVC. Withstands higher temperatures than ordinary PVC and, even in direct contact with a soldering iron, will not shrink back, melt, blow or deform. High reliability. Useful in the wiring of tight, high-density systems. MIL-W-16878D Type B stranded, +105°C, 600 V. Stocked in white and black only. Other colors available.

Alpha No.	Cond. Size	Nom. O.D.	Stock No.	100′	Stock No.	1000′
7053	26	.038″	37F3403WA	3.45	37F3403WM	23.40
7054	24	.043″	37F3404WA	4.10	37F3404WM	24.00
7054/19	24	.043″	37F3405WA	4.60	37F3405WM	28.50
7055	22	.050″	37F3406WA	4.25	37F3406WM	26.35
7055/19	22	.050″	37F3407WA	4.60	37F3407WM	32.55
7056	20	.058″	37F3408WA	5.00	37F3408WM	33.75
7056/19	20	.058″	37F3409WA	5.00	37F3409WM	34.65
7057	18	.068″	37F3410WA	6.25	37F3410WM	42.65
7057/19	18	.068″	37F3411WA	7.50	37F3411WM	56.35
7058/19	16	.077″	37F3412WA	8.95	37F3412WM	70.60

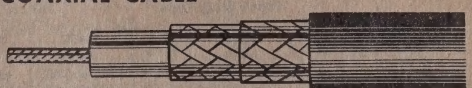
IRRADIATED-HEAT RESISTANT HOOKUP WIRE



Irradiated PVC insulation will not shrink back, melt, blow or deform even in direct contact with soldering iron. Reduces wire deformation in forming bundles and harnesses. Eliminates production damage and results in less scrap; ideal for tight, high density systems. UL Style 1430 (105°C)—300 Volts. Stock Colors: 1-10 (*)-Solid.

Alpha No.	Cond. Size	Nom. O.D.	Stock No.	Net 100 Ft.	Stock No.	Net 1000 Ft.
7130	24	.056″	37F123WA	4.75	37F123WM	30.58
7131	22	.062″	37F124WA	5.60	37F124WM	37.08
7132	20	.070″	37F125WA	6.50	37F125WM	43.39
7133	18	.080″	37F126WA	7.91	37F126WM	50.91
7134	16	.091″	37F127WA	10.28	37F127WM	73.78
			UL Style 1429 Solid & Stranded (+80°C)			
7149	26	.028″	37F128WA	4.08	37F128WM	26.14
7150	24	.043″	37F129WA	4.86	37F129WM	26.83
7151	22	.050″	37F130WA	5.10	37F130WM	29.17
7153	20	.068″	37F131WA	6.00	37F131WM	36.25
7155	18	.068″	37F132WA	7.41	37F132WM	47.58
7157	16	.077″	37F133WA	10.61	37F133WM	76.54
7161*	22	.045″	37F134WA	4.63	37F134WM	26.07
7161/24*	24	.040″	37F135WA	4.21	37F135WM	22.90
7163*	20	.054″	37F136WA	6.10	37F136WM	40.12

POLYETHYLENE DIELECTRIC COAXIAL CABLE



Conform to MIL-C-17, latest revision. C = Bare Copper; TC = Tinned Copper, SC = Silver Covered Copper, CW = Copper Covered Steel, PE = Solid Polyethylene, SSP = Semi Solid Polyethylene, BP = Black Polyethylene—Type IIIA, NP = Natural Polyethylene—Type III, V = Polyvinylchloride—Type I, NCV = Non-Contaminating Polyvinylchloride = Type IIA.

Alpha No.	Type	Inner Cond. Mat.	Inner Cond. Strand	Inner Cond. O.D.	Dielec. Mat.	Dielec. O.D.	Shields Inner	Shields Outer	Shields O.D.	Jacket Mat.	Jacket O.D.	Imped., Ohms	Stock No.	100 Feet	Stock No.	1000 Feet
9006A	6A/U	CW	1	.0285	PE	.189	SC	C	.264	NCV	.336	75	37F2052WA	75.66	37F2052WM	725.34
9008	8/U	C	7/.0285	.086	PE	.295	C	.....	.340	V	.415	52	37F2053WA	27.25	37F2053WM	217.05
9008A	8A/U	C	7/.0285	.086	PE	.295	C	.....	.340	NCV	.415	52	37F2054WA	44.23	37F2054WM	342.76
9009B	9B/U	SC	7/.0285	.086	PE	.285	SC	SC	.355	NCV	.430	50	37F2055WA	123.13	37F2055WM	1124.40
9011	11/U	TC	7/.0159	.048	PE	.295	C	.....	.340	V	.415	75	37F2056WA	34.05	37F2056WM	194.40
9011A	11A/U	TC	7/.0159	.048	PE	.292	C	.....	.340	NCV	.412	75	37F2057WA	38.29	37F2057WM	304.84
9012A	12A/U	TC	7/.0159	.048	PE	.292	C	.....	.340	NCV	.412	75	37F2058WA	58.93	37F2058WM	540.00
9014A	14A/U	C	1	.102	PE	.383	C	C	.463	NCV	.558	52	37F2059WA	94.44	37F2059WM	903.30
9017A	17A/U	C	1	.188	PE	.695	C	.....	.760	NCV	.885	52	37F2060WA	189.70	37F2060WM	1846.57
9019A	19A/U	C	1	.250	PE	.925	C	.....	.990	NCV	1.135	52	37F2061WA	307.89	37F2061WM	2822.85
9055	55/U	C	1	.032	PE	.121	TC	TC	.176	NP	.206	53.5	37F2063WA	24.21	37F2063WM	218.38
9055B	55B/U	SC	1	.032	PE	.121	TC	TC	.176	BP	.206	53.5	37F2064WA	29.19	37F2064WM	270.93
9058	58/U	C	1	.032	PE	.121	TC	.....	.150	V	.200	53.5	37F2065WA	10.05	37F2065WM	72.60
9058A	58A/U	TC	19/.0071	.0375	PE	.120	TC	.....	.150	V	.199	50	37F2066WA	11.50	37F2066WM	80.70
9058C	58C/U	TC	19/.0071	.0375	PE	.120	TC	.....	.150	NCV	.199	50	37F2067WA	17.67	37F2067WM	111.79
9059	59/U	CW	1	.0253	PE	.150	C	.....	.191	V	.250	73	37F2068WA	15.54	37F2068WM	91.18
9059B	59B/U	CW	1	.023	PE	.150	C	.....	.191	NCV	.246	75	37F2069WA	18.40	37F2069WM	118.38
9062	62/U	CW	1	.025	SSP	.151	C	.....	.191	V	.250	93	37F2070WA	19.89	37F2070WM	132.42
9062A	62A/U	CW	1	.025	SSP	.151	C	.....	.191	NCV	.249	93	37F2071WA	20.35	37F2071WM	137.32
9063B	63B/U	CW	1	.0253	SSP	.295	C	.....	.340	NCV	.415	125	37F2072WA	51.15	37F2072WM	432.96
9071B	71B/U	CW	1	.025	SSP	.151	C	TC	.208	BP	.250	93	37F2073WA	27.60	37F2073WM	239.79
9174	174/U	CW	7/.0063	.019	PE	.060	TC	.....	.088	NCV	.105	50	37F2074WA	10.77	37F2074WM	65.77
9212	212/U	SC	1	.056	PE	.189	SC	SC	.265	NCV	.336	50	37F2075WA	106.30	37F2075WM	989.83
9213	213/U	C	7/.0296	.090	PE	.292	C	.....	.340	NCV	.412	50	37F2076WA	44.23	37F2076WM	342.64
9214	214/U	SC	7/.0296	.090	PE	.292	SC	SC	.360	NCV	.432	50	37F2077WA	139.47	37F2077WM	1157.40
9215	215/U	C	7/.0296	.090	PE	.292	C	.....	.340	NCV	.412	50	37F2078WA	60.70	37F2078WM	561.06
9217	217/U	C	1	.106	PE	.380	C	C	.463	NCV	.555	50	37F2079WA	92.91	37F2079WM	876.66
9218	218/U	C	1	.195	PE	.690	C	.....	.760	NCV	.880	50	37F2080WA	246.63	37F2080WM	2309.71
9219	219/U	C	1	.195	PE	.690	C	.....	.760	NCV	.880	50	37F2081WA	353.35	37F2081WM	3210.15
9223	223/U	SC	1	.036	PE	.120	SC	SC	.176	NCV	.216	50	37F2082WA	51.15	37F2082WM	429.78

All dimensions are maximum except where indicated

TEFLON DIELECTRIC COAXIAL CABLE

Conductors are silver plated copperweld. Operating temperature of 200° C. Meet MIL-C-17, latest revision. Cond., 7/.004 except Alpha No. 9188A, 7/.0067. Suitable for a wide variety of commercial or industrial application. In 100′ or 1000′ put-ups.

Alpha No.	Type	Wall Thick.	Jacket Thick.	Jacket Type	Max. O.D.	Cap. Nom.	Imped., Ohms	Stock No.	100 Feet	Stock No.	Net 1000′
9178B	178B/U	.012	.010	Extruded FEP	.075	27.9	50 ±2	37F2083WA	25.95	37F2083WM	199.24
9179B	179B/U	.021	.010	Extruded FEP	.105	20.4	75 ±3	37F2084WA	39.95	37F2084WM	339.22
9180B	180B/U	.045	.010	Extruded FEP	.145	15.3	93 ±2	37F2085WA	53.25	37F2085WM	470.58
9187A	187A/U	.024	.012	Fused TFE Tape	.110	19.5	75 ±3	37F1482WA	35.85	37F1482WM	325.44
9188A	188A/U	.020	.012	Fused TFE Tape	.110	27.5	50 ±2	37F2086WA	35.85	37F2086WM	315.03
9195A	195A/U	.045	.014	Fused TFE Tape	.155	14.5	95 ±3	37F2087WA	78.88	37F2087WM	750.39
9196A	196A/U	.011	.012	Fused TFE Tape	.080	28.5	50 ±2	37F2088WA	28.24	37F2088WM	230.29

CATV, MATV, CCTV COAXIAL CABLE

Designed specifically for commercial and CATV, MATV and CCTV applications.

Alpha No.	Stock No.	Type	Dielec. Material	Shield	Jacket Material	O.D.	Imped., Ohms	Color	Net 1000′
9843	37F2050WM	6/U	Foam PE	Foil	PVC	.242	75	Black	72.66
9846	37F2089WM	8/U	Foam PE	BBC	PVC	.407	50	Black	276.34
9847	37F2090WM	11/U	Foam PE	BBC	PE	.405	75	Black	298.45
9848	37F2091WM	58/U	Foam PE	BTC	PVC	.195	50	Black	97.42
9830	37F1970WM	59/U	Solid PE	BBC	PVC	.242	75	Black	84.90
9840	37F1971WM	59/U	Foam PE	BBC	PVC	.242	75	Black	110.20
9844	37F2051WM	59/U	Foam PE	Foil	PVC	.218	80	Black	63.51

SHIELD AND JACKET MATERIAL: BBC—Braided Bare Copper BTC—Braided Tinned Copper
Foil—Aluminum Polyester Tape with 4-28 AWG Tinned Copperweld Drain Wires PE—Unicellular Foamed Polyethylene

alpha UL Service Cords, Retractiles, Test Lead Wire

REPLACEMENT CORD SETS

UL, CSA listed 2 and 3 conductor cords have molded male plug on one end, stripped leads on other. Specifications: 300 volts, heavy duty black rubber jacket. Use 3 conductor when 1 conductor requires grounding. For use in business machines, small tools, appliances.

#18—7 Amp. 2 Conductor Cord Sets #16—10 Amp

Alp. No.	Stock No.	Cond. Size	Cond. Strand	UL Type	Cord Lgth.	Net
615	37F1412	18	16/30	SJ	6	2.56
616	37F1413	18	16/30	SJ	9	2.94
618	37F1414	16	26/30	SJ	6	3.66

RUBBER TEST LEAD WIRE

Extra-flexible stranded tinned copper conductor with red or black rubber stain finish insulation. Specifications: Standard, Heavy-duty, or Mil-Spec. −20°C to +60°C, 1500 to 10,000 volts. For analyzers, oscillators, meters, etc.

Heavy Duty Type

Alp. No.	Color	Cond. Size	Nom. O.D.	Stock No.	Net 100 Ft.	Stock No.	Net 1000 Ft.
1638	Red	18	.230″	37F1403WA	10.60	37F1403WM	85.50
1638	Black	18	.230″	37F1404WA	10.60	37F1404WM	85.50

Military Type Meet MIL-W-13169B

1639	Red	18	.145″	37F1405WA	8.70	37F1405WM	64.05
1639	Black	18	.145″	37F1406WA	8.70	37F1406WM	64.05

Standard Type

Alp. No.	Color	Cond. Size	Nom. O.D.	Stock No.	Net 100 Ft.	Stock No.	Net 1000 Ft.
1632	Red	20	.125″	37F1397WA	7.36	37F1397WM	52.00
1632	Black	20	.125″	37F1398WA	7.36	37F1398WM	52.00
1635	Red	20	.140″	37F1399WA	7.65	37F1399WM	54.06
1635	Black	20	.140″	37F1400WA	7.65	37F1400WM	54.06
1636	Red	18	.140″	37F1401WA	7.95	37F1401WM	55.75
1636	Black	18	.140″	37F1402WA	7.95	37F1402WM	55.75

PVC RETRACTILE COMMUNICATIONS CORDS

Has stranded tinned copper conductor with PVC jacket plus PVC jacket overall. 1 ft. length below extends to 6 ft., 2 ft. to 12 ft., 3 ft. to 18 ft., 4 ft. to 25 ft. Characteristics: Suggested operating temperature, −20°C to +60°C. 23 AWG conductor, 21/36 strands, 120 volts, 1 amp. For mobile and ham equipment, head sets. Black.

UNSHIELDED

Alp. No.	Stock No.	Lgth. (ft.)	No. of Cond.	Coil O.D.	Cord O.D.	1-9	10-Up
702	37F1912	1	2	¾″	.200″	6.19	5.56
703	37F1913	1	3	¾″	.210″	6.70	6.01
704	37F1914	1	4	13/16″	.240″	7.60	6.84
705	37F1915	1	5	1″	.285″	8.92	8.04
706	37F1916	1	6	1⅛″	.305″	11.16	10.03
707	37F1917	1	7	1¼″	.320″	12.15	10.95
702/2	37F1918	2	2	¾″	.200″	10.75	9.67
703/2	37F1919	2	3	¾″	.210″	12.06	10.87
704/2	37F1920	2	4	13/16″	.240″	13.89	12.51
705/2	37F1921	2	5	1″	.285″	15.82	14.23
706/2	37F1922	2	6	1⅛″	.305″	20.29	18.25
707/2	37F1923	2	7	1¼″	.320″	22.21	19.99
702/3	37F1924	3	2	¾″	.200″	14.80	13.33
703/3	37F1925	3	3	¾″	.210″	16.75	15.06
704/3	37F1926	3	4	13/16″	.240″	19.27	17.35
705/3	37F1927	3	5	1″	.285″	21.70	19.53
706/3	37F1928	3	6	1⅛″	.305″	26.88	24.19
707/3	37F1929	3	7	1¼″	.320″	29.62	26.67
702/4	37F1930	4	2	¾″	.200″	18.76	16.89
703/4	37F1931	4	3	¾″	.210″	21.10	18.99
704/4	37F1932	4	4	13/16″	.240″	24.34	21.91
705/4	37F1933	4	5	1″	.285″	27.60	24.84
706/4	37F1934	4	6	1⅛″	.305″	33.90	30.51
707/4	37F1935	4	7	1¼″	.320″	37.03	33.33
708/4	37F1936	4	8	1 3/32″	.360″	52.38	47.14
710/4	37F1937	4	10	1 3/32″	.380″	61.18	55.08
712/4	37F1938	4	12	1 13/32″	.410″	82.98	74.65
715/4	37F1939	4	15	1 3/32″	.470″	90.39	81.31

RETRACTILE COIL POWER CORDS

Neoprene jacket. Long extension. UL approved.

RETRACTED LENGTH 4 FEET

Quality multi-conductor has stranded tinned copper conductors, rubber insulation and weather-resistant neoprene jacket, overall. Retracted length 4 ft. Temp., −20°C to +60°C. Conductors color code: 1—Black; 2—White; 3—Green; 4—Red.

Alpha No.	Conductor No.	Conductor Size	Conductor Strand	UL Type	Stock No.	Net 4 Feet
660/4	2	18	41/34	SVO	37F3534	18.97
760/4	3	18	41/34	SVO	37F3535	28.80
661/4	2	18	41/34	SJO	37F3536	22.09
662/4	3	18	41/34	SJO	37F3537	27.51
663/4	4	18	41/34	SJO	37F3538	32.56
664/4	2	16	65/34	SJO	37F3539	28.18
665/4	3	16	65/34	SJO	37F3540	35.34
666/4	4	16	65/34	SJO	37F3541	44.86
670/4	3	16	41/34	SO	37F3542	50.58
671/4	4	16	65/34	SO	37F3543	56.34
673/4	3	14	41/30	SO	37F3544	63.42
674/4	4	14	41/30	SO	37F3545	73.05

POWER CORD SETS

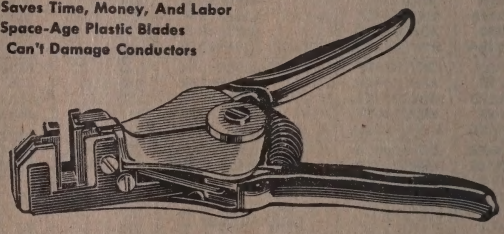
Same as above, but with sturdy, molded male plug on one end; stripped on other end. All are 18″ long, retracted; 7½ ft. long, extended. Rated 300 volts. Conductors' color code: 1—Black; 2—White; 3—Green.

Alpha No.	Conductor No.	Conductor Size	Conductor Strand	Coil O.D.	UL Type	Stock No.	Each
654	2	18	41/34	⅞″	SVO	37F3546	9.96
656	3	18	41/34	1⅜″	SJO	37F3547	18.91
657	2	16	65/34	1⅜″	SJO	37F3548	13.53
658	3	16	65/34	1 1/16″	SJO	37F3549	19.96

ALPHA PLASTIC-BLADE WIRE STRIPPER

A TOTALLY NEW CONCEPT IN WIRE STRIPPERS

- **Outstrips Old-Fashioned Metal Blades**
- **Saves Time, Money, And Labor**
- **Space-Age Plastic Blades Can't Damage Conductors**



Stock No.	Alpha No.	Description	Each
37F040	STRP-25	Plastic-Blade Stripper	39.95
37F041	BLD-5	Replacement Blade Pack	9.95

BUS BAR TINNED COPPER

Solid wire offers pure electrolytic soft drawn copper properly annealed and tinned for quick and convenient soldering. Meets or exceeds specifications MIL-W-3861 Type S, QQ-W-343 Type S, and ASTM-B-33. Designed for application in such areas as winding of coils, antenna wiring, point-to-point wiring, bus bar, component leads and grounding wire.

Alpha No.	MIL area	Nom. O.D.	Stock No.	Net 100	Stock No.	Net 1000
299/3	100.5	.010″	37F1131WA	1.86	37F1131WM	7.86
299/2	159.8	.013″	37F1132WA	1.86	37F1132WM	8.40
299/1	254.1	.016″	37F1133WA	1.93	37F1133WM	9.51
299	404.0	.020″	37F1134WA	1.98	37F1134WM	10.42
298	642.4	.025″	37F1135WA	2.08	37F1135WM	12.79
297	1022.0	.033″	37F1136WA	2.49	37F1136WM	17.37
296	1642.0	.040″	37F1137WA	3.30	37F1137WM	25.23
295	2583.0	.051″	37F1138WA	4.62	37F1138WM	39.63
286	4107.0	.065″	37F1139WA	7.03	37F1139WM	58.50
289	6530.0	.082″	37F1140WA	10.60	37F1140WM	87.33
292	10380.0	.103″	37F2031WA	22.30	37F2031WM	205.38
292/8	16510.0	.129″	37F2032WA	35.56	37F2032WM	319.06
292/6	26250.0	.162″	37F2033WA	59.04	37F2033WM	513.49

Dearborn Wire

CROSS-LINKED IRRADIATED HOOK-UP WIRE

Dual service hook-up wire insulated with polyvinyl chloride which has been cross-linked by irradiation process. This process changes linear molecular configuration of PVC and connects molecules through a network of chemical bonds. This insulation "XLV" becomes burn-thru and heat resistant. "XLV" hook-up wire eliminates shrinkback or heat flow encountered when applying hot soldering iron. Resistance to heat prevents distortion of insulation when wire is subjected to temporary overloads and high temperatures. Cross-linking PVC by irradiation increases abrasion resistance making it superior to regular vinyl insulations. Since the military and UL specifications vary, temperature and voltage ratings assigned differ for the same wire. MIL-W-16878/1 Type B: Max. Temp; 105°C, Max. Volt; 600Vrms. UL AWM Style 1429: Max. Temp.; 80°C, Max. Volt; 150V for general appliance hook-up usage, 300V peak for electronic use only. MIL-W-16878/2 Type C: Max. Temp; 105°C, Max. Volt; 1000Vrms. UL AWM Style 1430: Max. Temp; 105°C, Max. Volt; 300Vrms, 600V peak for electronic use only.

MIL-W-16878/1—TYPE B

XLV U.L. STYLE 1429

Stk. No.	Type	AWG Size Stranding	Insul. Thick's	Nom. O.D.	1000′
37F3550WM	252807	28 (7/36)	.010	.035	23.55
37F3551WM	252607	26 (7/34)	.010	.039	27.30
37F3552WM	252407	24 (7/32)	.010	.044	25.55
37F3553WM	252419	24 (19/36)	.010	.045	31.60
37F3554WM	252207	22 (7/30)	.010	.050	27.50
37F3555WM	252219	22 (19/34)	.010	.051	34.85
37F3556WM	252007	20 (7/28)	.010	.058	34.20
37F3557WM	252019	20 (19/32)	.010	.059	36.45
37F3558WM	251819*	18 (19/30)	.010	.068	45.65
37F3559WM	251807*	18 (7/26)	.010	.068	38.30
37F3560WM	251619*	16 (19/29)	.010	.078	53.20
37F3561WM	252601	26 (1)	.010	.039	24.10
37F3562WM	252401	24 (1)	.010	.044	24.15
37F3563WM	252201	22 (1)	.010	.050	25.85

Available colors 0-9 except (*) 9 only (white)

MIL-W-16878/2—TYPE C

XLV U.L. STYLE 1430

Stk. No.	Type	AWG Size Stranding	Insul. Thick's	Nom. O.D.	1000′
37F3564WM	272407	24 (7/32)	.016	.058	32.90
37F3565WM	272207	22 (7/30)	.016	.064	39.85
37F3566WM	272007	20 (7/28)	.016	.072	42.90
37F3567WM	271819*	18 (19/30)	.016	.082	54.75
37F3568WM	271619*	16 (19/29)	.016	.092	69.75
37F3569WM	271419*	14 (19/27)	.016	.105	105.80
37F3570WM	271219*	12 (19/25)	.016	.124	141.05

Available colors 0-9 except (*) 9 only (white)

NEWARK Can Fill All Your Wire Needs.
Call or Write Your Nearest NEWARK Facility

MIL-W-16878D TEFLON HOOKUP WIRE

TYPE E
600 VOLT

Single conductor, stranded or solid silver plated copper, extruded TFE Teflon insulation. Voltage rating: 600 volts. Temperature rating: −65°C to −200°C. **Indicate color by adding code number to stock number; 0—black, 9 white.**

Type	AWG Size	Stranding	Wall Thickness	Nom. O.D.	100′ Stk. No.	EACH	1000′ Stk. No.	EACH
13207	32	7/40	.010	.029	37F3571WA	9.07	37F3571WM	54.95
13007	30	7/38	.010	.032	37F3572WA	8.75	37F3572WM	51.25
12807	28	7/36	.010	.036	37F3573WA	9.15	37F3573WM	54.95
12619	26	19/38	.010	.040	37F3574WA	10.10	37F3574WM	68.35
12607	26	7/34	.010	.039	37F3575WA	9.40	37F3575WM	54.55
12419	24	19/36	.010	.045	37F3576WA	11.15	37F3576WM	72.55
12407	24	7/32	.010	.044	37F3577WA	9.55	37F3577WM	61.10
12219	22	19/34	.010	.052	37F3578WA	12.70	37F3578WM	84.40
12207	22	7/30	.010	.050	37F3579WA	11.00	37F3579WM	70.15
12019	20	19/32	.010	.060	37F3580WA	13.80	37F3580WM	96.40
12007	20	7/28	.010	.058	37F3581WA	12.45	37F3581WM	91.50
11819	18	19/30	.010	.070	37F3582WA	18.75	37F3582WM	133.15
11807	18	7/26	.010	.068	37F3583WA	18.20	37F3583WM	156.45
11619	16	19/29	.011	.077	37F3584WA	19.30	37F3584WM	166.40
11419	14	19/27	.011	.094	37F3585WA	30.30	37F3585WM	255.20
11219	12	19/25	.012	.113	37F3586WA	38.55	37F3586WM	347.00
11037	10	37/26	.012	.135	37F3587WA	75.30	37F3587WM	596.70
SOLID CONDUCTOR (NOT MIC SPEC.)								
13201	32	1/32	.010	.029	37F3588WA	9.05	37F3588WM	53.85
13001	30	1/30	.010	.032	37F3589WA	6.30	37F3589WM	53.85
12801	28	1/28	.010	.035	37F3590WA	6.45	37F3590WM	53.25
12601	26	1/26	.010	.039	37F3591WA	6.45	37F3591WM	46.65
12401	24	1/24	.010	.044	37F3592WA	6.45	37F3592WM	51.55
12201	22	1/22	.010	.050	37F3593WA	8.95	37F3593WM	69.80
12001	20	1/20	.010	.058	37F3594WA	10.85	37F3594WM	84.60

U.L. LISTED HIGH TEMPERATURE TEFLON WIRE

U.L. styles 1212 and 1213 feature gauge sizes ranging from #20 to #32 with a choice of solid conductors or stranded. This high quality wire is flame retardant and satisfies the FR-1 designation of U.L. **Indicate color by adding code number to stock number: 0—black, 9—white.**

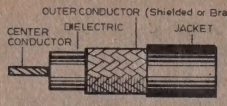
Type	AWG Size	Stranding	Nom. O.D.	100′ Stk. No.	EACH	1000′ Stk. No.	EACH
13201UL	32	Solid	.027	37F2130WA	9.15	37F2130WM	45.40
13207UL	32	7/40	.029	37F2131WA	10.10	37F2131WM	47.05
13219UL	32	19/44	.029	37F2132WA	18.30	37F2132WM	94.05
13001UL	30	Solid	.029	37F2133WA	8.50	37F2133WM	43.40
13007UL	30	7/38	.032	37F2134WA	9.45	37F2134WM	47.05
13019UL	30	19/42	.032	37F2135WA	13.15	37F2135WM	64.65
12801UL	28	Solid	.032	37F2136WA	8.55	37F2136WM	43.75
12807UL	28	7/36	.035	37F2137WA	9.95	37F2137WM	46.15
12819UL	28	19/40	.035	37F2138WA	13.15	37F2138WM	64.65
12601UL	26	Solid	.035	37F2139WA	9.15	37F2139WM	43.00
12607UL	26	7/34	.038	37F2140WA	10.70	37F2140WM	49.95
12619UL	26	19/38	.038	37F2141WA	12.70	37F2141WM	61.75
12401UL	24	Solid	.040	37F2142WA	9.70	37F2142WM	46.15
12407UL	24	7/32	.043	37F2143WA	10.75	37F2143WM	50.90
12419UL	24	19/36	.043	37F2144WA	13.75	37F2144WM	67.60
12201UL	22	Solid	.046	37F2145WA	11.15	37F2145WM	52.95
12207UL	22	7/30	.050	37F2146WA	12.70	37F2146WM	61.75
12219UL	22	19/34	.050	37F2147WA	15.30	37F2147WM	76.45
12001UL	20	Solid	.054	37F2148WA	14.45	37F2148WM	71.60
12007UL	20	7/28	.058	37F2149WA	16.75	37F2149WM	85.25
12019UL	20	19/32	.058	37F2467WA	18.85	37F2467WM	97.00

"TEW", UL AND CSA HOOKUP WIRE FLAME RETARDANT FR-1

Stranded, tinned copper conductor in sizes AWG #18 through AWG #4/0. All sizes use polyvinylchloride insulation rated at 600 volts with a temperature rating of 105°C. **Specify color by number: 0-black, 1-brown, 2-red, 3-orange, 4-yellow, 5-green, 6-blue, 7-violet, 8-gray, 9-white. "F" denotes bonded tinned copper.**

Type	AWG Size	Nom. O.D.	100′ Spool Stock No.	EACH	500′ Spool Stock No.	EACH
781816F	18 (16/30)	.110	.....	.....	37F2195WF	30.00
781626	16 (26/30)	.124	.....	.....	37F2197WF	44.25
781000	10 (105/30)	.194	37F2203WA	21.50	.....	.....
788133	8 (133/29)	.255	37F2205WA	36.10	.....	.....
786133	6 (133/27)	.335	37F2092WA	55.05	.....	.....
784133	4 (133/25)	.390	37F2093WA	127.30	.....	.....
782133	2 (133/23)	.460	37F2094WA	202.45	.....	.....
782665	2 (665/30)	.470	37F2095WA	222.65	.....	.....
781259	1 (259/25)	.525	37F2097WA	238.65	.....	.....
781836	1 (836/30)	.535	37F2098WA	260.55	.....	.....
780001	1/0 (1045/30)	.580	37F2099WA	320.65	.....	.....
780002	2/0 (1330/30)	.640	37F2100WA	401.30	.....	.....
780003	3/0 (1661/30)	.680	37F2101WA	462.00	.....	.....
780004	4/0 (2107/30)	.785	37F2102WA	567.45	.....	.....

Dearborn Cable



COAXIAL CABLE FOR INDUSTRY

Dearborn's Industrial line of R.G. cables is designed to give maximum performance and quality assurance without the added expense of being military approved.

- **To insure maximum signal strength Dearborn's Industrial Line of R.G. Type Cables are manufactured using MIL-Spec copper conductors.**
- **To give peak electrical and physical characteristics only virgin compound materials are used in all polyethylene dielectrics. This assures low loss and maximum efficiency.**
- **Industrial Coaxial cables have Braided Copper coverage of 78%, preventing electrostatic interference, keeping signals clean.**
- **"Long Life" Polyvinylchloride, and Polyethylene jackets on all Industrial RG Cables assure peak performance under any weather conditions. Non-Contaminating, Non-migratory virgin compounds are resistant to sunlight and chemicals, won't degrade electrical performance.**

INDUSTRIAL APPLICATIONS

ECONOMICAL RG COAXIAL CABLE—POLYETHYLENE DIELECTRIC

RG/U No.	Type	Jkt. O.D.	Minimum Shield Coverage	Nom. Imp.	Max. Volt.	Stock No.	100′	Stock No.	1000′
8	6008IA	.405″	78%	52.0	5000	37F3595WA	23.70	37F3595WM	215.05
8A	6008AIA	.405″	78%	52.0	5000	37F3596WA	25.60	37F3596WM	232.25
11	6011IA	.405″	78%	75.0	5000	37F3597WA	20.25	37F3597WM	183.55
11A	6011AIA	.405″	78%	75.0	5000	37F3598WA	21.85	37F3598WM	198.00
58	6058IA	.195″	78%	53.5	1900	37F3599WA	7.35	37F3599WM	66.40
58A	6058AIA	.195″	78%	52.0	1900	37F3600WA	8.40	37F3600WM	76.10
58B	6058BIA	.195″	78%	53.5	1900	37F3601WA	7.50	37F3601WM	68.40
58C	6058CIA	.195″	78%	50.0	1900	37F3602WA	8.65	37F3602WM	78.30
59	6059IA	.242″	78%	73.0	2300	37F3603WA	9.10	37F3603WM	82.30
59B	6059BIA	.242″	78%	75.0	2300	37F3604WA	9.85	37F3604WM	88.95
62	6062IA	.242″	78%	93.0	750	37F3605WA	9.35	37F3605WM	84.50
62A	6062AIA	.242″	78%	93.0	750	37F3606WA	10.15	37F3606WM	91.85
75sm	6075smIA	.150″	78%	75.0	2500	37F3607WA	7.45	37F3607WM	67.20
174	6174IA	.100″	78%	50.0	1500	37F3608WA	6.10	37F3608WM	54.90
213	6213IA	.405″	78%	50.0	3000	37F3609WA	24.10	37F3609WM	218.40

LOW LOSS COAXIAL CABLE WITH (FOAM) CELLULAR POLYETHYLENE DIELECTRIC

Compared to ordinary RG/U cable of similar size, the attenuation of cellular polyethylene (Foam Core) dielectric cable is reduced by as much as 35%. Well suited for CATV, Closed Circuit or MATV; ideal for use in amateur, commercial or citizen band installations Made to adapt to unusual terrain problems and resist damage from weather extremes.

RG/U No.	Type	Jkt. O.D.	Minimum Shield Coverage	Nom. Imp.	Max. Volt.	Stock No.	100′	Stock No.	1000′
8	6008FIA	.405″	78%	50	1500	37F3610WA	25.35	37F3610WM	230.10
11	6011FIA	.405″	78%	75	1300	37F3611WA	21.70	37F3611WM	196.15
58	6058FIA	.195″	78%	50	1000	37F3612WA	7.85	37F3612WM	71.05
59	6059FIA	.242″	78%	75	1000	37F3613WA	9.75	37F3613WM	88.10

13

MILITARY SPECIFICATION APPLICATIONS

RG COAXIAL CABLE—POLYETHYLENE DIELECTRIC

RG/U No.	Type	Jkt. O.D.	Minimum Shield Coverage	Nom. Imp.	Max. Volt.	Stock No.	100′	Stock No.	1000′
8	6008MS	.405″	90%	52.0	5000	37F2510WA	29.90	37F2510WM	271.20
8A	6008AMS	.405″	90%	52.0	5000	37F2511WA	32.30	37F2511WM	292.90
11	6011MS	.405″	90%	75.0	5000	37F2512WA	26.15	37F2512WM	237.10
11A	6011AMS	.....	90%	.....	.....	37F3614WA	28.25	37F3614WM	256.10
58	6058MS	.195″	90%	53.5	1900	37F2500WA	8.90	37F2500WM	80.40
58A	6058AMS	.195″	90%	52.0	1900	37F2501WA	10.00	37F2501WM	90.70
58B	6058BMS	.195″	90%	53.5	1900	37F2502WA	9.10	37F2502WM	82.80
58C	6058CMS	.195″	90%	50.0	1900	37F2503WA	10.30	37F2503WM	93.45
59	6059MS	.242″	90%	73.0	2300	37F2504WA	11.70	37F2504WM	105.60
59B	6059BMS	.242″	90%	75.0	2300	37F2506WA	12.55	37F2506WM	114.10
62	6062MS	.....	90%	.....	.....	37F3615WA	11.20	37F3615WM	106.00
62A	6062AMS	.....	90%	.....	.....	37F2507WA	12.70	37F2507WM	115.20
75sm	6075smMS	.150″	90%	75.0	2500	37F2508WA	8.50	37F2508WM	76.80
174	6174MS	.100″	90%	50.0	1500	37F2513WA	6.95	37F2513WM	62.70
213	6213MS	.405″	90%	50.0	3000	37F2514WA	30.25	37F2514WM	274.00

LOW LOSS COAXIAL CABLE WITH (FOAM) CELLULAR POLYETHYLENE DIELECTRIC

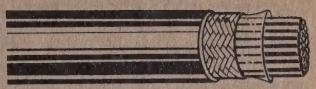
Compared to ordinary RG/U cable of similar size, attenuation is reduced by as much as 35%. These cables are well suited for CATV, Closed Circuit or MATV; ideal for use in amateur, commercial or citizen band. Adapt to terrain problems, are weather resistant. RG/U type 59 is especially suitable for home use applications such as color television where low losses are important.

RG/U No.	Type	Jkt. O.D.	Minimum Shield Coverage	Imp. Ohms	Max. Volts	Stock No.	100′	Stock No.	1000′
8	6008FMS	.405″	90%	50	1500	37F2526WA	32.00	37F2526WM	290.15
11	6011FMS	.405″	90%	75	1300	37F2527WA	28.00	37F2527WM	253.70
58	6058FMS	.195″	90%	50	1000	37F2528WA	9.50	37F2528WM	86.00
59	6059FMS	.242″	90%	75	1000	37F2529WA	12.50	37F2529WM	112.95

Dearborn Cable

COMPUTER TYPE MINIATURE CONTROL CABLES

For computer use. Stranded tinned copper conductors. No. 22, 24 are 7 strand, No. 20 is 19 strand. Insulated with .010" wall of PVC. Rated 105°C & 600V working voltage. Meet UL Style 1061, rated 80°C, 300V working voltage. Cabled by planetary method, laid contrahelically, Mylar tape barrier placed under shields. Tinned copper braid shielded cables overall of 85%-90% coverage. Black 105°C Vinyl jacket over shield. Self extinguishing materials. Approved under UL Style 2343, and 2344 for computer usage; +80°C, 300V. On non UL service, can be used at 40°C to 105°C, 600V.



Stock No.	Type	No. of Cond.	Cond. Size	Nom. O.D.	100' EACH
37F3616WA	572405	5	24	.245	73.00
37F3617WA	572407	7	24	.275	80.15
37F3618WA	572412	12	24	.325	108.60
37F3619WA	572415	15	24	.350	139.75
37F3620WA	572419	19	24	.365	155.10
37F3621WA	572427	27	24	.415	203.65
37F3622WA	572437	37	24	.445	277.65
37F3623WA	572448	48	24	.495	347.15
37F3624WA	572460	60	24	.535	411.40
37F3625WA	572205	5	22	.285	80.15
37F3626WA	572207	7	22	.295	86.95
37F3627WA	572212	12	22	.355	119.35
37F3628WA	572215	15	22	.380	155.55
37F3629WA	572219	19	22	.395	168.75
37F3630WA	572227	27	22	.455	226.10
37F3631WA	572237	37	22	.510	308.15
37F3632WA	572248	48	22	.560	380.30
37F3633WA	572260	60	22	.600	459.40
37F3634WA	572005	5	20	.300	90.90
37F3635WA	572007	7	20	.315	101.25
37F3636WA	572012	12	20	.385	141.50
37F3637WA	572015	15	20	.415	185.15
37F3638WA	572019	19	20	.435	205.50
37F3639WA	572027	27	20	.515	276.95
37F3640WA	572037	37	20	.550	371.90
37F3641WA	572048	48	20	.610	425.70
37F3642WA	572060	60	20	.670	560.75

CORONA RESISTANT HIGH VOLTAGE WIRE

- **Tinned, stranded copper conductors**
- **Flexible**
- **Conductors rated at 200°C**
- **Insulation rated at 150°C**

Conductors are tinned, stranded copper and are flexible. Silver plated copper, nickel plated copper, and pure nickel conductors available on special order. Conductors are rated at 200°C, pure nickel at 260°C. High voltage, high temperature silicone rubber insulation rated at 150°C and is available in dielectric strengths ranging from 10 KVDC to 40 KVDC. Insulation is easy to strip. 100 foot put ups listed, 1000 foot put ups available on special order. insulation: U.L. type 3239, Color: Natural.

Stk. No.	Type	AWG Size	Nom. O.D.	Max. D.C. Volt	100' EACH
37F2103	392240	22 (7/30TC)	.111	10KV	43.40
37F2104	392245	22 (7/30TC)	.121	15KV	45.75
37F2105	392250	22 (7/30TC)	.131	20KV	48.65
37F2106	392262	22 (7/30TC)	.181	30KV	49.85
37F2107	392275	22 (7/30TC)*	.181	30KV	64.20
37F2108	392297	22 (7/30TC)	.225	40KV	88.75
37F2109	392040	20 (10/30TC)	.118	10KV	49.45
37F2110	392045	20 (10/30TC)	.128	15KV	51.00
37F2111	392050	20 (10/30TC)	.138	20KV	52.30
37F2112	392062	20 (10/30TC)	.162	25KV	58.05
37F2113	392075	20 (10/30CT)	.188	30KV	67.60
37F2114	392097	20 (10/30TC)	.232	40KV	93.90
37F2115	391845	18 (16/30TC)	.140	15KV	63.95
37F2116	391862	18 (16/30TC)	.174	25KV	66.35
37F2117	391897	18 (16/30TC)	.244	40KV	102.80
37F2118	391645	16 (26/30TC)	.152	15KV	73.15
37F2119	391662	16 (26/30TC)	.186	25KV	82.85
37F2120	391697	16 (26/30TC)	.256	40KV	114.60
37F2121	391445	14 (41/30TC)	.170	25KV	78.80
37F2122	391462	14 (41/30TC)	.204	25KV	89.05
37F3643WA	391497	14 (41/30TC)	.274	40KV	126.90
37F3644WA	391245	12 (65/30TC)	.186	15KV	110.00
37F3645WA	391297	12 (65/30TC)	.290	40KV	135.55
37F3646WA	391045	10 (105/30TC)	.220	15KV	178.30
37F3647WA	391097	10 (105/30TC)	.324	40KV	250.45
37F3648WA	390845	8 (133/29TC)	.256	15KV	256.90
37F3649WA	390897	8 (133/29TC)	.360	40KV	286.65
37F3650WA	390645	6 (133/27TC)	.300	15KV	290.60
37F3651WA	390662	6 (133/27TC)	.335	25KV	327.60
37F3652WA	390462	4 (133/25)	.381	25KV	340.15
37F3653WA	390262	2 (259/26)	.449	25KV	384.10

*Wall thickness slightly larger than type 392262

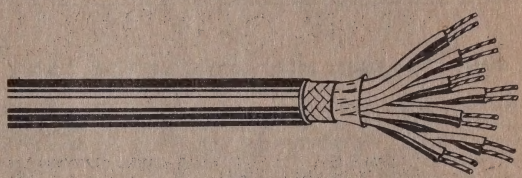
KYNAR® COMPUTER-TYPE HOOKUP WIRE APPROVED BY U.L. AND CSA

Kynar® insulation is flame retardant and self-extinguishing, highly resistant to ultra-violet. Its characteristics remain unchanged when exposed to 300 million roentgens. Operating temperature range is up to +125°C and is UL rated to 105°C. Conductor is solid annealed copper. Supplied on large hub reels. Available in black, red, orange, yellow, green, blue, gray, and white—**Specify color by number.**

Stock No.	Mfr's Type	AWG Size	Insul. Thk's.	Nom. O.D.	U.L. Style	PER 1000' HUB 1	2-4	5-49
37F2225WM	773001	30 (1)	.005"	.0195"	1422	60.60	44.55	29.70
37F2226WM	772801	28 (1)	.0035"	.020"	1423	61.20	43.70	29.10
37F2227WM	772601	26 (1)	.005"	.027"	1422	62.40	45.50	30.30
37F2228WM	772401	24 (1)	.010"	.042"	1327	63.55	46.35	30.90

Kynar® is trademark of Pennwalt

COMPUTER TYPE MINIATURE PAIRED CONTROL CABLES



U.L. Styles 2343 and 2344 employ an overall shield surrounding all internal cables. The individual conductors are stranded tinned copper. Conductor sizes 22 and 24 are 7 strand and size 20 is 19 strand. Conductors are rated at 105°C and 600 volts DC working voltage. Pairs are cabled by planetary method and have a Mylar tape barrier placed under the shield. Shield is tinned copper braid with 85%-90% overall coverage. Insulator jacket is black 105°C Vinyl and cable is fungus resistant and self extinguishing. Cables are U.L. approved for computer usage to +80°C and 300 volts. 100 foot put up listed, 500 foot and 1000 foot put ups available on special order.

Stock No.	Type	# Pairs	Cond. Size	Nom. O.D.	100' EACH
37F2468WA	592405	5	24	.355	106.70
37F2469WA	592407	7	24	.375	122.10
37F2470WA	592412	12	24	.460	175.35
37F2471WA	592415	15	24	.510	221.25
37F2472WA	592419	19	24	.530	248.25
37F2473WA	592427	27	24	.620	329.60
37F2474WA	592437	37	24	.690	435.35
37F2475WA	592448	48	24	.775	516.40
37F2476WA	592460*	60	24	.845	676.15
37F2477WA	592205	5	22	.390	117.75
37F2478WA	592207	7	22	.415	136.00
37F2479WA	592212	12	22	.495	200.35
37F2480WA	592215	15	22	.575	244.30
37F2481WA	592219	19	22	.580	285.75
37F2482WA	592227	27	22	.670	371.10
37F2483WA	592237	37	22	.780	492.35
37F2484WA	592248*	48	22	.880	626.70
37F2485WA	592260*	60	22	.960	773.90
37F2486WA	592005	5	20	.420	139.55
37F2487WA	592007	7	20	.465	169.15
37F2488WA	592012	12	20	.570	248.10
37F2489WA	592015	15	20	.630	317.75
37F2490WA	592019	19	20	.660	367.30
37F2491WA	592027	27	20	.775	479.60
37F2492WA	592037*	37	20	.850	644.65
37F2493WA	592048*	48	20	.980	811.20
37F2494WA	592060*	60	20	1.070	993.40

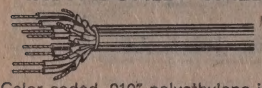
*Denotes U.L. style 2344; all others are style 2343

Color-Code Nos. for Dearborn Items on This Page—Specify Color Number

0. Black 1. Brown 2. Red 3. Orange 4. Yellow
5. Green 6. Blue 7. Violet 8. Gray 9. White

Dearborn Audio Cables

INDIVIDUALLY SHIELDED MULTIPLE PAIRS TINNED COPPER CONDUCTORS



Color coded .010" polyethylene insulation. Pairs have Mylar supported aluminum foil shield; 22 gauge stranded tinned copper drain wire; twisted. Grey PVC jacket overall. Mylar wrap between shields and jacket. Size & stranding: 22-7/30. *.008" polypropylene insulation.

Type	No. Pairs	No. Cond	Nom. Jkt. Thick.	Nom. O.D.	Stk. No.	100'	1000'
962201*	1	2	.020	.135	37F2542	8.85	70.55
962203	3	6	.025	.252	37F2543	23.55	219.80
962206	6	12	.030	.342	37F2544	47.70	459.95
962209	9	18	.035	.410	37F2545	77.15	676.60
962211	11	22	.040	.457	37F2546	84.15	802.00
962215	15	30	.040	.523	37F2547	110.40	1,062.15
962219	19	38	.050	.570	37F2548	149.65	1,417.40
962227	27	54	.055	.687	37F2549	205.90	2,015.95
961803	3	6	.035	.372	37F3654	.....	339.50
961806	6	12	.045	.555	37F3655	.....	694.40
961809	9	18	.055	.620	37F3656	.....	1,047.45
961812	12	24	.070	.765	37F3657	.....	1,394.30
961815	15	30	.070	.830	37F3658	.....	1,738.40

FOIL SHIELDED, MULTI-CONDUCTOR CABLE

Stranded tinned copper conductors, insulated with .015" thick (.025" on No. 16, .032" on No. 14) color coded Polyethylene insulation. Conductors are cabled, along with a 22 ga. (No. 20 drain on 18, No. 18 on 16, and No. 16 on 14) tinned copper stranded drain wire laid parallel, and are shielded with aluminum foil. Mylar backed shield. Gray PVC jacket overall. Provides 100% effective shielding and is suitable for audio and data work where cross talk must be reduced to a minimum. **Temperature rating:** −20°C +60°C. **Operating voltage rating:** 400 V.

Type	No. Cond	AWG Size	Strand-ing	Nom. O.D.	Stk. No.	100'	100'
972202	2	22	7/30	.167	37F2550	9.30	63.95
972203	3	22	7/30	.175	37F2551	9.85	80.25
972204	4	22	7/30	.190	37F2552	24.10	194.35
972002	2	20	10/30	.195	37F2553	9.85	80.25
972003	3	20	10/30	.200	37F2554	12.45	101.35
972004	4	20	10/30	.215	37F2555	23.20	211.25
971802	2	18	16/30	.223	37F3659	11.80	96.25
971803	3	18	16/30	.236	37F3660	15.85	129.15
971804	4	18	16/30	.250	37F3661	26.90	250.85
971602	2	16	26/30	.275	37F3662	14.65	142.50
971603	3	16	26/30	.300	37F3663	23.55	214.85
971402	2	14	41/30	.340	37F3664	25.70	217.05
971403	3	14	41/30	.400	37F3665	56.90	480.50
971202	2	12	65/30	.400	37F3666	38.10	254.00

X-L POLYETHYLENE INSULATED HOOKUP WIRE

Chemical cross-linking on insulation increases moisture resistance, solvent resistance and improves aging characteristics, Rated at 125°C, 600 Volts. Stranded copper wire, available in black only. UL. style 3173. 1000' put ups only.

Stock No.	Type	AWG Size	Nom. O.D.	1000' EACH
37F2123	752207	22 (7/30)	.094	36.70
37F2124	752010	20 (10/30)	.102	43.65
37F2125	751816	18 (16/30)	.112	46.40
37F2126	751626	16 (26/30)	.125	61.20
37F2127	751441	14 (41/30)	.143	97.00
37F2128	751265	12 (65/30)	.164	137.05
37F2129	751065	10 (65/28)	.187	203.25

Make NEWARK Your One Stop Source For All Your Industrial Electronic Needs

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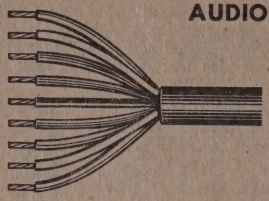
MULTICONDUCTOR UNSHIELDED AUDIO CABLE



Stranded tinned copper conductors. Color coded polyvinylchloride insulation. Conductors cabled and covered with gray PVC jacket overall. Can be used outdoors. All are No. 22 conductor, U.L. style 1061. Nom. wall thick., .010; nom. jacket thick., .020. Temp. rating, −10° to +80°C.

Type	No. of Cond.	Strand-ing	Nom. O.D.	Stk. No.	100'	1000'
832202	2	7/30	.140	37F2530	7.10	43.90
832203	3	7/30	.145	37F2531	6.70	54.00
832204	4	7/30	.170	37F2532	8.95	73.65
832205	5	7/30	.175	37F2533	10.40	88.00
832206	6	7/30	.185	37F2534	11.95	99.65
832207	7	7/30	.190	37F2535	13.25	111.10
832208	8	7/30	.200	37F2536	16.20	134.80
832209	9	7/30	.225	37F2537	19.00	158.40
832210	10	7/30	.235	37F2538	20.15	182.00
832212	12	7/30	.255	37F3667	22.70	206.95
832215	15	7/30	.280	37F3668	35.95	318.55
832220	20	7/30	.310	37F3669	42.85	411.85
832224	24	7/30	.325	37F3670	60.60	569.40
832225	25	7/30	.330	37F3671	56.25	514.70
832230	30	7/30	.365	37F3672	62.45	591.05
832240	40	7/30	.452	37F3673	80.80	781.60
832250	50	7/30	.500	37F3674	101.00	975.55
832260	60	7/30	.530	37F3675	168.95	1453.85

NO. 20 AWG MULTI-CONDUCTOR

Type	No. of Cond.	Strand-ing	Nom. O.D.	Stock No.	100'	1000'
832002	2	10/30	.180	37F3676	7.10	51.65
832003	3	10/30	.190	37F3677	8.65	74.20

NO. 18 AWG MULTI-CONDUCTOR

831802	2	16/30	.200	37F3678	11.50	77.15
841802	2	Solid	.190	37F3679	11.50	86.70
831803	3	16/30	.210	37F3680	15.90	125.80
841803	3	Solid	.220	37F3681	17.45	134.90
831804	4	16/30	.250	37F3682	16.40	143.80
841804	4	Solid	.250	37F3683	18.50	167.70
831805	5	16/30	.286	37F3684	20.15	183.30
841805	5	Solid	.286	37F3685	22.65	210.35
831806	6	16/30	.310	37F3686	25.65	229.50
841806	6	Solid	.310	37F3687	41.80	377.55
831807	7	16/30	.325	37F3688	26.75	241.85
831808	8	16/30	.350	37F3689	31.45	300.85
831809	9	16/30	.379	37F3690	34.60	321.00
831812	12	16/30	.417	37F3691	47.60	459.75
831815	15	16/30	.490	37F3692	64.85	610.50
831819	19	16/30	.505	37F3693	87.25	722.15

NO. 16 AWG MULTI-CONDUCTOR

831602	2	19/29	.256	37F3694	17.95	103.75
831603	3	19/29	.300	37F3695	24.80	175.55
831604	4	19/29	.375	37F3696	25.40	237.80
831607	7	19/29	.455	37F3697	46.95	418.60
831612	12	19/29	.600	37F3698	76.50	705.80
831615	15	19/29	.650	37F3699	107.10	1013.70
831619	19	19/29	.715	37F3700	131.30	1231.80

NO. 14 AWG MULTI-CONDUCTOR

831402	2	19/27	.332	37F3701	18.65	164.70
831403	3	19/27	.400	37F3702	44.05	403.95
831404	4	19/27	.495	37F3703	45.65	416.10
831407	7	19/27	.630	37F3704	77.05	713.15
831409	9	19/27	.750	37F3705	111.10	552.65
831412	12	19/27	.770	37F3706	129.45	1249.40
831415	15	19/27	.900	37F3707	213.90	936.40

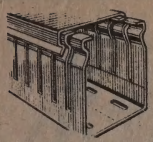
NO. 12 AWG MULTI-CONDUCTOR

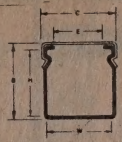
831202	2	19/25	.384	37F3708	42.45	231.75
831203	3	19/25	.425	37F3709	68.15	481.95

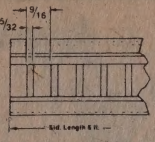
Cable & Wiring Accessories

ELECTROVERT INC.

ELECTRO-DUCT® PVC WIRING DUCT







High-impact vinyl duct is non-flammable and warp-proof. Open slot design. Snap-on, non-slip cover. Mounting slots standard on all sizes. Temporary adhesive aids alignment and frees both hands for mounting. Scored snap-off plastic fingers permit slot enlargement for lead-offs; accommodate any size wire and/or bundle. Color: Grey. CSA approved. Supplied with channel and cover. Standard length, 6'6". U/L Recognized.

Stk. No.	Type	Nom. W x H	Max. No. of 14 AWG @ 50% fill	Std. Pkg. (feet)	Net Per Package
80W340	ELVB1010G	1 x 1	33	143	118.69
80W341	ELVB1020G	1 x 2	67	117	122.85
80W342	ELVB1030G	1 x 3	99	65	83.20
80W343	ELVB2010G	2 x 1	67	117	132.21
80W344	ELVB2020G	2 x 2	133	97	129.98
80W345	ELVB2030G	2 x 3	200	65	105.95
80W346	ELVB3010G	3 x 1	100	117	163.80
80W347	ELVB3020G	3 x 2	200	65	103.35
80W348	ELVB3030G	3 x 3	340	52	98.28

NYLON SPEED FASTENER

For quick, push fit mounting. Pkgs. of 100

35F2223 | 1-9 Pkgs.....2.09 | 10-24 Pkgs.....1.91

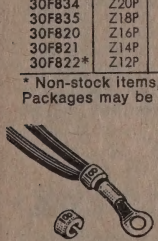
SLIP-ON "Z" MARKERS

Feature flexible "accordion" type backs for easy installation and sturdy gripping. Made of durable PVC material. Comply with military, civil, and trade associations (J.I.C., MIL-E-5400B (ASG), MIL-E-4158A (USAF); etc.). White with black marking. Please specify Letter (A-Z) or Numeral (0-9) desired when ordering.

Minimum order is one package of 100 of any Letter or Numeral.

Stock No.	Type No.	AWG Size	For Cable Diameter	Per Package 1-25	26-65	66-125	126-250
30F833	Z22P	22	.045"-.065"	1.62	1.46	1.29	1.24
30F834	Z20P	20	.066"-.085"				
30F835	Z18P	18	.086"-.115"				
30F820	Z16P	16	.110"-.135"				
30F821	Z14P	14	.130"-.160"				
30F822*	Z12P	12	.150"-.175"				

* Non-stock items, available on special order.
Packages may be combined for quantity prices.



Type C

CLIP-ON "C" MARKERS

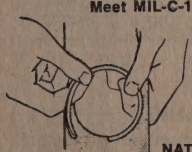
Designed for application either before or after terminal connection has been made. May be removed for re-coding without breaking terminal connection. Rigid PVC material. For single wire or cable. Same size fits a given range cable dia. Specify Letter (A-Z) or Numeral (0-9) when ordering. Minimum order is 1 pkg. of 100 of any letter or numeral.

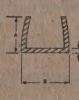
Stk. No.	Type	AWG Size	For Cable Diameter	Per Package 1-25	26-65	66-125	126-250
47F014	C2P	18/20	.080-.100	2.31	2.08	1.85	1.61
47F015	C3P	18	.100-.118	2.31	2.08	1.85	1.61
47F016	C4P	16	.118-.138	2.35	2.12	1.89	1.64
47F017	C5P	14	.138-.156	2.40	2.16	1.92	1.67
47F018*	C6P	10/12	.156-.218	2.53	2.28	2.03	1.77
47F019*	C7P	9	.187-.218	2.85	2.57	2.29	1.99

* Non-stock item, available on special order.
Packages may be combined for quantity prices.

GROMMET STRIPS

Meet MIL-C-17D, MIL-W-76B, and MIL-C-915A

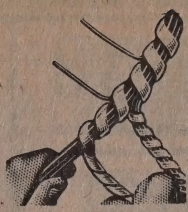




You have the advantage of one strip only application to round, square, rectangular, and oval holes. Comes in 6 sizes. For all gauges, from 20 gauge to ¼" thick. Easily applied. No special tools required.

NATURAL POLYETHYLENE

Stk. No.	Type	Application Min.-Max.	Per Package Pkg.	1-5	6-49	50-99
30F315	GS2	.020-.039	100 ft.	6.47	5.82	5.18
30F320	GS2A	.040-.062	100 ft.	7.05	6.34	5.64
30F316	GS3	.063-.099	100 ft.	7.53	6.77	6.03
30F317	GS-4	.100-.144	100 ft.	8.65	7.79	6.92
				1-11	12-99	100-199
30F318	GS-5	.145-.187	50 ft.	7.56	6.81	6.05
30F319	GS-6	.187-.250	50 ft.	10.91	9.82	8.73



SPIROBAND

Spiral wrapping for flexible electric harnesses and cables. Unusual flexibility and elasticity make it ideal for temporary and experimental as well as permanent applications. Permits leadoffs or additions of wire at any point. High dielectric strength provides excellent insulation. Nylon and Teflon types for high temperature applications. (Nylon to 250°F; Teflon to 500°F).

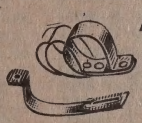
NATURAL POLYETHYLENE

Stock No.	Size	Wall Thick	Bundle Range	Std. Pkg.	Per Package 1-9	10-99	100-199
30F839	⅛"	.032	1/16"-½"	100'	4.38	4.24	4.16
30F840	¼"	.045	3/16"-2"	100'	7.27	7.06	6.90
47F005	⅜"	.055	5/16"-3"	50'	5.47	5.39	5.30

NYLON & TEFLON

Stk. No.	Size	Bundle Range (in.)	Std. Pkg.	Per Package 1-9	10-19	20-99	100-199
47F006†*	⅛"	1/16-½	100'	12.87	12.49	12.49	12.23
47F007†*	¼"	3/16-2	100'	23.23	22.53	22.53	22.06
47F008†	⅜"	5/16-3	50'	36.46	36.46	35.37	35.37
				1-39	40-399		400-700
47F009†	½"	⅜-4	25'	19.40	18.83		18.44
47F010‡*	⅛"	1/16-½	25'	52.92	51.34		50.28

* Wall Thickness .03". † Nylon. ‡ Teflon.



ADJUSTABLE P-CLIPS

Ratchet teeth provide positive locking action. Virgin nylon, light weight, abrasion resistance. Tensile strength: 11,000 psi. Melting point: 482—500°F self extinguishing. Endurance limit: 3000 psi; no failures to 2,000,000 cycles.

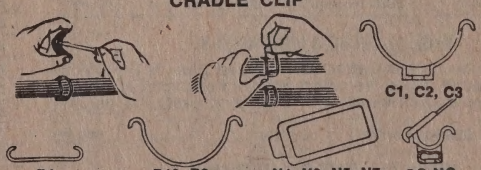
Stk. No.	Size No.	Bundle Dia. Min.-Max.	Screw Clear.	Per pkg. of 100 1-9	10-59	60-109
30F842	AP-0	⅛-3/16	No. 4	3.72	3.35	2.98
30F843	AP-1	3/16-¼	No. 4	3.85	3.47	3.08
30F844	AP-2	¼-⅜	No. 6	4.05	3.65	3.24
30F845	AP-3	⅜-5/16	No. 6	5.19	4.65	4.15
47F001	AP-5	⅜-13/16	No. 10	8.88	8.00	7.11

EL-CABLE TIES Meets MS 17821 and MS 18034

Molded of virgin nylon; light weight; brasion resistant; high tensile strength; minimum absorption rate; resistant to common solvents, alkalies, oils.

Stk. No.	Bundle Diameter Min.-Max.	Descrip.	Mil No.	Type	Per Pkg. of 100 1-24	25-49
30F847	1/16"-1"	Miniature	—4	EL-A	3.23	3.14
30F848	1/16"-1 3/16"	Intermediate	—1	EL-B	4.87	4.73
30F849	1/16"-4 1/16"	Standard	—2	EL-C	10.75	10.43
47F000	3/16"-4"	Hvy. Duty	—3	EL-D	17.30	16.79

CRADLE CLIP



B1 B12, B2 N1, N3, N5, N7 CO-NO

On the spot wiring changes without replacement or tools. Only 5 seconds per fixing point. Binders and cradles are nylon; clips are neoprene. Secure design will withstand vibration without damage to wire insualtion. Color: black.

Stk. No.	Type	Descrip.	Per Pkg. of 100 1-9	10-19	20-29
30F300	C1	Cradle	9.98	9.68	9.48
30F301	C2	Cradle	11.78	11.42	11.19
30F302	C3	Cradle	12.54	12.16	11.91
30F303	C1-M*	Cradle	22.83	22.15	21.68
30F304	C2-M*	Cradle	37.21	36.10	35.35
30F305	C3-M*	Cradle	38.57	37.41	36.63
30F307	B2	Binder	11.70	11.35	10.78
30F308	N1	Clip	5.63	5.46	5.40
30F309	N3	Clip	7.58	7.35	7.20
30F310	N5	Clip	10.81	10.48	10.27
30F311	N7	Clip	13.28	12.88	12.62
30F312	CO-NO**	Crd. & Clip	14.88	14.43	14.13

** cradle with captive clip * with captive nut
Cradles and Binders may be combined for quantity prices.
Clips may be combined for quantity prices.

13

AP PRODUCTS INCORPORATED

Integrated Circuit Accessories

BREADBOARDS, TERMINAL STRIPS AND TEST CLIPS

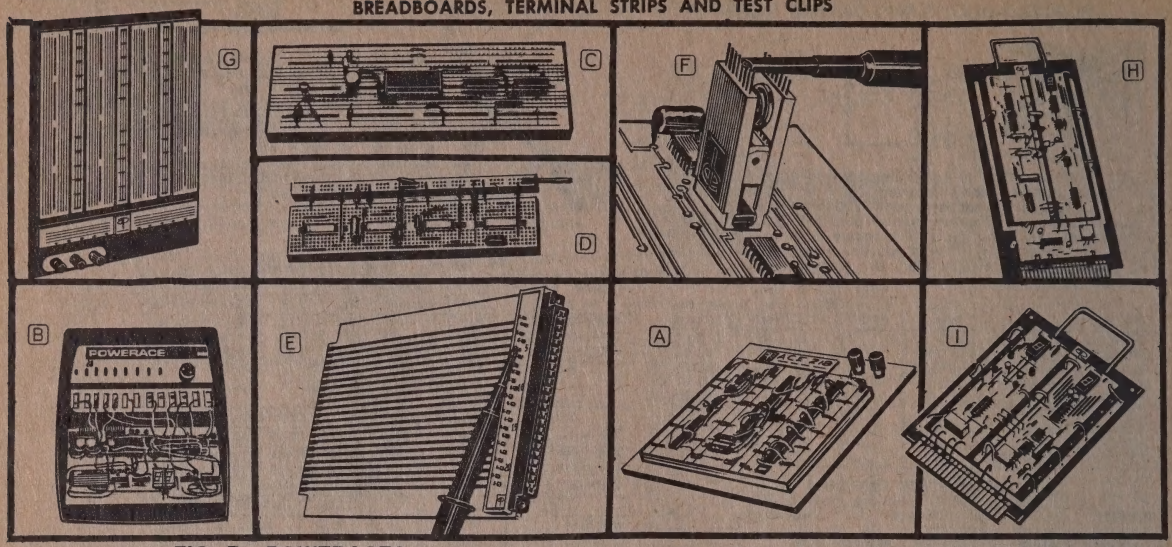


FIG. B—POWERACES

PA 101 general purpose prototype board w/regulated +5 to +15 volt power supply at 600ma and built in meter. **PA 102** for designing digital circuitry contains a one-shot pulse generator, clock generator with 1, 10, 100 Hz, 1, 10, and 100 KHz; 4 data switches; 2 logic switches w/debounce; pulse detection and 3 logic indicators. **PA 103** has +5V at 750ma, +15V and −15V at 250ma w/-15-O-+15V meter; 2 logic indicators; 2 logic switches and 2 data switches. Size: 7.5″W x 11.5″D x 4″H at rear but only 0.75″H at front. Wt: approximately 2.5 lbs.

Stock No.	Part No.	Model	EACH
65F100	923101	PA 101	84.95
65F101	923102	PA 102	114.95
65F102	923103	PA 103	124.95

FIG. G—ACE ALL-CIRCUIT EVALUATORS

ACE All-Circuit Evaluators breadboards accept all components with leads up to .032″; binding posts are internally bussed to voltage and ground distribution. 5-way binding posts.

Stk. No.	No.	Type	Tie-Pts.	No. Buses	No. Posts	Each
65F103	923333	ACE200-K (kit)	728	2	2	18.95
65F104	923332	ACE208 (assem.)	872	8	2	28.95
65F105	923334	ACE201-K (kit)	1032	2	2	24.95
65F106	923331	ACE212 (assem.)	1224	8	2	34.95
65F107	923326	ACE218 (assem.)	1760	10	2	46.95
65F108	923325	ACE227 (assem.)	2712	28	4	59.95
65F109	923324	ACE236 (assem.)	3648	36	4	79.95

FIG. A—BREADBOARD II

3208 available tie points; numbered I/O buss. Base is G-10 glass epoxy with ground plane; tie-points are gold plated copper alloy 770. For use with #22 solid wire. 3 binding posts, 18 busses, size: 7 x 9″.

65F110. Type 923605. **NET**.....**126.00**

FIG. C—SUPER-STRIPS

Universal breadboarding element with 128 five-tie-point terminals. Accepts all components to .032″ dia. and jumper wires to #20 A.W.G. Includes integral, non-shorting, instant-mount backing. Size: 6.5 x 2.25″.

65F120. Type 923252. **NET**.....**17.00**

FIGS. H & I—UNICARDS I & II

Reusable, solderless, breadboarding PC card. Standard 5¼″ size with .1″ plug-in matrix, w/22 contact standard finger pattern. Extractor handle and rubber feet included. Unicard II has larger terminal strips and dual row distribution strip and turret post for convenient grounding.

Stk. No.	Type	Model	Dimensions	Fig.	Each
65F137	923770	Unicard I	4⅜x6⅜	I	31.50
65F138	923771	Unicard I	4½x6⅜	I	31.50
65F139	923775	Unicard II	4⅜x9¾	H	56.20
65F140	923776	Unicard II	4½x9¾	H	56.20

FIG. D—TERMINAL AND DISTRIBUTION STRIPS

For building custom breadboards. Plug-in matrices on .1 x .1″ centers for all DIP's, TO-5's, discretes and solid wire jumpers to .032″. Includes integral, non-shorting, instant mounting back.

* Stk. No.	Type	Terminal Strips, Distrib. Strips	Buses, Term. and Tie Points	Each
65F111	923273	217L Term. strip	34 5-tie-point term.	4.75
65F112	923269	234L Term. strip	68 5-tie-point term.	8.50
65F113	923265	248L Term. strip	96 5-tie-point term.	10.00
65F228	923261	264L Term. strip	128 5-tie-point term.	12.50
65F114	923291	*154R Term. strip	54 4-tie-point term.	6.00
65F115	923289	264R Term. strip	128 4-tie-point term.	10.00
65F116	923285	206R Dist. strip	2 buses of 24 tie pts.	2.00
65F117	923281	209R Dist. strip	2 buses of 36 tie pts.	2.25
65F118	923277	212R Dist. strip	2 buses of 48 tie pts.	2.50
65F119	923293	606R Dist. strip	6 buses of 24 tie pts.	3.50

*Models 154R are single strips of terminals; all other strips are dual-row for DIP's. Gold-plated copper alloy terminals. Height of all strips is .32 inches.

FIG. F—TEST CLIPS

Gold-plated phosphor bronze spring contacts are designed for wiping action. Pin ends are spiked for better probe hold. Suffix following TC refers to number of pins.

Stk. No.	PART NUMBER	MODEL	Row-To-Row Dimension	EACH
65F126	923695	TC-8	.3 IN.	7.35
65F127	923698	TC-14	.3 IN.	4.50
65F128	923700	TC-16	.3 IN.	4.75
65F129	923702	TC-16 LSI	.5/.6 IN.	8.95
65F130	923703	TC-18	.3 IN.	10.00
65F131	923704	TC-20	.3 IN.	11.55
65F132	923705	TC-22	.4 IN.	11.55
65F133	923714	TC-24	.5/.6 IN.	13.85
65F134	923718	TC-28	.5/.6 IN.	15.25
65F135	923720	TC-36	.5/.6 IN.	19.95
65F136	923722	TC-40	.5/.6 IN.	21.00

FIG. E—PC EXTENDER CARDS

22 turret posts on each side allow testing of all 44 contact positions easily from the front, in card racks, and under power. Posts are staggered to allow non-shorting attachment of test probes. Posts are numbered in five's for easy identification. Gold plated contacts.

Stk. No.	Type	Size (WxL″)	EACH
65F141	923790	4½x8½″	25.20
65F142	923792	4⅜x8½″	25.20
65F143	923794	4½x11″	30.25
65F144	923796	4⅜x11″	30.25

13

Integrated Circuit Accessories

AP PRODUCTS INCORPORATED

JUMPERS, DIP CONNECTORS, PC CORDS AND HEADERS

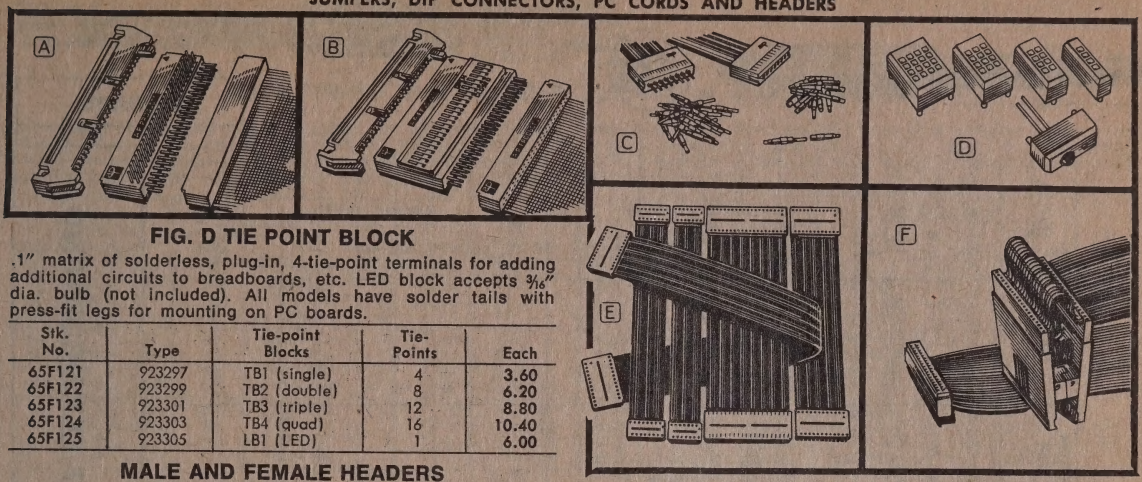


FIG. D TIE POINT BLOCK

.1" matrix of solderless, plug-in, 4-tie-point terminals for adding additional circuits to breadboards, etc. LED block accepts 3/16" dia. bulb (not included). All models have solder tails with press-fit legs for mounting on PC boards.

Stk. No.	Type	Tie-point Blocks	Tie-Points	Each
65F121	923297	TB1 (single)	4	3.60
65F122	923299	TB2 (double)	8	6.20
65F123	923301	TB3 (triple)	12	8.80
65F124	923303	TB4 (quad)	16	10.40
65F125	923305	LB1 (LED)	1	6.00

MALE AND FEMALE HEADERS

Thermoplastic polyester dielectric with copper alloy 770 terminals. Can be cut to desired length, 36 posts per row. .1" spacing ideal for breadboarding applications.

Stk. No.	Type	Headers	Rows	Each
65F222	929974	Female header	1	.92
65F223	929975	Female header	2	1.96
65F224	929834-01	Male header, straight	1	.87
65F225	929836-01	Male header, straight	2	1.82
65F226	929835-01	Male header, rt. angle	1	.94
65F227	929838-01	Male header, rt. angle	2	2.19

FIG. F LOGICAL CONNECTIONS

Molded 16, 24 or 40-pin IC test clip with 18" of cable terminated with socket or DIP plug connector. Socket connector mates with .025 dia. posts on .1" centers, dual-row.

Stk. No.	Type	Description	Each
65F208	923881-16	Log. Conn. w/Skt.	12.14
65F209	923884-16	Log. Conn. w/DIP Plug	11.59
65F210	923881-24	Log. Conn. w/Skt.	24.94
65F211	923884-24	Log. Conn. w/DIP Plug	24.11
65F212	923881-40	Log. Conn. w/Skt.	35.95
65F213	923884-40	Log. Conn. 2/DIP	34.95

FIG. C CONNECTORS, PINS & SOCKETS

8 conductor sockets have gold plated pins. #923625 fits AP Test Clips. Connector pins and sockets come in two sizes and are practically indestructible. Pins sold in 100's.

Stk. No.	Type	Description	Each
65F218	923625	8-pin conn. .028"/.035" (F)	2.90
65F219	923626	8-pin conn. .030" (M)	2.30
65F220	923627	8-pin conn. .019"/.028" (F)	2.90
65F221	923628	8-pin conn. .019" (M)	2.30
65F214	923610	Conn. sockets .019"/.028"	28.85
65F215	923612	Conn. sockets .028"/.035"	28.85
65F216	923614	Conn. pins .019"	23.10
65F217	923616	Conn. pins .030"	23.10

FIGS. A & B INTRA-CONNECTOR/SWITCH

Intra-Connector mates in-line with standard double-row socket connectors and has pins along its side to allow easy probing of ribbon cable. Intra-Switch has integrated switches to allow on/off switching of circuits with ribbon cable.

Stk. No.	Part No.	Model	Description	Fig.	Each
65F198	922576-20	IC-20	20 Contact Intra-Connector	B	6.00
65F199	922576-26	IC-26	26 Contact Intra-Connector	B	6.90
65F200	922576-34	IC-34	34 Contact Intra-Connector	B	8.10
65F201	922576-40	IC-40	40 Contact Intra-Connector	B	9.00
65F202	922576-50	IC-50	50 Contact Intra-Connector	B	10.50
65F203	922578-20	IS-20	20 Contact Intra-Switch	A	12.00
65F204	922578-26	IS-26	26 Contact Intra-Switch	A	13.80
65F205	922578-34	IS-34	34 Contact Intra-Switch	A	16.20
65F206	922578-40	IS-40	40 Contact Intra-Switch	A	18.00
65F207	922578-50	IS-50	50 Contact Intra-Switch	A	21.00

FIG. E RIBBON CABLE ASSEMBLIES

DIP Jumpers mate with standard IC sockets; each has probe holes on the back of each connector. Contacts are spring temper copper alloy 770; conductors are #28 A.W.G. tin coated stranded copper rated at 150 volts max. Cable is color coded in standard 10-color sequence.

Stk. No.	Description	Part No.	Description	Each
65F145	Single-end DIP Jumpers	924102-36	14 Pin, 36" Long	2.33
65F146		924112-36	16 Pin, 36" Long	2.59
65F147		924122-36	24 Pin, 36" Long	4.00
65F148		924132-36	40 Pin, 36" Long	6.71
65F149	Double-end DIP Jumpers	924106-6	14 Pin, 6" Long	2.41
65F150		924106-12	14 Pin, 12" Long	2.61
65F151		924106-18	14 Pin, 18" Long	2.82
65F152		924106-24	14 Pin, 24" Long	3.02
65F153		924106-36	14 Pin, 36" Long	3.43
65F154		924116-6	16 Pin, 6" Long	2.65
65F155		924116-12	16 Pin, 12" Long	2.88
65F156		924116-18	16 Pin, 18" Long	3.11
65F157		924116-24	16 Pin, 24" Long	3.34
65F158		924116-36	16 Pin, 36" Long	3.80
65F159		924126-6	24 Pin, 6" Long	4.15
65F160		924126-12	24 Pin, 12" Long	4.50
65F161		924126-18	24 Pin, 18" Long	4.85
65F162		924126-24	24 Pin, 24" Long	5.20
65F163		924126-36	24 Pin, 36" Long	5.90
65F164		924136-6	40 Pin, 6" Long	6.93
65F165		924136-12	40 Pin, 12" Long	7.52
65F166		924136-18	40 Pin, 18" Long	8.11
65F167		924136-24	40 Pin, 24" Long	8.70
65F168		924136-36	40 Pin, 36" Long	9.88
65F169	Double-end Socket Terminated Jumpers	924002-06	20 Contact, 6" Long	3.70
65F170		924002-18	20 Contact, 18" Long	4.16
65F229		924002-36	20 Contact, 36" Long	4.85
65F171		924003-06	26 Contact, 6" Long	4.78
65F172		924003-18	26 Contact, 18" Long	5.38
65F175		924003-36	26 Contact, 36" Long	6.28
65F173		924004-06	34 Contact, 6" Long	6.25
65F174		924004-18	34 Contact, 18" Long	7.05
65F176		924004-36	34 Contact, 36" Long	8.25
65F177		924005-06	40 Contact, 6" Long	7.33
65F178		924005-18	40 Contact, 18" Long	8.27
65F180		924005-36	40 Contact, 36" Long	9.68
65F179		924006-06	50 Contact, 6" Long	9.15
65F182		924006-18	50 Contact, 18" Long	10.31
65F181		924006-36	50 Contact, 36" Long	12.05
65F185	Single-end Socket Terminated Jumpers	924012-36	20 Contact, 36" Long	3.12
65F186		924013-36	26 Contact, 36" Long	4.04
65F187		924014-36	34 Contact, 36" Long	5.30
65F188		924015-36	40 Contact, 36" Long	6.22
65F189		924016-36	50 Contact, 36" Long	7.73
65F183	Double-end Card-edge Terminated Jumpers	924052-06	20 Contact, 6" Long	5.69
65F184		924053-06	26 Contact, 6" Long	6.46
65F191		924054-06	34 Contact, 6" Long	7.96
65F192		924055-06	40 Contact, 6" Long	9.29
65F193		924056-06	50 Contact, 6" Long	10.10
65F190	Single-end Card-edge Terminated Jumpers	924062-36	20 Contact, 36" Long	4.11
65F194		924063-36	26 Contact, 36" Long	4.88
65F195		924064-36	34 Contact, 36" Long	6.15
65F196		924065-36	40 Contact, 36" Long	7.20
65F197		924066-36	50 Contact, 36" Long	8.21

13

QUICK-SCAN PROPERTY CHART

PROPERTY	POLYOLEFIN FLEXIBLE	POLYOLEFIN SEMI-RIGID	PVC-105	KYNAR POLYVINYLIDENE	NEOPRENE	TEFLON TFE	TEFLON FEP	TEFLON TFE/FEP	TEFZEL
ELECTRICAL									
DIELECTRIC STRENGTH	1300 VOLTS/MIL	1000 VOLTS/MIL	1000 VOLTS/MIL	1500 VOLTS/MIL	600 VOLTS/MIL	600 VOLTS/MIL	600 VOLTS/MIL	600 VOLTS/MIL	2000 VOLTS/MIL
DIELECTRIC CONSTANT	2.5 @ 1 MHZ MAX	2.5 @ 1 MHZ MAX	1.76 @ 1 KHZ	5.5 @ 1 MHZ MAX	9.0 @ 1 MHZ	2.1 @ 1 MHZ	2.1 @ 1 MHZ	2.1 @ 1 MHZ	2.6 @ 1 MHZ
VOLUME RESISTIVITY	$1x10^{15}$ Ω-CM MIN	$3.25x10^{15}$ Ω-CM MIN	10^{13} Ω-CM MIN	$8.7x10^{13}$ Ω-CM MIN	10^{11} Ω-CM	$>10^{18}$ Ω-CM	$>10^{18}$ Ω-CM	$>10^{18}$ Ω-CM	$>10^{16}$ Ω-CM
PHYSICAL									
SHRINKAGE—DIAMETRICAL	50%	50%	50%	50%	40-50%	30-50%	40%	30-50%	33%
SHRINKAGE—LONGITUDINAL	5%	5%	20%	10%	10%	NONE	NONE	NONE	NONE
TENSILE STRENGTH	2400 PSI MIN	3200 PSI MIN	2800 PSI MIN	7900 PSI MIN	1500 PSI	2500-6000 PSI	2700-3500 PSI	2500 PSI	6500 PSI
SPECIFIC GRAVITY	1.20 GM/CM² MAX	1.35 GM/CM² MAX	1.63 GM/CM²	1.6 GM/CM² MAX	1.3 GM/CM²	2.1-2.2 GM/CM²	2.15 GM/CM²	2.15 GM/CM²	1.70 GM/CM²
OPER. TEMP. MIN.	−67°F	−67°F	−4°F	−67°F	−67°F	−275°F	−275°F	−275°F	−156°F
OPER. TEMP. MAX.	+275°F	+275°F	+221°F	+347°F	+194°F	+500°F	+400°F	+450°F	+350°F
SHRINK TEMP. MIN.	205°F	275°F	200°F	347°F	275°F	621°F	300°F	621°F	300°F
SHRINK TEMP. REC.	350-470°F	340-480°F	250°F	462-662°F	390-480°F	621°F	300°F	621°F	300°F
ABRASION RESISTANCE	G	G	E	E	E	G	G	G	E
CHEMICAL									
WATER ABSORPTION	0.2%	0.12%	NIL	0.2%	.5%	<0.01%	.001%	<0.01%	< 0.1%
FLAMMABILITY	Colors Are Self-Ext. Clear is Flammable	Colors Are Self-Ext. Clear is Flammable	5 Sec. Flame Res. (MIL-I-631D)	SE	SE	NON	NON	NON	SE
FUNGUS RESISTANCE	E	E	O (MIL-I-631D)	E	INERT	E	E	E	E
OIL RESISTANCE	G	G	95% Ret (ASTMD-922)	E	G	E	E	E	E
ACID RESISTANCE	E	E	Generally Resistant to mild acids & alkalines, solvents, esters, waxes, and alcohol. Trial operation is recommended. E	E	G	E	E	E	E
ALKALI RESISTANCE	E	E		E	G	E	E	E	E
SOLVENT RESISTANCE	E	E		E	G	E	E	E	E
WEATHER-ABILITY	E	E		E	E	E	E	E	E
VOLTREX TUBING TYPES	FDS FPA	SRS SRC	PVS PVI	KYS	NPS	TTS TTO TTI TSI	SST	TFS	TZS

ABBREVIATIONS

G = GOOD **E = EXCELLENT** **SE = SELF-EXTINGUISHING**

SPC technology

VOLTREX Tubing brand

A complete line of heat shrinkable tubing products from SPC Technology. UL Recognized for electronic/electrical use. Meets military specifications for MIL-I-23053B, MIL-I-7444, AMS-3632, MIL-I-631D.

UL E52331

VOLTREX brand Tubing

SPC technology

TYPE FPS-VOLTREX FLEXIBLE POLYOLEFIN SHRINK TUBING

E52331

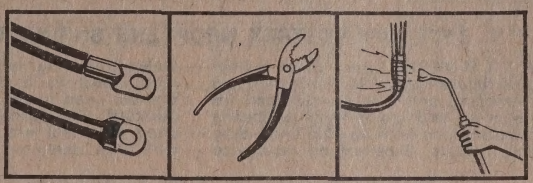
MIL-I-23053 B/5. Excellent gen. purpose heat shrinkable tubing offering the best price-performance trade-off. Highly resistant to fungus/chemicals. Shrinks to less than half of supplied diameter. Lengthwise shrinkage less than 5%. Shrinks unformly. Perfect insulation cover. Does not cold flow. Split resistant. Colors: 4-ft. lgths — black, clear. 6-in lgths — black, blue clear, red, white, yellow. Black 4-ft. lgths supplied marked in accordance with UL requirements.

Size	Recom. Usable ID Range	Recovered Nom.-Wall Thick.	4 Foot Lengths Stock No.	No. of Lengths	Total Footage	Per Box 1-99	100-499	500-999	1000-4999	6-Inch Lengths Stock No.	No. of Lengths	Total Footage	Per Box
3/64"	.025 to .042	.016	37N398	25	100 ft.	.....	26.35	22.93	19.94	37N1165	40	20 ft.	7.10
1/16"	.034 to .056	.017	37N389	25	100 ft.	.....	27.79	24.16	21.01	37N1166	36	18 ft.	
3/32"	.051 to .083	.020	37N401	25	100 ft.	.....	31.59	27.47	23.89	27N1168	32	16 ft.	
1/8"	.068 to .112	.020	37N403	25	100 ft.	.....	33.83	29.40	25.55	37N1170	28	14 ft.	
3/16"	.102 to .168	.020	37N404	25	100 ft.	.....	41.32	35.92	31.21	37N1171	24	12 ft.	7.10
1/4"	.138 to .225	.025	37N406	25	100 ft.	.....	51.69	44.95	39.18	37N1173	20	10 ft.	
3/8"	.206 to .338	.025	37N407	25	100 ft.	.....	57.51	50.03	43.51	27N1174	16	8 ft.	
1/2"	.275 to .450	.025	37N409	5	20 ft.	14.99	13.03	11.33	9.86	37N1176	14	7 ft.	
3/4"	.413 to .675	.030	37N411	5	20 ft.	20.01	17.40	15.14	13.16	37N1178	12	6 ft.	7.10
1"	.550 to .900	.035	37N413	5	20 ft.	28.00	24.34	21.17	18.41	37N1180	8	4 ft.	
1 1/2"	.825 to 1.35	.040	37N397	5	20 ft.	49.73	43.24	37.60	32.69	37N194	5	2.5 ft.	
2"	1.100 to 1.80	.045	37N395	5	20 ft.	68.68	59.73	51.93	45.15	37N195	3	1.5 ft.	

TYPE FPA — SHRINKABLE FLEXIBLE POLYOLEFIN ASSORTMENT

Packaged assortments of 6" lengths of flexible polyolefin tubing in various sizes and colors. Each length has diameter stamped on it for easy identification.

Stock No.	Tubing Size	Lengths Per Box	NET
37N1182	3/64x3/16	30	9.34
37N1183	1/4-3/4	16	14.72
37N1184	1"-4"	10	14.51



Ideal for Research and Development

Diameter Stamped on Each Length

For Terminal Connections, Splices, Tool Handles

TYPE SRS-VOLTREX SEMI-RIGID POLYOLEFIN SHRINK TUBING

E52331

MIL-I-23053 B/6. Superior cut-through and abrasion resistance. Provides mechanical protection, electrical/chemical insulation. Particularly suitable for applications requiring additional strength. Shrinks to less than 50% of supplied diameter in heat exceeding 275°F. Shrinks less than 5% in length. Tough protective covering. Color: black. 4-foot lengths marked in accordance with U.L. requirements.

Size	Recom. Usable ID Range	Recovered Nominal-Wall Thickness	4-Foot Lengths Stock No.	No. of Lengths	Total Footage	Per Box 1-499	500-999	1000-4999	6-Inch Lengths Stock No.	No. of Lengths	Total Footage	Per Box
3/64"	.025 to .042	.016	37N280	25	100 ft.	31.89	29.66	25.82	37N260	40	20 ft.	7.66
1/16"	.034 to .056	.017	37N281	25	100 ft.	37.47	34.85	30.31	37N261	36	18 ft.	7.66
3/32"	.051 to .083	.020	37N282	25	100 ft.	39.66	36.88	32.07	37N262	32	16 ft.	7.66
1/8"	.068 to .112	.020	37N283	25	100 ft.	40.07	37.25	32.39	37N263	28	14 ft.	7.66
3/16"	.102 to .168	.020	37N284	25	100 ft.	48.85	45.43	39.50	37N264	24	12 ft.	7.66
1/4"	.138 to .225	.025	37N285	25	100 ft.	60.91	56.66	49.28	37N265	20	10 ft.	7.66
3/8"	.206 to .338	.025	37N286	25	100 ft.	67.69	62.96	54.73	37N266	16	8 ft.	7.66

TYPE KYS-VOLTREX KYNAR SHRINK TUBING

E52331

MIL-I-23053 B/8. AMS 3632B. Single best heat shrinkable tubing choice for applications involving extreme combinations of moisture, corrosive chemicals, strong solvents, oils, heat, stress, abrasion, high voltage and high mechanical strength. Voltrex Type KYS is a heat shrinkable tubing manufactured from poly-vinylidene fluoride with a thin wall and superior dielectric, abrasion, and cut-through properties. Kynar's stiffness makes this material an excellent strain relief, while the thin wall accommodates high density solder packs. Widely used as a component jacket for resistors and capacitors because of its superior flame resistance, thin wall and continuous operating temperature of 175°C. Color: clear. Kynar is a registered trade mark of Pennwalt Chemical Company. 4-foot lengths marked in accordance with U.L. requirements.

Size	Recom. Usable ID Range	Recovered Nom.-Wall Thick.	4-Foot Lengths Stock No.	No. of Lengths	Total Footage	Per Box 1-99	100-499	500-999	1000-4999	6-Inch Lengths Stock No.	No. of Lengths	Total Footage	Per Box
3/64"	.025 to .042	.016	37N1555	25	100 ft.	....	50.78	46.17	42.32	37N165	32	16 ft.	9.75
1/16"	.034 to .056	.017	37N1556	25	100 ft.	....	55.27	50.24	46.05	37N166	28	14 ft.	
3/32"	.051 to .083	.020	37N1557	25	100 ft.	....	66.31	60.29	55.26	37N167	24	12 ft.	
1/8"	.068 to .112	.020	37N1558	25	100 ft.	....	72.35	65.78	60.30	37N168	20	10 ft.	
3/16"	.102 to .168	.020	37N1559	25	100 ft.	....	112.59	102.35	93.82	37N169	16	8 ft.	
1/4"	.138 to .225	.025	37N1560	25	100 ft.	....	141.77	128.04	118.14	37N170	12	6 ft.	
3/8"	.206 to .338	.025	37N1561	25	100 ft.	....	186.33	169.39	155.27	37N171	8	4 ft.	
1/2"	.275 to .450	.025	37N1562	5	20 ft	61.55	55.41	50.36	46.17	37N172	4	2 ft.	
3/4"	.413 to .675	.030	37N1563	5	20 ft	113.24	101.92	92.66	84.83	37N173	2	1 ft.	
1"	.550 to .900	.035	37N1564	5	20 ft.	208.18	187.36	170.33	156.14	37N174	1	0.5 ft.	

13

SPC technology

VOLTREX® brand Tubing

E52331

TYPE PVS-VOLTREX PVC-105 SHRINK TUBING

MIL-I-631D. MIL-I-7444B. Low cost, low shrink temperature and flexibility make Type PVS ideally suited for production insulation and jacketing of cables, bus bars, terminals, etc. Voltrex non-irradiated PVC has several distinct advantages over irradiated PVC: 125°F lower shrink temperature for less heat and shock, 30% shorter shrink time for increased production, 10% higher tensile strength for greater tear strength, negligible water absorption for less current leakage. When heated to a temperature exceeding 200°F, tubing shrinks to half its supplied diameter while shrinking less than 20% in length. Tubing stocked in spools as listed. All sizes through ½" diameter are air spooled. All PVC tubing marked in accordance with UL requirements. Color: black.

Size	Recom. Usable ID Range	Recov. Nom. Wall Thick.	Stock No.	Spool Size	Per Spool 1-2	3-4	5-9	10-49
3/64"	.028 to .038	.020	37N249WM	1000'	159.84	159.84	141.04	.....
1/16"	.038 to .053	.020	37N250WM	1000'	171.58	171.58	151.40	.....
3/32"	.053 to .075	.020	37N251WM	1000'	201.90	201.90	178.15	.....
1/8"	.075 to .106	.020	37N252WM	1000'	213.80	213.80	188.70	.....
3/16"	.106 to .150	.020	37N253WM	1000'	260.10	260.10	229.50	.....
1/4"	.150 to .215	.025	37N254WM	1000'	329.00	329.00	.....	.....
3/8"	.215 to .300	.025	37N255WD	200'	87.91	79.92	73.26	64.64
1/2"	.300 to .425	.025	37N256WA	100'	50.51	50.51	45.92	42.10
3/4"	.425 to .600	.030	37N257WA	100'	67.71	67.71	61.56	56.42
1"	.600 to .800	.035	37N258WA	100'	94.80	94.80	86.18	79.00

Stock No.	Spool Size	Per Spool	Stock No.	Per 100' Spool	Stock No.	Per 25' Spool
37N249WF	500'	87.19	37N249WA	19.95	37N249WC	6.03
37N250WF	500'	93.59	37N250WA	21.41	37N250WC	6.45
37N251WD	200'	48.46	37N251WA	24.70	37N251WC	7.47
37N252WD	200'	51.31	37N252WA	26.17	37N252WC	7.88
37N253WD	200'	62.43	37N253WA	31.85	37N253WC	9.63
37N254WD	200'	78.95	37N254WA	40.26	37N254WC	12.14
.....	.....	.....	37N255WA	44.83	37N255WC	13.52
.....	.....	.....	.....	.....	37N256WC	15.24
.....	.....	.....	.....	.....	37N257WC	20.46
.....	.....	.....	.....	.....	37N258WC	28.64

TYPE NPS-VOLTREX NEOPRENE SHRINK TUBING

MIL-I-23053 B/1. AMS 3623. MIL-R-46846A, Type 1 Class 1. Heat shrinkable Neoprene tubing particularly useful for fabrication and repair of flexible rubber harnesses and wire bundles and for hydraulic couplings. Its superior cut-thru and abrasion resistance allow its use in heavy duty applications such as drop lines, drag lines, and industrial equipment cable. Excellent oil resistance makes it ideal for automotive, helicopter and construction equipment industries. Excellent for environments having constant vibration, need for easy application, good flexibility at low temperature, oil splashes or spills, drag or abrasion yet requiring good electrical properties and a watertight covering. Voltrex NPS is an ideal product selection. Color: black.

Size In.	Recom. Usable ID Range	Recov. Nom. Wall Thickness	Stand. Spool Size	Stock No.	Price Per Standard Spool Each	2-4	5-9	10-49	50-Up	25' Spool Stock No.	Price Per Spool
1/4	.157"- .225"	.035"	100'	37N414WA	223.30	200.97	182.70	167.48	149.98	37N414WC	56.90
3/8	.235"- .338"	.040"	100'	37N425WA	267.01	240.31	218.46	200.26	179.34	37N425WC	68.12
1/2	.315"- .450"	.048"	100'	37N416WA	296.86	267.25	242.95	222.70	199.44	37N416WC	75.72
5/8	.393"- .563"	.052"	100'	37N417WA	333.76	300.39	273.08	250.33	224.17	37N417WC	85.11
3/4	.471"- .675"	.057"	100'	37N418WA	371.30	334.17	303.79	278.47	249.38	37N418WC	94.64
7/8	.550"- .788"	.065"	100'	37N419WA	415.01	373.51	339.56	311.26	278.74	37N419WC	105.83
1	.627"- .900"	.070"	100'	37N420WA	452.79	407.50	370.46	339.59	304.11	37N420WC	115.46
1 1/4	.785"-1.125"	.087"	50'	37N421WB	313.93	282.54	256.85	235.45	210.85	37N421WC	160.03
1 1/2	.943"-1.350"	.095"	50'	37N426WB	366.67	330.00	300.00	275.00	246.27	37N426WC	187.50
1 3/4	1.100"-1.575"	.107"	50'	37N423WB	448.27	403.44	366.77	366.20	301.08	37N423WC	228.62
2	1.250"-1.800"	.110"	50'	37N427WB	521.44	469.29	426.63	391.08	350.22	37N427WC	265.94

13

TYPE MLT-VOLTREX MELT LINER TUBING

Thermo-plastic tubing, especially designed to be compatible with polyolefins. When used between heat shrinkable tubing and whatever is to be sealed, it melts and flows upon application of heat to provide an environmental seal around the geometry to be covered. MLT flows and adheres to most low temperature plastics, fabrics and many metals. Applications such as sealing ends of wire harnesses or filling a void in a component are made quicker and more effectively than by using potting compounds or messy epoxies. Order the type MLT tubing in the size equivalent to the expanded I.D. of the heat shrinkable tubing to be applied. Operational temperature range, —75°C to 110°C. Dielectric strength; 800 volts/mil. Color: Clear.

Size	O.D.	I.D.	Typ. Recov. I.D.	100' Stock No.	Price for Standard Spool Each	2-4	5-9	25' Stock No.	Price Per Standard Spool Each	2-4	5-9
1/8	.115	.085	.000	37N287WA	13.34	11.43	10.00	37N287WC	4.17	3.58	3.13
3/16	.177	.147	.000	37N288WA	14.00	12.00	10.50	37N288WC	4.34	3.72	3.25
1/4	.240	.202	.050	37N289WA	14.34	12.29	10.75	37N289WC	4.50	3.86	3.38
3/8	.364	.326	.100	37N290WA	19.84	17.00	14.88	37N290WC	5.84	5.00	4.38
1/2	.489	.451	.150	37N291WA	21.84	18.72	16.38	37N291WC	6.34	5.43	4.75
3/4	.739	.693	.250	37N292WA	29.17	25.00	21.88	37N292WC	8.17	7.00	6.13
1	.986	.940	.325	37N293WA	36.34	31.15	27.25	37N293WC	9.84	8.43	7.38
1 1/2	1.486	1.440	.500	37N294WA	49.00	42.00	36.75	37N294WC	13.00	11.15	9.75

CONTACT NEWARK FOR SPC TECHNOLOGY
CATALOGS OF TUBING, CONNECTORS, WIRE TIES AND TERMINALS
MAKE NEWARK ELECTRONICS YOUR ONE STOP SOURCE
FOR INDUSTRIAL ELECTRONICS EQUIPMENT

TYPE TTS-VOLTREX TEFLON SHRINK TUBING

Size	Recom. Usable ID Range Inches	Recov'd Nom. Wall Thick (In.)	2-Foot Lengths			Per Box
			Stock No.	No. of Lengths	Total Footage	
30	0.015 to 0.031	0.009	37N1625	50	100	106.61
28	0.018 to 0.034	0.009	37N1626	50	100	104.53
26	0.022 to 0.041	0.010	37N1627	50	100	102.62
24	0.027 to 0.045	0.010	37N1628	50	100	82.08
22	0.032 to 0.049	0.010	37N1629	50	100	83.42
20	0.039 to 0.054	0.012	37N1630	50	100	84.57
18	0.049 to 0.069	0.012	37N1631	50	100	89.80
16	0.061 to 0.084	0.012	37N1632	50	100	94.40
14	0.072 to 0.108	0.012	37N1633	50	100	97.49
12	0.089 to 0.135	0.012	37N1634	25	50	53.74
10	0.112 to 0.172	0.012	37N1635	25	50	62.04
8	0.141 to 0.216	0.015	37N1636	25	50	107.23
6	0.178 to 0.272	0.015	37N1637	10	20	49.64
4	0.224 to 0.333	0.015	37N1638	10	20	59.11
2	0.278 to 0.387	0.015	37N1639	10	20	70.84
0	0.347 to 0.423	0.015	37N1640	10	20	85.56

- **Extreme Temperature Resistance**
- **Chemically Inert**
- **Non-flammable**
- **MIL-I-23053 B/12**
- **Type TFE Teflon**
- **Natural Color**
- **Excellent Strain Relief**

Voltrex TTS Teflon shrink tubing is made of type TFE Teflon which has an operating temperature rating of 500°F. TTS's stiffness, combined with its chemical inertness makes it an excellent strain relief for high temperature electrical connections within contaminated environments. Upon the application of heat in excess of 621°F the tubing will recover to about half of its original supplied diameter, shrinking firmly around the object providing a permanent insulation covering. Color: Natural.

TYPE TTO-VOLTREX TEFLON SHRINK TUBING

TFE Teflon heat shrinkabie tubing with a true two to one shrink ratio, supplied in "Hard" metric sizes. Has the customary outstanding chemical and thermal properties of the popular Type TTS, but with a greater shrink ratio; Reduces the number of sizes needed to cover a broad range of diameters. Meets all the requirements of MIL-I-2305B/12 and passes the flammability requirements of Underwriters Laboratories FR-1 test. Standard color is natural.

Size (mm)	Recom. Usable ID Range (mm)	Recov'd Nom. Wall Thick. (mm)	.5 METER LENGTHS			
			Stock No.	No. Of Lengths	Total Length Meters	Per Box
1.0	.55- .90	.25	37N305	50	25	56.70
1.5	.82- 1.35	.25	37N306	50	25	54.54
2.5	1.37- 2.25	.25	37N307	50	25	56.10
3.5	1.92- 3.15	.25	37N308	24	12	29.50
5.0	2.75- 4.50	.25	37N309	24	12	31.74
6.0	3.30- 5.40	.50	37N310	10	5	36.44
10.0	5.50- 9.00	.50	37N311	10	5	45.50
13.0	7.15-11.70	.50	37N312	10	5	55.74
20.0	11.0-18.00	.50	37N313	4	2	39.17
26.0	14.30-23.40	.75	37N314	4	2	65.90

13

TYPE SST-VOLTREX SUPER SHRINK TEFLON TUBING

Super Shrink Teflon tubing provides the excellent chemical and thermal characteristics of Teflon but can be shrunk promptly over inserted objects upon exposure to moderate heat. Partial shrinkage will occur at 250°F with complete recovery at 450°F, allowing Voltrex Type SST to be shrunk on soldered joints, parts, components and fittings of plastic, metal or wood that could not be protected before because of the high temperature required for shrinkage. This makes the permanent protection of Teflon available for many heat-sensitive applications. Voltrex Type SST heat shrinkable tubing is made of FEP Teflon with a 400°F ceiling for permanent duty, and is available in ten sizes from 3/32" to 2" in diameter. Standard color is transparent light blue.

Size (In.)	Recom. Usable ID Range (In.)	Recov'd Nom. Wall Thick. (In.)	2-FT. LENGTHS			
			Stock No.	No. Of Lengths	Total Footage	Per Box
3/32	.062-.084	.008	37N295	50	100	135.34
1/8	.082-.113	.010	37N296	50	100	115.34
3/16	.126-.169	.010	37N297	25	50	68.00
1/4	.165-.225	.010	37N298	25	50	80.84
3/8	.247-.338	.012	37N299	10	20	47.35
1/2	.330-.450	.015	37N300	10	20	68.67
3/4	.495-.675	.020	37N301	5	10	57.34
1	.660-.900	.025	37N302	5	10	95.00
1 1/2	.990-1.350	.030	37N303	1	2	24.40
2	1.320-1.800	.030	37N304	1	2	31.74

SPC technology

VOLTREX® brand Tubing

TYPE TFM INNER MELT HEAT SHRINKABLE TEFLON TUBING

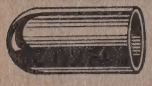
A combination tubing with an exterior of heat shrinkable Teflon TFE and an inner lining of Teflon FEP. This tubing can be slipped over connectors, wires, terminals, splices, etc. When the covered section is heated, the TFE shrinks tightly over the inserted objects. At the same time the FEP melts and is squeezed into a solid or near solid encapsulation. Tight enough so that it offers safe protection against most environmental hazards involving pull or vibration. It has a service temperature of 450°F and offers the outstanding electrical, chemical and mechanical properties of Teflon. Easy to apply. Shrinking can be accomplished with a heat gun. Comes in nine different inside diameters from .036″ to .950″, in lengths of two feet. Standard material is translucent.

Stock No.	Normal ID (inches)	Usable ID Range (in.)	Recovered Wall Thickness (in.)	No. Of Lengths Per Pkg.	Per Pkg.
37N315	1/32	0.00-.032	.032	50	91.43
37N316	1/16	0.00-.054	.028	50	145.72
37N317	1/8	0.00-.117	.032	50	202.86
37N318	3/16	.068-.171	.035	25	147.15
37N319	1/4	.137-.225	.035	25	170.00
37N320	3/8	.209-.315	.035	10	95.43
37N321	1/2	.343-.405	.055	10	192.58
37N322	3/4	.484-.630	.055	5	121.15
37N323	1	.748-.855	.065	5	206.29

TYPE TZS HEAT SHRINKABLE TEFZEL TUBING

Made from DuPont "Tefzel" ETFE fluoropolymer. "Tefzel" is a high-temperature polymer designed to offer a combinaton of ruggedness, dielectric properties, chemical resistance and all over a very broad temperature range. It has the ability to be shrunk down at only 300°F, yet it can operate at intermittent service temperatures up to 392°F. Suited for many applications, including cable jacketing, wire markers, terminal covers, temperature probes, immersion tubing, heat exchanger coils, sight glasses, roll covers, and chafe guards. Has excellent electrical and mechanical properties, is heat-sealable, transparent, chemically inert, and self-extinguishing. Available in eight sizes from 3/16″ to 1½″ I.D. Clear in color. Comes in two foot lengths.

Stock No.	Normal ID (inches)	Usable ID Range (in.)	Recovered Wall Thickness (in.)	No. Of Lengths Per Pkg.	Per Pkg.
37N324	3/16	.137-.169	.011	25	68.00
37N325	1/4	.182-.225	.013	25	95.63
37N326	3/8	.275-.338	.013	10	53.55
37N327	1/2	.379-.450	.013	10	69.46
37N328	3/4	.550-.675	.018	5	55.63
37N329	1	.731-.900	.022	5	92.29
37N330	1 1/4	.918-1.125	.030	1	20.89
37N331	1 1/2	1.100-1.350	.030	1	24.29



TYPE SRC MOLDED POLYOLEFIN SHRINK CAPS

- **Semi-rigid Polyolefin**
- **Abrasion Resistant and Flame Resistant**
- **Caps Shrink up to 50%**
- **Extremely Tough and Tight Fitting**

Heat shrinkable semi-rigid polyolefin caps radiation cross-linked for excellent electrical/mechanical properties. Small/lightweight. Chemical resistant. Shrinkable with standard heat guns. Color: black.

Size	Stock No.	Recom. Usable ID Range	Recovered Nom. Length	Recovered Nom.-Wall Thick.	Per Pkg. of 100 Pieces
1/8″	37N1424	.068 to .112	1″	0.020″	16.76
1/4″	37N1425	.138 to .225	1 1/8″	0.025″	22.97
3/8″	37N1427	.206 to .338	1 5/16	0.035″	29.22
1/2″	37N1426	.275 to .450	1 1/2″	0.040″	74.20

TYPE MLC MOLDED POLYOLEFIN SHRINK CAPS

WITH MELTABLE LINER

- **Easily Installed**
- **Resistant to Chemicals**

Crosslinked heat-shrinkable polyolefin caps. Easily installed with standard heat gun or torch with temperature in excess of 276°F. Excellent electrical and mechanical protection. Unaffected by most corrosive fuels, fluids and chemicals. On shrinking, an inner adhesive liner will melt and bond to the cable jacket to provide an environmental seal for telecommunication and power cables, pipes or other cylindrical objects. Color: black.

Stock No.	Size In.	Recom. Usable I.D. Range (in.)	Nominal Length	Recovered Nom. Wall Thickness	Caps Per Pkg.	Per Pkg.
16N1067	3/16	.088-.144	1.000″	.040″	25	11.34
16N1068	1/4	.132-.225	1.100″	.050″	25	16.05
16N1069	3/8	.198-.324	1.300″	.060″	25	20.79
16N1070	1/2	.176-.351	1.300″	.080″	1	1.82
16N1071	1	.407-.900	3.500″	.080″	1	3.48
16N1072	2	.825-1.800	4.500″	.100″	1	4.57
16N1073	3	1.375-2.700	7.000″	.110″	1	7.92

VOLTREX® brand Tubing

SPC technology

TYPE HST-VOLTREX HEAT SHRINKABLE TAPE

- Reliable Connections
- Two Layers
- Inner Meltable Liner
- Color Black

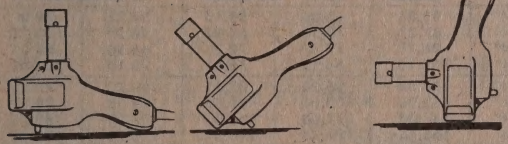
When taping is necessary as in the case of a working line, HST is the most reliable choice for long life and superior electrical properties. This two layered tape puts the correct amount of tension all around the joint automatically. No extra techniques or training needed. The inner meltable liner adheres to almost all clean surfaces for positive moisture protection. Color: black. 54 ft. rolls.

Stock No.	Tape Width	Roll Length	Net per Roll 1- 9	10-19	20-99
16N1127	¾"	10'	2.55	2.12	1.86
16N1074	¾"	54'	12.75	10.59	9.28
16N1076	1½"	54'	25.35	21.18	18.53
16N1078	3"	54'	50.55	41.80	36.36

WHISPER "6" HIGH-TEMPERATURE HEAT GUN

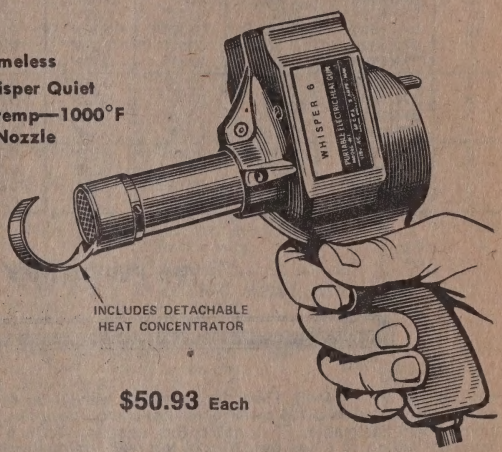
6-POSITION SET-UP

1. Right Side Horizontal
2. Left Side Horizontal
3. Hand-Held Position



4. Upside-down
5. Angled
6. Straight Ahead

- Flameless
- Whisper Quiet
- Hi-temp—1000°F at Nozzle



$50.93 Each

Whisper—"6" Voltrex hi-temperature heat gun. Flameless. Specially designed for shrinking Voltrex tubing and for general heat shrink applications. Whisper quiet. Light weight. Noise level: R.F.—none; audible—none. Reduces operator fatigue; increases production. Preferred over noisy, air-blast types for day-in, day-out use. Reaches 1000°F at nozzle (measured with thermocouple). Shrinks full range of tubing types, including Teflon. Can be instantly set up in 6 positions without a stand. Safer and easier to use. Controlled heat path permits positioning hands close to side of nozzle end without burning fingers. Assures precision control of the shrinking process.

37N1447 .....Each **50.93**
37N1448. Replacement heat element .....Each **4.29**

TEFLON INSULATING TUBING

AMS-3655A-3653C

Extremely high operating temperature range and chemical inertness make Voltrex Teflon insulating tubing unparalleled by any other material in electrical applications. Will not crack or become brittle. Remains flexible throughout entire operating temp. range. Available in thin wall, allowing miniaturization and compactness.

Also available in standard wall (next page) where extra dielectric or mechanical strength are required. Stocked in 100' spools. Other spools sizes and tubing cut to length available on special order. Color: Natural. *DuPont Registered Trademark.

13

E52331

TTI TYPE THIN-WALL TEFLON TUBING

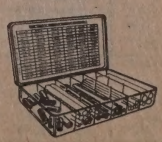
Size	Stock No.	Inside Diameter Nominal	Max.	Min.	Wall Thickness Nominal	±	Per 100 Ft. Spool 100-199'	200-499'	500-999'	1000-4999'	5000-9999'
30	37N488	0.012"	0.015"	0.010"	0.009"	0.002"	13.30	10.64	9.67	8.87	7.98
28	37N489	0.015"	0.019"	0.013"	0.009"	0.002"	11.68	9.34	8.49	7.78	7.01
26	37N490	0.018"	0.022"	0.016"	0.009"	0.002"	10.50	8.40	7.64	7.00	6.30
24	37N491	0.022"	0.027"	0.020"	0.010"	0.002"	11.48	9.18	8.35	7.65	6.89
22	37N492	0.028"	0.032"	0.025"	0.010"	0.002"	13.48	10.78	9.80	8.98	8.09
20	37N493	0.034"	0.040"	0.032"	0.012"	0.003"	16.30	13.04	11.85	10.87	9.78
18	37N494	0.042"	0.049"	0.040"	0.012"	0.003"	19.05	15.24	13.85	12.70	11.43
16	37N495	0.053"	0.061"	0.051"	0.012"	0.003"	22.75	18.20	16.55	15.17	13.65
14	37N496	0.066"	0.074"	0.064"	0.012"	0.003"	25.03	20.02	18.20	16.68	15.02
12	37N481	0.085"	0.091"	0.081"	0.012"	0.003"	30.48	24.38	22.16	20.32	18.29
10	37N482	0.106"	0.112"	0.102"	0.012"	0.003"	37.20	29.16	26.51	24.30	21.87
8	37N483	0.133"	0.141"	0.129"	0.015"	0.004"	57.15	45.72	41.56	38.10	34.29
6	37N484	0.166"	0.178"	0.162"	0.015"	0.004"	64.35	55.62	50.56	46.35	41.72
4	37N485	0.208"	0.224"	0.204"	0.015"	0.004"	85.60	68.48	62.26	57.07	51.36
2	37N486	0.263"	0.278"	0.258"	0.015"	0.004"	105.93	84.74	77.04	70.62	63.56
0	37N487	0.330"	0.347"	0.325"	0.015"	0.004"	130.90	104.72	95.20	87.27	78.54

FREE CATALOG!

Free 32 page Voltrex Brand tubing catalog and engineering manual. Contains charts, tables, application data, etc. A complete reference manual for the tubing user. Contact Newark for your copy.

VOLTREX TUBING KITS

Heat shrinkable product kits provide assortments of various sizes, colors, and materials. Ideal for lab prototyping or maintenance. See index in back of book for listing of kit pages.



VOLTREX® brand Tubing

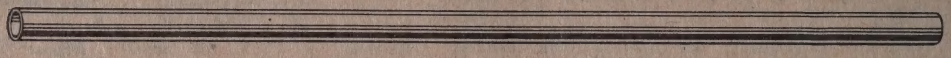
E52331

TYPE TSI — STANDARD WALL TEFLON TUBING

Size	Stock No.	Inside Diameter			Wall Thickness		Per 100 Ft. Spool				
		Nominal	Max.	Min.	Nominal	±	100-199′	200-499′	500-999′	1000-4999′	5000-9999′
24	37N1580	0.022″	0.027″	0.020″	0.012″	0.002″	18.13	14.50	13.18	12.08	10.82
22	37N1581	0.028″	0.032″	0.025″	0.012″	0.002″	18.45	14.76	13.42	12.30	11.01
20	37N1582	0.034″	0.040″	0.032″	0.016″	0.003″	25.00	20.00	18.18	16.67	14.93
19	37N1583	0.038″	0.044″	0.036″	0.016″	0.003″	26.25	21.00	19.09	17.50	15.67
18	37N1584	0.042″	0.049″	0.040″	0.016″	0.003″	26.58	21.26	19.33	17.72	15.87
17	37N1585	0.047″	0.054″	0.045″	0.016″	0.003″	28.13	22.50	20.45	18.75	16.79
16	37N1586	0.053″	0.061″	0.051″	0.016″	0.003″	29.38	23.50	21.36	19.58	17.54
15	37N1587	0.059″	0.067″	0.057″	0.016″	0.003″	31.25	25.00	22.73	20.83	18.67
14	37N1588	0.066″	0.074″	0.064″	0.016″	0.003″	33.45	26.76	24.33	22.30	19.97
13	37N1589	0.076″	0.082″	0.072″	0.016″	0.003″	37.20	29.76	27.05	24.80	22.21
12	37N1590	0.085″	0.091″	0.081″	0.016″	0.003″	40.33	32.26	29.33	26.88	24.07
11	37N1591	0.095″	0.101″	0.091″	0.016″	0.003″	44.70	35.76	32.51	29.80	26.69
10	37N1592	0.106″	0.112″	0.102″	0.016″	0.003″	49.70	39.76	36.15	33.13	30.67
9	37N1593	0.118″	0.124″	0.114″	0.020″	0.004″	68.73	54.98	49.98	45.82	41.24
8	37N1594	0.133″	0.141″	0.129″	0.020″	0.004″	75.40	60.32	54.84	50.27	45.24
7	37N1595	0.148″	0.158″	0.144″	0.020″	0.004″	81.33	65.06	59.15	54.22	48.80
6	37N1596	0.166″	0.178″	0.162″	0.020″	0.004″	87.83	70.26	63.87	58.55	52.70
5	37N1597	0.186″	0.198″	0.182″	0.020″	0.004″	96.75	77.40	70.36	64.50	58.05
4	37N1598	0.208″	0.224″	0.204″	0.020″	0.004″	105.15	84.12	76.47	70.10	63.09
3	37N1599	0.234″	0.249″	0.229″	0.020″	0.004″	120.33	96.26	87.51	80.22	72.20
2	37N1600	0.263″	0.278″	0.258″	0.020″	0.004″	132.08	105.66	96.05	88.05	79.25
1	37N1601	0.294″	0.311″	0.289″	0.020″	0.004″	147.00	117.60	106.91	98.00	88.20
0	37N1602	0.330″	0.347″	0.325″	0.020″	0.004″	165.43	132.34	120.31	110.28	99.26

TYPE PVI-VOLTREX PVC-105 INSULATING TUBING

E52331



MIL-I-631D, MIL-I-7444B. Flexibility, abrasion resistance, and low cost make Voltrex PVC-105 an excellent general purpose insulating tubing. Non-flammable. FR-1 rated. See chart on page 472 for complete listing of properties. No. 24 thru ⅝″ tubing stocked in 100′ spools. ¾″ thru 2½″ tubing stocked in 50′ spools. All marked in accordance with UL requirements. Colors: Black, white and clear in sizes No. 24 thru 1″; black and clear in sizes 1⅛″ thru 2½″.

Size	Stock No.	Inside Diameter			Wall Thickness		Per 100 Ft. Spool			
		Nominal	Max.	Min.	Nominal	±	1-499′	500-999′	1000-4999′	5000-9999′
24	37N600	0.022″	0.027″	0.020″	0.012″	0.002″	6.20	4.13	3.65	3.27
22	37N601	0.027″	0.032″	0.025″	0.012″	0.002″	6.30	4.20	3.71	3.32
20	37N602	0.034″	0.039″	0.032″	0.016″	0.003″	6.40	4.27	3.76	3.37
19	37N707	0.038″	0.044″	0.036″	0.016″	0.003″	6.50	4.33	3.82	3.42
18	37N603	0.042″	0.049″	0.040″	0.016″	0.003″	6.65	4.43	3.91	3.50
17	37N706	0.047″	0.055″	0.045″	0.016″	0.003″	6.75	4.50	3.97	3.55
16	37N604	0.053″	0.061″	0.051″	0.016″	0.003″	6.90	4.60	4.06	3.63
15	37N705	0.059″	0.066″	0.057″	0.016″	0.003″	7.00	4.67	4.12	3.68
14	37N605	0.066″	0.072″	0.064″	0.016″	0.003″	7.15	4.77	4.21	3.76
13	37N704	0.076″	0.080″	0.072″	0.016″	0.003″	7.40	4.93	4.35	3.89
12	37N606	0.085″	0.089″	0.081″	0.016″	0.003″	7.90	5.27	4.65	4.16
11	37N703	0.095″	0.101″	0.091″	0.016″	0.003″	8.35	5.57	4.92	4.40
10	37N607	0.106″	0.112″	0.102″	0.016″	0.003″	8.85	5.90	5.21	4.66
9	37N702	0.118″	0.124″	0.114″	0.020″	0.003″	9.45	6.30	5.56	4.97
8	37N608	0.133″	0.141″	0.129″	0.020″	0.003″	9.90	6.60	5.82	5.21
7	37N701	0.148″	0.158″	0.144″	0.020″	0.003″	10.20	6.80	6.00	5.37
6	37N609	0.166″	0.178″	0.162″	0.020″	0.003″	10.70	7.13	6.29	5.63
5	37N700	0.186″	0.198″	0.182″	0.020″	0.003″	11.20	7.47	6.59	5.89
4	37N610	0.208″	0.224″	0.204″	0.020″	0.003″	11.80	7.87	6.94	6.21
3	37N1438	0.234″	0.249″	0.229″	0.020″	0.003″	12.65	8.43	7.44	6.66
2	37N611	0.263″	0.278″	0.258″	0.020″	0.003″	13.65	9.10	8.03	7.18
1	37N1439	0.294″	0.311″	0.289″	0.020″	0.003″	14.70	9.80	8.65	7.74
5/16″	37N612	0.313″	0.334″	0.313″	0.025″	0.003″	18.75	12.50	11.03	9.87
0	37N613	0.330″	0.347″	0.325″	0.020″	0.003″	16.05	10.70	9.44	8.45
3/8″	37N614	0.375″	0.399″	0.375″	0.025″	0.003″	21.40	14.27	12.59	11.26
7/16″	37N1440	0.438″	0.462″	0.438″	0.025″	0.003″	20.75	13.83	12.21	10.92
1/2″	37N615	0.500″	0.524″	0.500″	0.025″	0.003″	23.50	15.67	13.82	12.37
9/16″	37N1441	0.563″	0.585″	0.563″	0.025″	0.003″	31.00	20.67	18.24	16.32
5/8″	37N616	0.625″	0.655″	0.625″	0.030″	0.003″	33.90	22.60	19.94	17.84
							Per 50 Ft. Spool			
3/4″	37N617	0.750″	0.786″	0.750″	0.035″	0.005″	25.56	20.47	16.14	13.96
7/8″	37N618	0.875″	0.911″	0.875″	0.035″	0.005″	29.24	23.41	18.46	15.97
1″	37N619	1.000″	1.036″	1.000″	0.035″	0.005″	40.34	34.30	25.39	21.48
1 1/8″	37N1572	1.125″	1.163″	1.125″	0.040″	0.005″	57.04	48.51	35.90	30.37
1 1/4″	37N1573	1.250″	1.290″	1.250″	0.040″	0.005″	57.04	48.51	35.90	30.37
1 3/8″	37N1574	1.375″	1.420″	1.375″	0.045″	0.006″	61.40	52.21	38.63	32.68
1 1/2″	37N1575	1.500″	1.550″	1.500″	0.045″	0.006″	76.34	64.91	48.04	40.63
1 3/4″	37N1576	1.750″	1.812″	1.750″	0.055″	0.008″	106.21	90.31	66.82	56.53
2″	37N1577	2.000″	2.070″	2.000″	0.060″	0.010″	134.62	114.48	84.71	71.66
2 1/4″	37N1578	2.250″	2.330″	2.250″	0.065″	0.012″	162.63	138.29	102.34	86.57
2 1/2″	37N1579	2.500″	2.590″	2.500″	0.070″	0.014″	178.80	149.49	110.62	93.58

Wire Strippers & Heat Guns

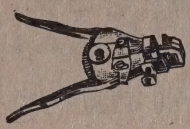
STRIPMASTER

Automatic single squeeze feature, holds jaws open for removing wire without crushing end. For stripping lighter gauge wires, 6 holes, except 14-22, with 4 holes. Shipping weight 14 oz.

Stock No.	Type	AWG Gauge	NET
58F553	45-093	No. 14 to 22 wire	9.50
58F554	45-097	No. 16 to 26 wire	
58F555	45-098	No. 20 to 30 wire	

CUSTOM STRIPMASTER®

Unique blade construction and extreme holding power of broad jaws permit fast accurate stripping. Strips without nicking wire, or marking insulation to meet the most rigid inspection standards. Includes short stop latch and adjustable wire stop. Wt. 14 oz.



Stock No.	Type	AWG Gauge	NET
58F550	45-186	No. 10 to 14 Wire	31.20
58F551	45-187	No. 16 to 26 Wire	
58F552	45-188	No. 26 to 30 Wire	

T-TYPE WIRE STRIPPER

For clean stripping of wires used in electronic instruments and appliances. Sturdy, compact, constructed of hardened steel for rugged duty and long service. Comfortable plastic grips for sure handling and safety. Wt. 5 ozs.

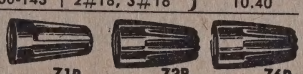
Stk. No.	Type	AWG Gauge	NET
58F586	45-120	No. 10 to 18 Solid	3.50
58F587	45-121	No. 16 to 26 Standard	3.50
59F1103	45-125	No. 22 to 30 Solid	3.95

ALL-PLASTIC WIRE CONNECTORS

A low-cost screw-on connector for OEM production. U.L. and C.S.A. listed for 300V max. temp. rating 105°C max. Average shipping weight 1¾ lbs./1000.

Stk. No.	Model	Type	Min. & Max. Wire Combin.	Net Per 1000
35F2458	A0/A1	30-140	2#24, 2#18	7.44
59F1104	A-3	30-143	2#18, 3#16	10.40

WIRE-NUT® WIRE CONNECTORS



Screw-on connector for fast, economical production line use. Tapered spring insert. 71B, and 72B models are listed as 300V Fixture-Type splicing connectors. 73B is listed as 600V. Larger models 74B and 76B are listed as 600V Pressure-Type connector for Cu/Cu, Al/Al and Cu/Al wire connectors. Temp. rating: 71B and 72B 150°C.; 73B, 74B and 76B, 105°C.

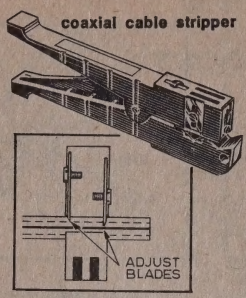
Stk. No.	Model	Type	Min. & Max. Wire Combin.	Net per 100	Net per 1000
35F2450	71B	30-071	....	1.65	..
35F2451	71B	30-171	2#18, 2#16	..	13.15
59F1111	72B	30-072	2#18, 3#16	2.05	..
59F1112	72B	30-172	2#18, 3#16	..	16.40
35F2452	73B	30-073	2#18, 3#16	2.45	..
35F2453	73B	30-173	1#18	..	19.95
35F2454	74B	30-074	1#14, 1#18	2.80	..
35F2455	74B	30-174	2#14, 3#16	..	22.55
35F2456	76B	30-076	1#12, 2#18	3.95	..
35F2457	76B	30-176	2#10, 1#12	..	31.95

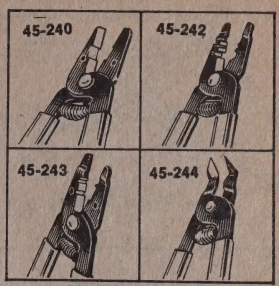
COMBINATION CRIMP TOOL

Five tools in one! Crimps, strips, cuts wire, cuts screws and bolts and cleans and chases threads. Lightweight 8-inch hardened steel tool.

Stock No.	Type	Description	NET
59F1118	30-428	Combination Crimp Tool	6.35
59F1119	30-429	Multi-Crimp Tool	9.45

STRIPPERS AND CUTTERS IDEAL





Small, lightweight, simple strippers and cutters.

Stk. No.	Type	Oz.	Description	NET
20F970	45-162	3	Coaxial stripper, up to ⅛" O.D.	7.95
20F971	45-163	3	Coaxial stripper, ⅛ to ¼" O.D.	7.95
20F972	45-164	7	Coaxial stripper, ¼ to 9/16" O.D.	11.95
20F973	L-9225	1	Replacement Blade set for 45-162 and 45-163.	1.25
20F974	L-9226	1	Replacement Blade set for 45-164.	1.50
20F975	45-240	3	Stripper and slitter for parallel cord.	4.95
20F976	45-242	3	Coaxial stripper and plier.	5.95
20F977	45-243	3	Stripper, 300 ohm twin lead TV antenna wire.	5.95
20F978	45-244	3	45° wire cutter.	7.95

PORTABLE ELECTRIC HEAT GUN

46-013 Standard heat gun. **46-021** High capacity with greater air volume. Lower temp. green nozzle for Mylar and high temp. red nozzle for Teflon. May be hand held or stood up on any tabletop. Standard Wt.: 1¾ lb.; High Capacity Wt.: 3½ lbs.

Stock No.	Type	Description	NET
59F1113	46-013	Heat Gun w/gold nozzle only	39.95
59F1114	46-921	Green Nozzle for 46-013	6.85
59F1115	46-922	Gold Nozzle for 46-013	5.85
59F1116	46-923	Red Nozzle for 46-013	5.85
20F982	46-021	High Cap. Heat Gun w/gold Nozzle	64.85
20F983	46-932	Gold Nozzle for 46-021	11.20
20F984	46-933	Red Nozzle for 46-021	11.20

ELECTRIC MARKER

Marks metal, glass, stone, ceramics, plastics, hard rubber, wood, etc. Vibrates at 7200 strokes per minute. Unique construction reduces "bouncing".

Stock No.	Type	Description	NET
58F583	11-111	w/carbide tipped point	17.50

"SWIVEL-BLADE" CABLE STRIPPER

Strips most types of cable. Cuts outer sheathing without damaging inner conductors or insulation. Can be used on coaxial and power cables from 3/16" to 1½" O.D. Adjustable blade strips insulation, up to 5/32". Unique "swivel blade" automatically turns to direction in which tool is moved. Weight: 4 oz.

Stock No.	Type	Description	NET
35F2460	45-127	stripper w/utility knife for 5/16" to ¾" O.D.	7.95
35F2461	45-128	stripper for 5/16" to ¾" O.D.	7.95
59F1117	45-129	stripper for ¾" to 1½" O.D.	8.95

E-Z CHECK PLUG-IN RECEPTACLE CIRCUIT TESTER

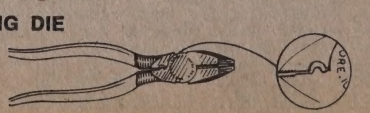
Identifies faults in 3-wire, 125 VAC receptacles. Checks for open ground, reverse polarity, open hot, open neutral, hot and ground reversal, hot on neutral, hot open. Features superbright indicator lights and safer push-pull shape.

Stock No.	Type	Each
35F2462	61-035	5.45

ELECTRICIAN'S PLIERS WITH CRIMPING DIE

8½" Electricians' pliers with built-in crimping die. Can be used for twisting wires and deburring conduit. Has New England nose and special plastic grips. Shipping wt. 1 lb.

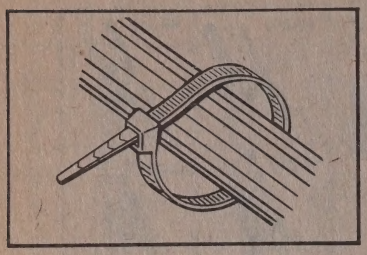
Stock No.	Type	Description	Each
35F2463	30-420	Electricians' Pliers	9.25



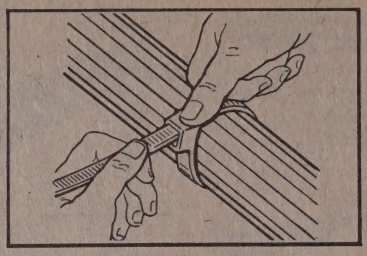
VOLTREX brand Wiring Accessories

VOLTREX WIRE TIES

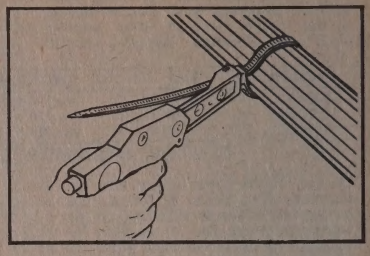
The Fast, Neat, And Professional System For Permanent Bundling Of Wire & Cable



Place VOLTREX Tie around Wire/cable bundle.



Pull VOLTREX Tie through locking head, down to bundle. Serrated tip is easy to grip.



Tension tightening, final locking and flush trimming is automatic with a squeeze of the finger.

FEATURES:

- Serrated ties with self-locking head
- Miniature ties have bent tip for easy insertion
- Manufactured from the finest virgin Nylon
- One piece construction
- Tens-N-Cut Hand Gun assures a better wire/cable tying system

Flexible ties — precision molded of high strength, self-extinguishing, fungus inert virgin Nylon — wrap easily around wire/cable bundles. The tapered tail is inserted by hand into the ties self-locking head. Uniform gripping serrations allow convenient "pull-through" down to the bundle where the straps lock to eliminate slippage. The last step is final tensioning and excess trimming — automatically accomplished by the Tens-N-Cut tensioning hand gun, or, if the assembler chooses, a pair of pliers. Ties are available in either regular or screw-mount design. Ties are serviceable at temperatures to 275° F., maximum life and strength is attained at temperatures below 185° F.

REGULAR

Type	Maximum Bundle Diameter	Tensile Strength	Overall Length	Screw Size	Stock No.	Package of 100 1-9	Package of 100 10-Up	Stock No.	Package of 1000 1-9	Package of 1000 10-24	Package of 1000 25-49
VRT-06M	¾"	18#	4 3/16"	—	78N506	3.72	2.98	78N536	19.00	17.50	16.30
VRT-11M	1 3/8"	18#	5¾"	—	78N517	4.07	3.25	78N530	21.00	19.60	18.26
VRT-10I	1¼"	30#	5¾"	—	78N507	4.24	3.39	78N537	24.40	22.75	21.20
VRT-16I	2"	30#	7½"	—	78N518	5.36	4.28	78N531	26.60	24.80	23.10
VRT-16S	2"	50#	8"	—	78N508	5.35	4.28	78N538	29.40	27.40	25.55
VRT-22S	2¾"	50#	10¾"	—	78N509	10.47	8.38	78N539	60.23	57.22	54.67
VRT-36S	4½"	50#	15½"	—	78N510	12.35	9.88	78N540	66.78	63.44	60.08
VRT-34H	4¼"	120#	15"	—	78N511**	8.81	7.05	78N541*	58.25	55.65	53.03

MOUNTABLE

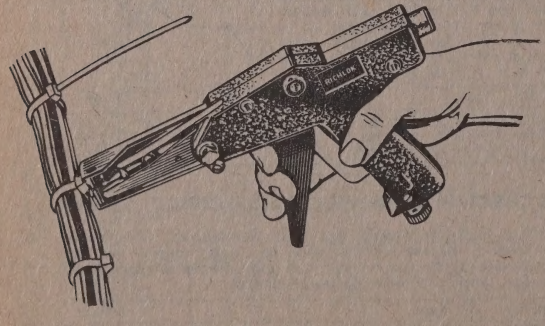
VMT-12S	1½"	50#	6¾"	#10	78N512	8.15	6.52	78N542	54.73	48.60	43.80
VMT-32H	4"	120#	15⅝"	¼"	78N526**	14.25	11.40	78N503*	90.47	83.79	75.72

*Pkg. of 500. **Pkg. of 50.

13

TENS-N-CUT

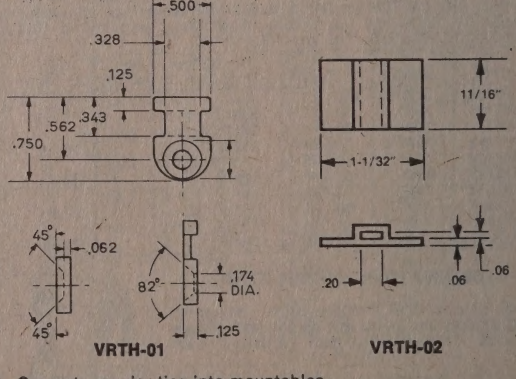
Automatic Hand Gun Tightens Ties to Pre-Set Tension and Trims Off Excess



Rugged, long-life construction — yet lightweight to prevent user fatigue. Adjustable tension permits drawing ties to required tightness — automatically. Trims ties flush for neat installations. Deposits waste when trigger is released.

Stock No.	Type	Description	Each
78N547	8408-001	Tens-N-Cut Hand Gun	55.65

VOLTREX WIRE TIE HOLDERS



- Converts regular ties into mountables

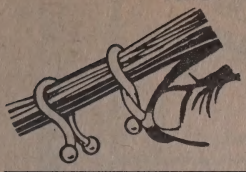
Voltrex wire tie holders easily convert regular ties into mountables. Type VRTH-01 provides a countersink .174" dia. hole for mounting the holder with a #8 screw. Type VRTH-02 is supplied with an adhesive backing for a quick press mount to any clean flat surface.

Stk. No.	9ype	Description	Pkg. of 100 1-9	Pkg. of 100 10-49
23N3669	VRTH-01	Screw mounted holder	6.20	4.95
23N3670	VRTH-02	Adhesive backed holder	25.40	20.22

VOLTREX brand Wiring Accessories

SPC technology

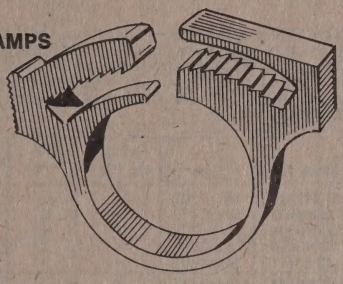
TWIST TYPE WIRE TIES



You are bound to save money by using these twist type Nylon ties for wire bundles, or other applications. The time saved is substantial, they're easy to use, and reusable! Just twist the ends together. Another flick of the fingers release the tie instantly. Color: White.

Stock No.	Type	Bundle Dia.	Approx. Height	Package of 100 1-9	10-49	50-99	100-249
78N594	TWT-3	.2-.3″	.900″	2.86	1.71	1.36	1.18
78N595	TWT-4	.3-.4″	1.032″	3.08	1.84	1.46	1.27
78N596	TWT-5	.4-.5″	1.200″	3.30	1.97	1.57	1.37
78N597	TWT-8	.7-.8	1.550″	3.96	2.36	1.64	1.45

CABLE/HOSE CLAMPS



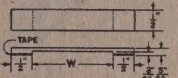
- Installs in seconds with pliers
- Tough, durable and positive
- Adjustable and removable
- Simple, secure, fast and safe
- Reduces installation costs
- Molded in many stock sizes
- Light-weight molded plastic

Voltrex Cable/Hose Clamps are easily applied snap-clamps for use in a variety of product applications and industries. Advantages for ease of installation and cost reduction, especially where replacing metal clamps. Can be installed in seconds with a standard pair of pliers, sometimes with only two fingers. No special tools required. Safe, adjustable and removable by a twist action with pliers.

Stk. No.	Type	Eff. Clamp Dia. Min.	Max.	Package of 100 1-9	10-49	50-99
23N3671	CHC-19	17/32	19/32	16.53	14.69	13.22
23N3672	CHC-21	19/32	21/32	17.18	15.27	13.74
23N3673	CHC-28	3/4	7/8	18.00	16.00	14.40
23N3674	CHC-32	7/8	1	18.28	16.25	14.62
23N3675	CHC-35	61/64	11/32	18.63	16.56	14.90
23N3676	CHC-38	11/32	13/16	19.33	17.18	15.46
23N3677	CHC-52	113/32	1 5/8	20.80	18.49	16.64
23N3678	CHC-58	119/32	113/16	25.03	22.25	20.02
23N3679	CHC-68	1 7/8	2 1/8	32.65	29.03	26.12
23N3680	CHC-76	2 1/8	2 3/8	36.80	32.72	29.44

FLAT CABLE CLAMPS

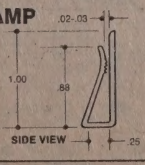
Designed expressly for holding flat conductors: flat flexible cable, ribbon cable, etc. Clamp's self-adhesive backing holds harness permanently in position. Made of high dielectric, self-extinguishing CPVC.



Stock No.	Type	Cable Width "W"	Package of 100 1-9	10-49	50-99	100-249
16N1062	FCC-1	½	17.13	10.20	8.13	7.07
16N1063	FCC-2	1	18.77	11.18	8.91	7.74
16N1064	FCC-4	2	19.56	11.65	9.28	8.07
16N1065	FCC-6	3	20.16	12.01	9.56	8.32

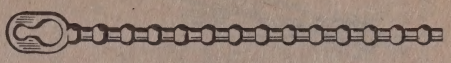
C-TYPE FLAT CABLE CLAMP

Voltrex Type CFCC 1″ self-adhesive Noryl C-type clamps, designed for routing of 1 to 6 layers 26-30 AWG flat or woven cable. ½″ or 1″ widths have serrated gripper-minimizing slippage. ¼″ profile good for limited access applications. The self-adhesive eliminates need for mounting holes or tools.



Stk. No.	Type	Clamp Width	Package of 100 1-9	10-49	50-99
23N3681	CFCC-1	½″	14.62	8.71	6.94
23N3682	CFCC-2	1″	17.56	10.46	8.33

BEADED WIRE TIES



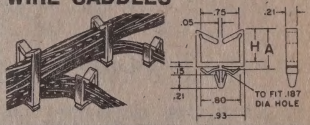
- Strong
- Durable
- Easy to apply and fasten
- Extra conductors can be added at any time
- Available in a range of lengths to suit the job
- Low cost

Wrap around the wire bundle, thread through the specially designed loop, pull it tight and lock in place. Stays put, holds harness together until released. To add more conductors to the bundle, open the tie, add the wires and refasten it. The ties are strong and durable with a high dielectric that makes them perfect for electrical harnesses. Polyethylene Type BTP, high dielectric ties come in various colors; Type BTN nylon ties are available in white only.

Stk. No.	Type	Length	Color	Package of 100 1-9	10-49	50-99
32N692	BTP-4-RED	4″	Red	1.84	1.21	.96
32N1250	BTP-4-YEL	4″	Yellow	1.84	1.21	.96
32N1251	BTP-4-BLU	4″	Blue	1.84	1.21	.96
32N1267	BTN-4-WHT	4″	White	3.91	2.56	2.04
23N3683	BTP-6-RED	6″	Red	3.70	2.42	1.93
23N3684	BTP-6-YEL	6″	Yellow	3.70	2.42	1.93
23N3685	BTP-6-BLU	6″	Blue	3.70	2.42	1.93
23N3686	BTN-6-WHT	6″	White	5.48	3.59	2.86
23N3687	BTP-8-RED	8″	Red	4.23	2.77	2.21
23N3688	BTP-8-YEL	8″	Yellow	4.23	2.77	2.21
23N3689	BTP-8-BLU	8″	Blue	4.23	2.77	2.21
23N3690	BTN-8-WHT	8″	White	7.18	4.70	3.75
23N3691	BTP-10-RED	10″	Red	5.28	3.46	2.76
23N3692	BTP-10-YEL	10″	Yellow	5.28	3.46	2.76
23N3693	BTP-10-BLU	10″	Blue	5.28	3.46	2.76
23N3694	BTN-10-WHT	10″	White	8.80	5.77	4.59

SNAP-IN WIRE SADDLES

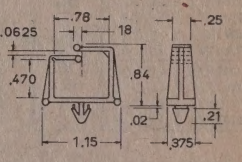
Nylon saddles to harness bundles of wire up to ¾″ wide. Locking tip snaps into .187″ dia. hole, expands to lock permanently in any position. No special tools required.



Stk. No.	Type	Wire Bundle Ht. "H"	"A"	Package of 100 1-9	10-49	50-99
16N1060	WS-20	.50″	.77″	5.68	3.38	2.70
16N1061	WS-30	.85″	1.12″	6.34	3.78	3.01

EXTRA WIDE WIRE SADDLES

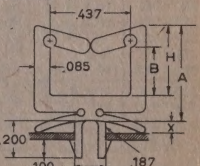
Voltrex WWS has a .780″ max. capacity. Top gates tension-lap to lock bundle in place. Reinforcing ribs on sides assure durability. Riding shoulders at base provide firm fit against chassis. Voltrex WWS tip locks on insertion into a .187″ dia. hole. Load locks in, saddle locks permanently into chassis. One size only. No tools required. High dielectric nylon.



Stk. No.	Type	Package of 100 1-9	10-49	50-99
23N3695	WWS-20	5.88	3.51	2.79

LOCKING WIRE SADDLES

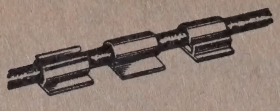
Voltrex Locking Wire Saddles channel a group of wires over a course and lock them firmly in position, inverted or at an angle. Pointed tips compress to snap into a .187″ dia. hole. Arched clip base positions saddle permanently. Wires and cable are inserted into the saddle and locked in position by squeezing sides to engage spring action lapped-grooves. Reusable. To unload, slide lapped-grooves sideways. Then reload and lock. Material is high dielectric nylon.



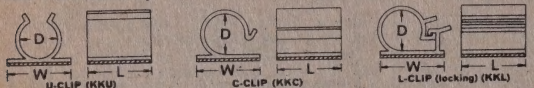
Stk. No.	Type	H	A	B	Package of 100 1-9	10-49	50-99
23N3696	LWS-10	.375	.510	.135	3.62	2.16	1.71
23N3697	LWS-20	.578	.715	.340	3.74	2.23	1.78
23N3698	LWS-30	.938	1.070	.695	5.03	3.00	2.39
23N3699	LWS-40	1.250	1.390	1.015	5.46	3.25	2.59

13

ADHESIVE CABLE HOLDERS



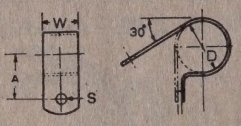
Stays in place permanently when adhesive mtd. For anchoring cable, tubing, pipe or rod up to ½" in diameter. Made from strong resilient CPVC plastic, elastic enough to receive components, firm enough to hold them securely.



U-CLIP (AUC) C-CLIP (ACC) L-CLIP (locking) (ALC)

Stk. No.	Type	Cable Dia. "D"	Clamp Width "W"	Clamp Length "L"	Desc.	Pkg. of 100 1-9	Pkg. of 100 10-49
16N1049	AUC-1	1/8	3/4	3/4	U-Clamp	14.60	8.70
16N1050	AUC-2	1/4	3/4	3/4	U-Clamp	16.59	9.88
16N1051	AUC-3	3/8	3/4	3/4	U-Clamp	18.55	11.05
16N1052	AUC-4	1/2	1	1	U-Clamp	20.59	12.26
16N1053	AUC-6	3/4	1	1	U-Clamp	29.36	17.48
16N1054	ACC-1	1/8	3/4	3/4	C-Clamp	14.63	8.72
16N1055	ACC-2	1/4	3/4	3/4	C-Clamp	16.57	9.87
16N1056	ACC-3	3/8	3/4	3/4	C-Clamp	18.53	11.04
16N1057	ACC-4	1/2	1	1	C-Clamp	20.61	12.27
16N1058	ACC-6	3/4	1	1	C-Clamp	29.33	17.47
32N689	ALC-2	1/4	3/4	3/4	Locking	17.58	10.47
32N684	ALC-4	1/2	1	1	Locking	22.10	13.16
32N682	ALC-6	3/4	1	1	Locking	31.82	18.95

CABLE CLAMPS



Anchor tubing, cable, wire bundles, rods, etc. securely and quickly with a single nail or screw. **Type ECC** ethyl cellulose clamps combine light weight and chemical resistance with excellent shock resisting properties in a temperature range from −40°F to 185°F.

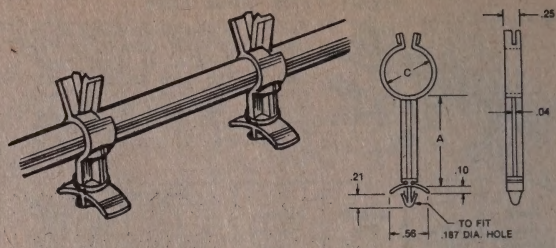
Stock No.	Type	Cable Dia. "D"	Clamp Width "W"	Screw Size "S"	"A"	Pkg. of 100 1-9	Pkg. of 100 10-Up
32N1269	ECC-2	1/8	1/2	#10	21/64	2.26	1.48
32N1270	ECC-3	3/16	1/2	#10	25/64	2.33	1.53
32N1271	ECC-4	1/4	1/2	#10	27/64	2.52	1.66
32N1272	ECC-5	5/16	1/2	#10	29/64	2.54	1.66
32N1273	ECC-6	3/8	1/2	#10	31/64	2.86	1.88
32N1275	ECC-8	1/2	1/2	#10	9/16	3.39	2.22
32N1277	ECC-10	5/8	1/2	#10	5/8	4.38	2.87
32N1279	ECC-12	3/4	1/2	#10	49/64	5.52	3.62
32N1281	ECC-16	1	1/2	#10	29/32	6.73	4.41

Type NCC cable clamps offer the same security and ease of installation as type ECC clamps above, but are made of nylon with a temperature range of from −60°F to 250°F.

Stock No.	Type	Cable Dia. "D"	Clamp Width "W"	Screw Size "S"	"A"	Pkg. of 100 1-9	Pkg. of 100 10-Up
32N1284	NCC-2	1/8	3/8	#8	21/64	3.45	2.26
32N1285	NCC-3	3/16	3/8	#8	25/64	3.65	2.39
32N1286	NCC-4	1/4	3/8	#8	27/64	3.99	2.61
32N1287	NCC-5	5/16	3/8	#8	29/64	4.00	2.88
32N1288	NCC-6	3/8	3/8	#8	31/64	4.63	3.04
32N1290	NCC-8	1/2	3/8	#8	9/16	5.22	3.42
32N1292	NCC-10	5/8	1/2	#10	5/8	8.22	5.38
32N1294	NCC-12	3/4	1/2	#10	49/64	9.76	6.39
32N1296	NCC-16	1	1/2	#10	29/32	11.91	7.80

NEWARK Your Dependable Source For All Your Electronic Needs

SNAP-IN STANDOFF CLIPS

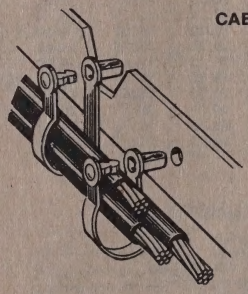


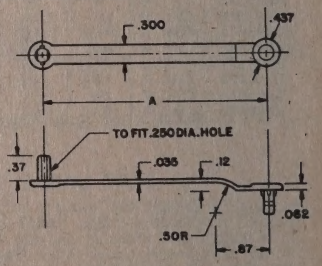
- Combination spacer/clip
- High dielectric strength
- Twist locking feature for cable
- One-piece nylon in 16 sizes
- No tools required
- "Barbed Arrow" locking tip

Type SSC clip elevates components and cable from ¼" to 1" away from chassis or panel to prevent inadvertent shorting. Clip portion of fastener has loading dia. of from ¼" to ¾" Small round components snap into clip for firm positioning. Clip bottom has locking tip which snaps into .187" **dia. hold and expands to lock permanently to chassis or panel.**

Stock No.	Type	Spacing Ht. "A"	Dia. "C"	Pkg. of 100 1-9	Pkg. of 100 10-49	Pkg. of 100 50-99
23N3626	SSC-0202	1/4	1/4	7.30	6.39	5.68
23N3627	SSC-0203	1/4	3/8	7.90	6.92	6.15
23N3628	SSC-0204	1/4	1/2	8.57	7.50	6.66
23N3629	SSC-0206	1/4	3/4	9.29	8.13	7.23
23N3630	SSC-0402	1/2	1/4	8.03	7.03	6.25
23N3631	SSC-0403	1/2	3/8	8.70	7.62	6.77
23N3632	SSC-0404	1/2	1/2	9.45	8.27	7.35
23N3633	SSC-0406	1/2	3/4	10.26	8.98	7.98
23N3634	SSC-0602	3/4	1/4	8.93	7.81	6.94
23N3635	SSC-0603	3/4	3/8	9.69	8.48	7.54
23N3636	SSC-0604	3/4	1/2	10.53	9.22	8.19
23N3637	SSC-0606	3/4	3/4	11.46	10.02	8.91
23N3638	SSC-0802	1	1/4	17.25	15.09	13.42
23N3639	SSC-0803	1	3/8	17.57	15.37	13.67
23N3640	SSC-0804	1	1/2	17.89	15.66	13.92
23N3641	SSC-0806	1	3/4	18.23	15.95	14.18

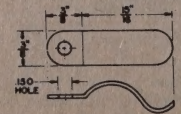
CABLE HANGERS





No tools required. Simply press cable hanger into a .250" dia. hole. Then wrap strap around load—the offset design allows more room to grab. Lock by inserting post into part—it fits easily and holds securely. Material is polypropylene.

Stock No.	Type	"A"	Holding Dia. Capacity	Pkg. of 100 1-9	Pkg. of 100 10-49	Pkg. of 100 50-99
23N3642	CH-03	1.75"	3/8"	3.96	2.36	1.88
23N3643	CH-05	2.75"	5/8"	4.40	2.62	2.09
23N3644	CH-08	3.75"	1"	6.38	3.80	3.03
23N3645	CH-10	4.75"	1¼"	7.02	4.18	3.34

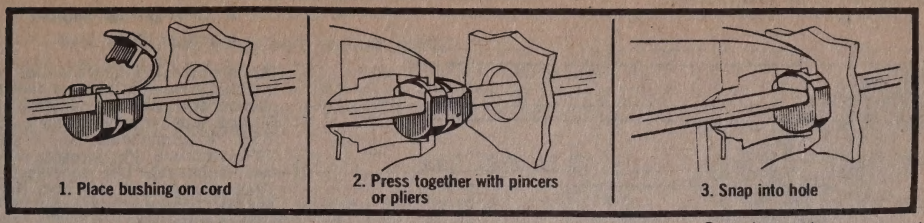


TENSION CLIP

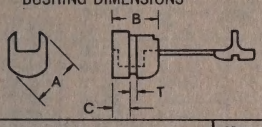
Celcon clips hold securely, permit easy removal. Clr: white.

Stock No.	Type	Pkg. of 100 1-9	Pkg. of 100 10-49	Pkg. of 100 50-99
23N3646	TC-1	5.11	3.35	2.67

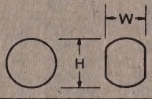
VOLTREX CORD STRAIN RELIEF BUSHINGS



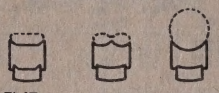
BUSHING DIMENSIONS



MOUNTING HOLES



KEY-CONTOUR STYLES



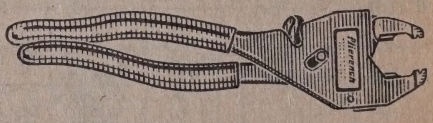
One-piece nylon-construction bushings withstand temperatures to 300°F. Easily installed with specially designed pincers or an ordinary pliers. Locked in place until deliberately removed for servicing. Eliminates strain that tears cords loose from contacts or connections. Won't injure insulation.

Cords Accommodated		Max. Panel Thick.	Dia.		Key				Stock		Packages of 100			
Wires	Cord Type	"T"	"H"	"W"	Contour	"A"	"B"	"C"	No.	Type	1-9	10-49	50-99	100-249
2-#18	SP-1; SPT-1	.062	.437	.395	Dual	.460	.410	.160	**16N1041**	SRD-10	**3.75**	**2.34**	**1.78**	**1.55**
2-#18	SP-1; SPT-1; XT	.062	.375	.345	Flat	.425	.410	.155	**16N1042**	SRF-10	**2.91**	**1.74**	**1.39**	**1.21**
2-#18	SP-1; SPT-1; XT	.125	.375	.345	Flat	.425	.410	.155	**16N1043**	SRF-20	**2.91**	**1.74**	**1.39**	**1.21**
2-#18 2-#16	SP-2; SPT-2; HPN SP-2; SPT-2; HPN	.100 .100	.500 .515	.465 .465	Flat Flat	.570 .570	.500 .500	.171 .171	16N1044	SRF-30	4.65	2.77	2.21	1.92
2-#18 3-#18 2-#16 3-#16	SPT-3 SPT-2 SPT-3 HPN	.130 .130 .130 .130	.562 .562 .562 .562	.530 .530 .530 .530	Flat Flat Flat Flat	.610 .610 .610 .610	.600 .600 .600 .600	.240 .240 .240 .240	16N1045	SRF-40	5.91	3.87	3.08	2.68
2-#18 3-#18 2-#16 3-#16	SPT-3 SPT-3 SPT-3 SPT-3	.125 .125 .125 .125	.730 .730 .730 .730	.560 .560 .560 .560	Flat Flat Flat Flat	.775 .775 .775 .775	.680 .680 .680 .680	.275 .275 .275 .275	16N1046	SRF-50	7.75	4.62	3.68	3.20
2-#18 3-#18 2-#16	HPD; SV; SVT SV; SVT HPD	.100 .100 .100	.500 .515 .515	.465 .465 .465	Round Round Round	.560 .560 .560	.430 .430 .430	.165 .165 .165	16N1047	SRR-10	4.65	2.77	.2 21	.192
2-#18 3-#18 4-#18 2-#16 3-#16	SJ; SST; SJO SJ; SJT; SJO SJ; SJT; SJO SJ; SJT; SJO SJ; SJT; SJO	.125 .125 .125 .125 .125	.625 .625 .625 .625 .625	.570 .570 .570 .570 .570	Round Round Round Round Round	.678 .678 .678 .678 .678	.585 .585 .585 .585 .585	.225 .225 .225 .225 .225	16N1048	SRR-20	7.75	4.62	3.68	3.20

PINCERS INSERTION TOOL FOR VOLTREX CORD STRAIN RELIEF BUSHINGS

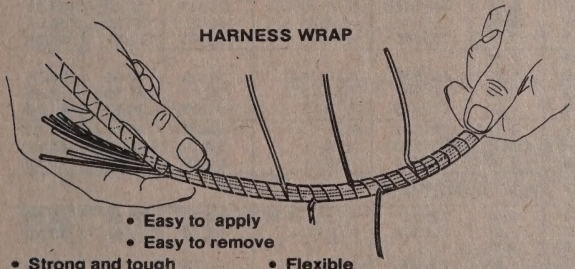
Tool makes assembly for Voltrex cord strain relief bushings a snap. Specially designed for use with the Voltrex line, this one tool will install all sizes of Voltrex strain reliefs.

23N3647 8408-050. NET **25.00**



13

HARNESS WRAP

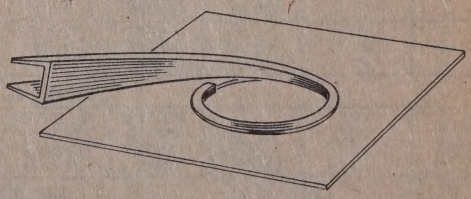


- Easy to apply
- Easy to remove
- **Strong and tough**
- **Flexible**
- **Reusable**
- **Versatile**

Provides protection for groups of conductors. For temporary or permanent installations. Useful for harnesses which carry wiring around sharp corners. Leads can be brought out at any point to make a "tailor-made," tight-fitting harness. Type HWN is nylon. Type HWP is polyethylene.

Stock No.	Type	Size	Bundle Range	Coil of 100 Ft. 1-9	10-49	50-99
23N3648	HWN-02	⅛"	1/16-½"	**12.87**	**12.47**	**12.23**
23N3649	HWN-03	3/16"	⅛-1"	**18.05**	**17.50**	**17.15**
23N3650	HWN-04	¼"	3/16-1½"	**23.23**	**22.53**	**22.06**
23N3651	HWN-06	5/16"	5/16-2"	**72.92**	**70.74**	**69.26**
23N3652	HWN-08	½"	¾-4"	**77.60**	**75.32**	**73.76**
23N3653	HWP-02	⅛"	1/16-½"	**10.98**	**7.19**	**5.73**
23N3654	HWP-03	3/16"	⅛-1"	**13.12**	**8.59**	**6.84**
23N3655	HWP-04	¼"	3/16-1½"	**14.16**	**9.27**	**7.38**
23N3656	HWP-06	5/16"	5/16-2"	**18.34**	**12.00**	**9.56**
23N3657	HWP-08	½"	¾-4"	**19.16**	**12.54**	**9.99**

CONTINUOUS GROMMET



- **For any size or shape opening**
- **In panels up to .250" thick**

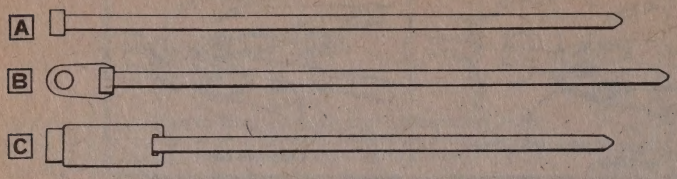
Line any shaped opening—for a smooth, safe, fray-free finishing touch. Protects wires, cables, and cords against damage from sharp panel edges. Eliminates the cost and space of stocking a variety of special grommets. Simply snip the grommet to the proper circumferential length and slip it over the panel edge. It fits snugly and securely and won't jar loose. Available in solid lengths of polyethylene in conveniently packaged 100 ft. lengths. Conforms to MIL-1-613D.

Stock No.	Type	Panel Thickness Range	100 Ft. Rolls 1-9	10-49	50-99
23N3658	CGP-1	To .036" (20 Ga.)	**6.47**	**5.82**	**5.18**
23N3659	CGP-2	.037-.105" (19-12 Ga.)	**7.53**	**6.77**	**6.03**
23N3660	CGP-3	.106-.164" (11-8 Ga.)	**8.65**	**7.79**	**6.92**
23N3661	CGP-4	.165-.187"	**15.12**	**13.62**	**12.10**
23N3662	CGP-5	.188-.250"	**21.82**	**19.64**	**17.46**

Wiring Products

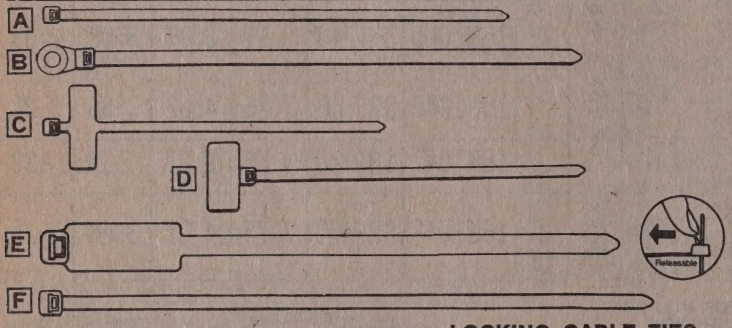
CABLE TIES AND CLAMPS-STA-STRAP SERIES SS

- **Hand or Tool Applied**
- **Natural Nylon Ties**



Permanent nylon ties for fast harnessing of wire bundles. Available as ties (SST-Fig. A), clamps with integral mounting tab (SSC-Fig. B) and identification markers (SSM-Fig. C), Type "M"=miniature tie, "I"=intermediate, "S"=standard, "H"=heavy duty. Sta-Straps meet applicable MIL specifications. Package sizes: C=100 and M=1000. **Recognized Under the Components Program of Underwriters Laboratories, Inc.**

Fig.	Bundle Dia. Max	Wt. Per 100	LP=Pkg. of 50; CP=Pkg. of 100 Stk. No.	Type	1-4	5-9	D=Pkg. of 500; M=Pkg. of 1000 Stk. No.	Type	1-9	10-24	25-49
A	¾"	4 oz.	78F516	SSTIM-CP	3.91	3.13	78F529	SST1M-MP	19.00	17.50	16.30
A	1½"	4 oz.	78F517	SST1.5M-CP	4.07	3.25	78F530	SST1.5M-M	21.00	19.60	18.26
A	1¼"	3 oz.	...	...	...	....	78F610	SST1.5I-M	24.40	22.75	21.20
A	1¾"	5 oz.	78F518	SST2I-CP	5.36	4.28	78F531	SST2I-M	26.60	24.80	23.10
A	3"	5 oz.	78F519	SST3I-CP	9.20	7.36	78F532	SST3I-M	52.80	51.00	48.90
A	1¾"	6 oz.	78F609	SST2S-CP	5.62	4.49	...	...	...	...	...
A	3"	6 oz.	78F520	SST3S-CP	10.99	8.80	78F533	SST3S-M	60.23	57.22	54.67
A	4"	9 oz.	78F521	SST4I-CP	11.66	9.32	78F534	SST4I-M	66.25	62.93	57.12
A	4"	1¼ lbs.	78F522	SST4H-LP	9.25	7.40	78F535	SST4H-D	58.25	55.65	53.03
A	8"	2¼ lbs.	78F523	SST8H-LP	19.11	15.29	...	...	...	...	...
B	1¾"	6 oz.	78F524	SSC2S-S10-CP	8.97	7.17	78F501	SSC2S-S10-M	60.34	53.58	48.29
B	4"	10 oz.	78F525	SSC4S-S10-CP	25.11	20.00	78F502	SSC4S-S10-M	141.10	125.28	112.92
B	4"	1¼ lbs.	78F526	SSC4H-S25-LP	14.25	11.40	...	...	...	...	...
C	1¾"	6 oz.	78F527	SSM2S-CP	18.10	14.48	78F504	SSM2S-D	54.76	39.53	35.56
C	4"	10 oz.	78F528	SSM4S-CP	23.00	18.40	...	...	...	...	...



PAN-TY ONE PIECE CABLE TIES, CLAMPS, MARKERS

Speed harness tying with one piece self locking cable ties. Permits tight installation on bundle with minimum effort. Installed by hand or with easy-to-use Panduit Cabling Tool GS2B (see below), to assure fast, uniform tensioning and flush cut-off. PRT Releasable Ties (Fig. E) are hand installed only. Normal service temperature: —40°C to 85°C. Natural nylon is standard. A total of ten colors are available on special order. Meets all applicable Military Specifications. **Recognized Under the Components Program of Underwriters Laboratories, Inc.**

LOCKING CABLE TIES

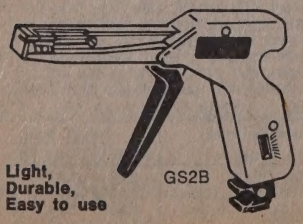
Fig.	Bundle Dia. Max.	Wt. Per 100	LP=Pkg. of 50; CP=Pkg. of 100 Stock No.	Type	1-4	5-9	M & MP=Package of 1000 Stock No.	Type	1-9	10-24	25-49
A	¾"	1½ oz.	78F506	PLT1M-CP	3.72	2.98	78F536	PLT1M-MP	19.00	17.50	16.30
A	1¼"	1¾ oz.	78F507	PLT1.5I-CP	4.24	3.39	78F537	PLT1.5I-MP	24.40	22.75	21.20
A	1¾"	2½ oz.	78F508	PLT2S-CP	5.35	4.28	78F538	PLT2S-MP	29.40	27.40	25.55
A	3"	3½ oz.	78F509	PLT3S-CP	10.47	8.38	78F539	PLT3S-M	60.23	57.22	54.67
A	4"	6½ oz.	78F510	PLT4S-CP	12.35	9.88	78F540	PLT4S-M	66.78	63.44	60.08
A	4"	1¼ oz.	78F511	PLT4H-LP	8.81	7.05	...	...	...	...	...
A	1¼"	0.16 oz.	78F580	PLT1.5M-CP	3.88	3.10	78F586	PLT1.5M-M	21.00	19.60	18.26
A	2"	¼ oz.	78F581	PLT2M-CP	4.22	3.38	78F587	PLT2M-M	22.84	21.30	19.85
A	2"	0.32 oz.	78F582	PLT2I-CP	5.10	4.08	78F588	PLT2I-M	26.60	24.80	23.10
A	1½"	½ oz.	78F583	PLT1.5S-CP	5.21	4.17	78F589	PLT1.5S-M	27.00	25.20	23.50
A	3"	½ oz.	78F584	PLT3I-CP	8.76	7.01	78F590	PLT3I-M	52.80	51.00	48.90
A	4"	½ oz.	78F585	PLT4I-CP	11.10	8.88	78F591	PLT4I-M	66.25	62.93	57.12

LOCKING CLAMP AND MARKERS

B	1¾"	.5 oz.	78F512	PLC2S-S10-CP	8.15	6.52	78F542	PLC2S-S10-M	54.73	48.60	43.80
C	¾"	1½ oz.	78F513	PLM1M-CP	7.77	6.21	78F543	PLM1M-M	54.75	48.65	43.80
D	1¾"	5 oz.	78F514	PLM2S-CP	15.67	12.53	...	...	...	...	...
F	¾"	0.20 oz.	78F592	PLF1M-CP	7.77	6.21	78F593	PLF1M-M	54.75	48.65	43.80

RELEASABLE CABLE TIES

E	2"	3½ oz.	78F515	PRT2S-CP	8.64	6.91	78F545	PRT2S-MP	46.78	42.53	42.53



- **Light,**
- **Durable,**
- **Easy to use**

GS2B GUN-TYPE CABLING TOOL

Hand operated tool ties all Panduit miniature, intermediate and standard cable ties, clamps, and markers. Incorporates and easy-to-use three position selector knob. Automatically tightens to pre-set tension, cuts cable tie flush, and ejects the cut off portion. Shpg. wt., 1 lb.

78F547. NET 55.65

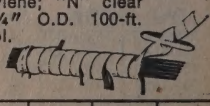
GS4H GUN-TYPE CABLING TOOL

Heavy duty cabling tool. Designed for PANDUIT standard and heavy duty cable ties and clamps. Shpg. wt., 1½ lbs.

78F566 NET 97.40

¼" O.D. SPIRAL CABLE WRAPPING

For bundles 3/16" to 2" dia. Suffix "F" clear polyethylene; "R" fire-resistant white polyethylene; "N" clear nylon. Std. ¼" O.D. 100-ft. coils. With tool. 2 lbs.



Stock No.	Type	1-9	10-49	50-Up
78F548	T-25F	10.98	8.79	7.82
78F549	T-25R	16.08	12.91	11.47
78F546	T-25N	24.60	19.68	17.47

Wiring Products

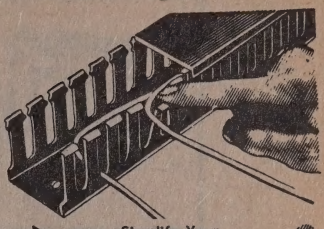
Recognized under the components program of Underwriters Laboratories, Inc.

PANDUIT CORP.

PLASTIC SNAP-SLOT WIRING DUCT

Vinyl plastic ducts. Standard 6 ft. sections can be cut with hacksaw. Snap-slot design permits easy insertion of wires. Wire can be removed with no electrical disconnect.

Use ducts with CS-1 corner strips. Order cover, below. Standard put-up 24-ft., in four 6-ft. lengths. Supplied in light gray.



Simplify Your Complex Wiring Projects

CS-1 Corner Strip Duct for Making Smooth Rounded Corners

WIRING DUCT						DUCT COVER TO FIT					
Stock No.	WxH In.	24-ft. Std. Pkg. Wt., Lbs.	PER PKG. 1-4	5-19	20-Up	Stock No.	W In.	24-ft. Std. Pkg. Wt., Lbs.	PER PKG. 1-4	5-19	20-Up
78F550	.5 x .5	3	16.08	12.48	11.52	78F562	.5	1	6.72	5.76	5.28
78F552	.5 x 1	4	19.75	15.85	14.95						
78F555	.75 x .75	3½	19.50	16.80	15.50	78F563	.75	1½	7.20	6.24	5.76
78F558	1 x 1	4	21.00	16.50	15.85						
78F559	1 x 1.5	4½	24.24	19.68	18.72	78F564	1	2½	8.32	6.80	6.20
78F560	1 x 2	5	27.36	21.84	20.40						
78F600	1 x 3	8½	34.56	28.08	26.16						
78F561	1.5 x 1.5	5	27.36	21.84	20.40						
78F601	1.5 x 2	4¾	31.20	24.96	22.80	78F570	1.5	2¼	8.28	7.20	6.84
78F602	1.5 x 3	8½	37.44	30.00	27.84						
78F603	2 x 2	5¾	30.00	24.00	22.08	78F607	2	2½	10.44	8.28	7.56
78F604	2 x 3	9½	39.36	30.96	28.56						
78F605	3 x 2	8½	36.24	29.28	27.36	78F608	3	3¼	13.00	10.85	9.95
78F606	3 x 3	10½	43.44	35.04	32.40						

MODEL CS-1 CORNER STRIP

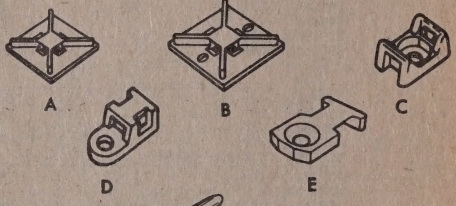
Easily cut to correspond to any duct length needed. Four 6' lengths per pkg. Shpg. wt., 100-ft., 15 lbs. Supplied in light gray.

Stk. No.	1-4	5-19	20-Up
78F565	13.60	11.85	11.25

CABLE TIE MOUNTING DEVICES

These make it easy to mount wires and cables to any surface in any position.

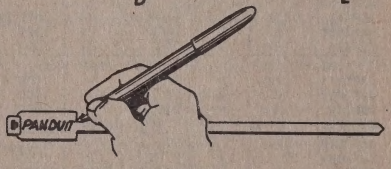
Stock No.	Type	Fig.	Description	Pkg. of 100 1-4	5-9
78F622	ABMM-A-C	A	Miniature adhesive Backed mount	21.59	17.27
78F623	ABM2S-A-C	B	Standard adhesive Backed mount	24.14	19.30
78F624	TM2S8-C	C	Tie mount	6.24	4.99
78F620	TA1S8-C	D	Tie anchor	6.20	4.95
78F625	LPMM-S5-C	E	Low profile mount	4.24	3.39



NYLON MARKING PENS

Used for permanently marking nylon parts.

Stock No.	Type	Color	Each 1-48	49 & over
78F626	PX-0	Black	2.30	2.06
78F627	PX-2	Red	2.30	2.06



13

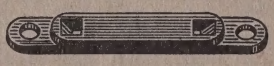
FLAT CABLE MOUNT—FOR MOUNTING OR BUNDLING FLAT CABLE

- **Screw or adhesive mounted**
- **Widths up to three inches**
- **Use with any flat cable**

For bundling, use two plates of same size and a cable tie.

For mounting, use a base and a plate of corresponding size and a cable tie.

F



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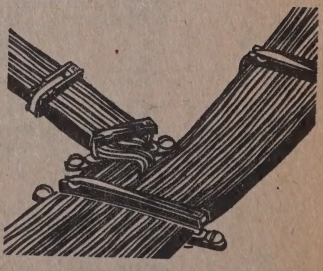


Cable Width	Type	Max. Flat Cable Stack Ht. (in.) PAN-TY PLT1.5I Cable Tie	PAN-TY PLT2I Cable Tie	PAN-TY PLT3I Cable Tie	PAN-TY PLT4I Cable Tie	Stk. No.	PKGS. OF 100 1-4	5-9
1"	FCPI1-C20	.8	2.0	3.7	5.2	78F571	6.95	5.55
2"	FCPI2-C20	.....	1.0	2.7	4.2	78F572	7.90	6.30
3"	FCPI3-C20	.....	.....	1.7	3.2	78F573	10.40	8.35
1"	FCBI1-S10-C20	.8	2.0	3.7	5.2	78F574	9.60	7.75
2"	FCBI2-S10-C20	.....	1.0	2.7	4.2	78F575	10.90	8.70
3"	FCBI3-S10-C20	.....	.....	1.7	3.2	78F576	13.85	11.00
1"	FCBI1-A-C20	.8	2.0	3.7	5.2	78F577	9.60	7.75
2"	FCBI2-A-C20	.....	1.0	2.7	4.2	78F578	10.90	8.70
3"	FCBI3-A-C20	.....	.....	1.7	3.2	78F579	13.85	11.00

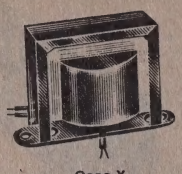
ADHESIVE BACKED FLAT CABLE CLAMPS

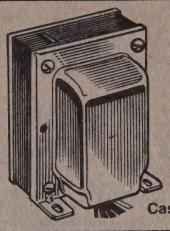
Used to mount flat cable up to 2" wide. Maximum stack height of 1¼". Releasable and reusable.

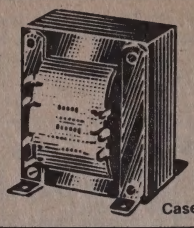
Stk. No.	Type	Wt. Per 100	Pkg. of 100 1-4	5-9
78F628	FCM2-A-C20	1.2 lbs.	31.46	25.17

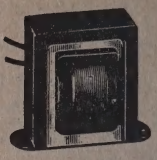
TRIAD-UTRAD
Litton Distributor Services

Power Transformers


Case X


Case A


Case U


Case Z

115V PRIMARY—SINGLE SECONDARY/50-60 Hz (unless noted with #)

Stk. No.	Type	Case Type	Secondary Volts	Secondary Amps	Test Voltage	Connections	Case Dimensions H	Case Dimensions W	Case Dimensions D	Mounting Dimensions MW	Mounting Dimensions MD	Mtg. Hole Size	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24
03F720	F-1X #	X	2.5CT	3	1500	Leads	1 5/8	2 13/16	1 5/8	2 3/8		3/16	.68	5.09	4.58
03F997	F-6X #	X	2.5CT	6	2500	Leads	1 15/16	3 5/16	1 3/4	2 13/16		3/16	1.0	6.98	6.28
03F722	F-3X #	X	2.5CT	10	3000	Leads	2 9/32	3 3/4	2 1/8	3 1/8		3/16	1.7	8.88	7.99
03F724	F-7X #	X	5CT	3	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	6.64	5.98
03F958	F-13X #	X	6.3	.6	1500	Leads	1 3/8	2 3/8	1 3/8	2		3/16	.37	4.26	3.83
02F1005	F313X same as F13X, 115/230 Primary													6.71	6.04
03F959	F-14X #	X	6.3CT	1.2	2500	Leads	1 5/8	2 13/16	1 5/8	2 3/8		3/16	.7	5.31	4.78
02F1006	F314X same as F14X, 115/230 Primary													6.45	5.81
03F999	F-52X	X	6.3	1.2	5000	Leads	1 15/16	3 5/16	1 3/4	2 13/16		3/16	1.0	7.62	6.86
03F960	F-16X	X	6.3CT	3	2500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	6.14	5.53
05F1376	F-43X #	X	6.3	4	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.25	6.17	5.55
03F961	F-18X #	X	6.3CT	6	1500	Leads	2 19/32	4	2 1/4	3 9/16		3/16	2.3	9.02	8.12
03F1000	F-21A	A	6.3CT	10	1500	1-Leads	3 1/32	1 31/32	3 1/8	2 1/4	2	3/8 x 3/16	3.8	16.34	14.71
03F777	F-22A	A	6.3CT	20	2000	2-Leads	3 3/8	3 3/32	4 1/8	2 1/2	3	3/8 x 3/16	7.0	22.81	20.53
03F631	F-28U†	U	7.5CT-6.3CT	25	3000	Leads & Lugs	4 5/8	3 13/16	3 5/8	3	3 1/16	5/16 x 3/16	7.5	31.84	28.66
03F1001	F-31X	X	10CT	3	2000	Leads	2 9/32	3 3/4	2 1/8	3 1/8		3/16	1.7	7.34	6.61
02F457	F-23U	U	10CT	7	1500	Leads	3 1/2	2 7/8	2 15/16	2 1/4	2 7/16	5/16 x 3/16	3.9	15.10	13.59
02F479	F-113X	X	12	.15	1500	Leads	1 3/8	2 3/8	1 3/8	2		3/16	.4	4.41	3.97
03F1008	F-114X	X	12	.7	1500	Leads	1 5/8	2 13/16	1 5/8	2 3/8		3/16	.8	7.03	6.33
03F632	F-29U†	U	12CT 11CT 10CT	11	3000	Leads	4 5/8	3 1/2	3 3/8	2 3/4	2 9/16	5/16 x 3/16	6.5	22.00	19.80
03F1002	F-70X	X	12.6CT	1.0	1500	Leads	1 15/16	3 5/16	1 3/4	2 13/16		3/16	1.3	7.40	6.66
03F778	F-25X	X	12.6CT	1.5	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	5.90	5.31
02F1007	F325X same as F25X, 115/230 Primary													7.67	6.90
05F1379	F-44X #	X	12.6CT	2.0	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.25	6.09	5.48
02F1008	F344X same as F44X, 115/230 Primary													8.72	7.85
03F996	F-26X #	X	12.6CT	2.5	1500	Leads	2 9/32	3 1/16	2	3 1/8		3/16	1.55	6.43	5.79
02F1009	F326X same as F26X, 115/230 Primary													7.93	7.14
02F478	F-112X	X	14CT	.25	1500	Leads	1 3/8	2 3/8	1 3/8	2		3/16	.4	4.50	4.05
03F1009	F-115X	X	24CT	.085	1500	Leads	1 3/16	2 1/16	1 1/4	1 3/4		3/16	.3	5.64	5.08
02F480	F-116X	X	24CT	.2	1500	Leads	1 3/8	2 3/8	1 1/2	2		3/16	.45	5.98	5.38
02F1036	F3116X same as F116X, 115/230 Primary													7.84	7.06
03F1011	F-117X	X	24CT	.4	1500	Leads	1 5/8	2 13/16	1 5/8	2 3/8		3/16	.8	6.00	5.40
03F1012	F-118X	X	24CT	.7	1500	Leads	1 15/16	3 1/4	2	2 13/16		3/16	1.3	5.98	5.38
02F532	F-45X #	X	24CT	1.0	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	6.09	5.48
02F1010	F345X same as F45X, 115/230 Primary													6.76	6.08
03F1003	F-46X #	X	24	1.0	1500	Leads	1 15/16	3 1/16	2 1/8	2 13/16		3/16	1.4	5.98	5.38
03F1004	F-57X	X	25.2CT	1.0	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.5	6.36	5.72
03F726	F-41X	X	25.2CT	2.0	1500	Leads	2 19/32	4	2 1/4	3 9/16		3/16	2.2	7.59	6.83
02F1011	F341X same as F41X, 115/230 Primary													10.57	9.51
03F1005	F-56X	X	25.2CT	2.8	1500	Leads	2 21/32	4	2 1/4	3 9/16		3/16	2.5	9.43	8.49
03F779	F-40X #	X	26.8CT	1.0	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	5.86	5.27
02F1012	F340X same as F40X, 115/230 Primary													8.76	7.88
02F456	F-55X	X	26.8CT	1.7	1500	Leads	2 19/32	4	2 1/4	3 9/16		3/16	2.3	7.43	6.69
05F1378	F-54X	X	35CT	1.5	1500	Leads	2 19/32	4	2 1/4	3 9/16		3/16	2.2	7.79	7.01
02F1013	F354X same as F54X, 115/230 Primary													10.09	9.08
03F1007	F-59X	X	60CT	.4	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	5.98	5.38

#60 Hz operation. †Tapped primary

F TYPE MULTIPLE SECONDARY/PRIMARY 115V, 60 Hz (unless noted with #)

Stk. No.	Type	Case Type	Secondary Volts	Secondary Amps	Secondary No. of	RMS Test Voltage	Connections	Case Dimensions H	Case Dimensions W	Case Dimensions D	Mounting Dimensions MW	Mounting Dimensions MD	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24
05F1381	F-34A #	A	6.3CT	1.75	Four	1500	2-Leads	3 5/16	2 21/32	3	2	2 1/16	3.3	15.69	14.12
04F435	F-42A #	A	12.6CT	2.5	Dual	1500	1-Leads	3 19/32	2 21/32	3 1/8	2 1/4	2	3.7	13.53	12.18
05F1382	F-83A†	A	12.6CT	5	Dual	P-1500 S-2500	2-Leads	3 7/8	3 9/32	3 3/4	2 1/2	2 5/8	6.0	23.38	21.04
			12.6CT	5											
02F1014	F-234Z	Z	12CT	.1	Dual	1500	Leads	1 1/16	2	1 3/8	1 23/32		.6	11.72	10.55
02F1015	F-235Z	Z	12CT	.25	Dual	1500	Leads	1 15/16	2 3/8	1 7/16	2		.65	11.17	10.05
02F1016	F-236Z	Z	12CT	.5	Dual	1500	Leads	2 5/16	2 7/8	1 3/4	2 3/8		.8	11.76	10.58
02F1017	F-237Z	Z	12CT	1.0	Dual	1500	Leads	2 1/16	3 1/8	2 1/16	2 13/16		1.8	10.02	9.02
02F1018	F-238U	U	12CT	2.0	Dual	1500	Leads	2 1/2	3	2 1/2	2 1/2	2	5.0	12.84	11.56
02F1019	F-239U	U	12CT	4.0	Dual	1500	Leads	3 1/8	3 3/4	3	3 1/8	2 3/4	8.5	21.16	19.04
02F1020	F-240U	U	12CT	6.0	Dual	1500	Leads	3 1/2	4 1/8	3 1/16	3 7/16	2 1/4	9.5	29.05	26.15
02F1021	F-241U	U	18CT	1.0	Dual	1500	Leads	2 1/2	3	2 1/2	2 1/2	2	3.0	15.31	13.78
02F1022	F-242U	U	18CT	2.0	Dual	1500	Leads	3 1/8	3 13/16	3 1/8	3 1/8	2 1/8	6.0	18.57	16.71
02F1023	F-243U	U	18CT	4.0	Dual	1500	Leads	3 7/16	4 1/8	3	3 7/16	2 1/4	7.0	25.33	22.80
02F1024	F-244U	U	18CT	8.0	Dual	1500	Leads	3 3/4	4 1/2	4 1/8	3 3/4	2 3/4	10.0	30.48	27.43
02F1025	F-245U	U	18CT	12.0	Dual	1500	Leads	4 1/16	4 7/8	4 1/8	3 11/16	2 3/4	11.0	39.74	35.77

#50-60 Hz operation. †Tapped primary 105-115-125

For a complete list of Triad standard line items ask Newark for latest Triad industrial catalog.

TYPE F LOW VOLTAGE RECTIFIER TRANSFORMERS—50/60 Hz.

Case X except (*) case A.

Stock No.	Type	Primary Volts	Secondary AC Voltage	Secondary AC Amps	Dimensions H	Dimensions W	Dimensions D	Wt. Lbs.	1-9	10-24	25-49	50-99
03F620	F-90X	115 Tapped	10-20CT-40CT	.1	1 5/8	2 13/16	1 5/8	3/4	5.95	5.36	4.82	4.53
03F621	F-91X	115 Tapped	10-20CT-40CT	.3	2 9/32	3 11/16	2	1 1/2	7.95	7.16	6.44	6.05
03F622	F-92A*	115 Tapped	10-20CT-40CT	.1	3 3/16	2 21/32	3	3 1/4	12.57	11.31	10.18	9.57
05F1350	F-93X	115 Tapped	10-20CT-40CT	.75	2 19/32	4	2 1/4	2.4	9.84	8.86	7.97	7.49
05F1351	F-94X	115 Tapped	10-20CT-40CT	.035	1 3/8	2 3/8	1 3/8	.5	6.12	5.51	4.96	4.66

TYPE F UNIVERSAL RECTIFIER TRANSFORMERS—Primary 50-60 Hz.

Case U.

Stock No.	Type	Primary Volts	Secondary VAC	Rectifier Amps RMS	Rectifier HW VDC	Rectifier FWB VDC	Mtg. MW	Dim. MD	Wt. Lbs.	1-9	10-24	25-49	50-99
03F984	F-47U	115	17-18	3	6-7	13-14	1 5/8	2 3/8	3.2	12.83	11.55	10.40	9.78
03F962	F-48U	115	17-18	6	6-7	13-14	2 1/2	2 11/16	5.5	17.07	15.36	13.82	12.99
03F985	F-49U	115	36-36	3	13	26	3	3 1/16	9.75	27.95	25.16	22.64	21.28
03F963	F-60U	115	6.5-13-19.5-26	3	9	18	2 1/4	2 9/16	3.5	12.76	11.48	10.33	9.71
03F964	F-360U Same as F-60U, 115/230 primary									13.57	12.21	10.99	10.33
03F986	F-61U #	115	24-27-30-33-36	3	13	26	2 1/2	2 11/16	5.65	18.16	16.34	14.71	13.83
03F987	F-67U #	100-120	24-27-30-33-36	8	13	26	3	3 5/16	10 3/4	36.12	32.51	29.26	27.50
03F965	F-64U	115	7-8-9	7		5-6-7	2 1/4	2 9/16	3.5	14.98	13.48	12.13	11.40
02F1026	F-74U	115	28CT	2	60	115	5/16	3/16	5.7	17.41	15.67	14.10	13.25
02F1027	F-84AC #	115-230	12CT	10	60	8.5	3/8	3/16	12.7	41.64	37.48	33.73	31.71
02F1028	F-85U	115	5-75	20	60	8-12.5	5/16	3/16	12.0	44.57	40.11	36.10	33.93

#60 Hz operation.

TYPE F UNIVERSAL RECTIFIER POWERS, 117V Primary, 50-60 Hz.

Case U.

Stock No.	Type	Secondary AC Volts	Secondary DC Amps Full Wave CT	Secondary DC Amps Full Wave Bridge	Mtg. MW	Dim. MD	Wt. Lbs.	1-9	10-24	25-59	50-99
03F1027	F-202U	11-29.5	2.0	1.25	2	2 1/8	2.5	12.03	10.83	9.75	9.17
03F1028	F-203U	12-30	4.0	2.0	2 1/4	2 3/8	3.8	15.29	13.76	12.38	11.64
03F1029	F-204U	11.5-29	8.0	4.0	2 1/2	2 7/8	6.1	21.88	19.69	17.72	16.66
03F1030	F-205U	12-29.5	12.0	6.0	2 3/4	3 1/4	9.1	31.03	27.93	25.14	23.63
02F1029	F-206U	12.1-29.2	15.0	8.0	2 15/16	8/4	12.6	48.05	43.25	38.93	36.59
02F1030	F-207U	12.2-29.0	22.5	12.0	3 1/2	4 1/4	20.5	60.52	54.47	49.02	46.08

SOLID STATE RECTIFIERS—Primary, 117V, 50/60 Hz—For Delco 50 & 100 W. Amps

Case A except (**) case B (not shown).

Stock No.	Type	Sec. V.	Test V.	Mtg. MW	Dim. In. MD	Wt. Lbs.	1-9	10-24	25-49	50-99
04F451	R-82B**	70	1500	2 3/4	3	8 1/4	23.81	21.43	19.29	18.13
04F460	R-205A	60	1500	2 3/4	2 11/16	6	24.19	21.77	19.59	18.41

CONTROL TRANSFORMERS/6, 12, 24 Volt Secondaries

Case Z except (†) case U.

Stock No.	Type	Primary 50/60 Hz	Secondary Parallel	Secondary Series	VA Rating	Mtg. Dim.	Wt. Lbs.	1-9	10-24	25-49	50-99
03F1031	F-105Z	115/230V	6V@ 2A	12V@ 1A	12	2 3/8	1	6.95	6.26	5.63	5.29
03F1032	F-106Z	115/230V	6V@ 4A	12V@ 2A	24	2 13/16	1 1/2	8.59	7.73	6.96	6.54
03F1033	F-107Z	115/230V	12V@ 4A	24V@ 2A	48	3 1/8	2 1/2	8.84	7.96	7.16	6.73
03F1034	F-108U†	115/230V	12V@ 8A	24V@ 4A	96	2 1/4 x 2 1/4	4 1/4	16.28	14.65	13.19	12.40
03F1035	F-109U†	115/230V	12V@ 16A	24V@ 8A	192	3 x 2 3/4	8	28.22	25.40	22.86	21.49
02F1031	F-211Z	115/230V	24V@ .5A	48V@ .25A	12	2 3/8	.678	9.71	8.74	7.87	7.40
02F1032	F-212Z	115/230V	24V@ 1.0A	48V@ .50A	24	2 13/16	1.05	9.09	8.18	7.36	6.92
02F1033	F-213Z	115/230V	24V@ 2.0A	48V@ 1.0A	48	3 1/8	1.55	10.45	9.41	8.47	7.96
02F1034	F-214U	115/230V	24V@ 4.0A	48V@ 2.0A	96	2 1/4 x 2 5/8	3.24	15.48	13.93	12.54	11.79
02F1035	F-215U	115/230V	24V@ 8.0A	48V@ 4.0A	192	2 3/4 x 3	6.06	26.67	24.00	21.60	20.30

TYPE C SMOOTHING FILTER REACTORS

Stock No.	Type	Ind. Henries	Current mA	Res. Ohms	Test RMS Volts	Mtg. MW	Dim. MD	Wt. Lbs.	1-9	10-24	25-49	50-99
03F754	C-1X	15	20	1000	1000	1 3/4	. . .	.21	3.71	3.34	3.01	2.83
03F952	C-3X	10	50	500	1500	2 3/8	. . .	.6	4.62	4.16	3.74	3.52
03F1056	C-14X	6	200	150	1500	3 9/16	. . .	2.3	8.24	7.42	6.68	6.28
04F432	C-27X	0.7	290	30	1500	2 3/8	. . .	.75	4.14	3.73	3.36	3.16
03F765	C-40X	.32	600	10	1500	2 13/32	. . .	1.3	4.91	4.42	3.98	3.74
03F734	C-47U	.3-.075	1A-2A	3/.75	1500	2 1/4	2 11/16	4.6	14.22	12.80	11.52	10.83
03F1060	C-56U	.035	2A	.75	1500	2 3/16	1 3/4	2.0	8.57	7.71	6.94	6.52
03F1065	C-49U	.032-.008	5A/10A	.19/.05	1500	2 3/4	3 1/16	8.0	27.84	25.06	22.55	21.20
05F2176	C-58U	.01	8.0	.15	1500	3 3/8	2 1/2	5.5	16.38	14.74	13.27	12.47

14

TRIAD-UTRAD Audio Transformers

TYPE SP 'RED SPEC' TRANSISTOR TRANSFORMERS

Nickel alloy leads spaced on standard 1/10" grid centers to fit PC boards. Base: .310 x .410". Lead length: ¾". Meet MIL-T-27B. Input response: 230 Hz-15K Hz @ 25 mw., 100 Hz-50K Hz @ 1 mw. Output response: ± 2 dB, 250 Hz-50K Hz @ 50 mw. 150 Hz-50 MHz @ 1 mw. Wt. .1 oz.

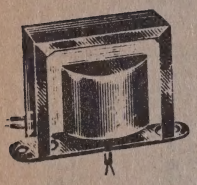
SP-Case

Stock No.	Type	MIL-T-27B Designation	Primary Imp.	Secondary Imp.	Pwr. M. W.	1-9	10-24	25-49	50-99
05F1367	SP-4	TF5SX16ZZ	200KCT	1000CT	10	12.21	10.99	9.99	9.30
03F012	SP-5	TF5SX16ZZ	50KCT	1000CT	25	12.28	11.05	9.95	9.35
03F1036	SP-13	TF5SX13ZZ	25000CT/20000CT	1000CT/800CT	40	11.17	10.05	9.05	8.51
03F1047	SP-15	TF5SX13ZZ	10000CT	1500CT	50	11.67	10.50	9.45	8.88
03F017	SP-20	TF5SX13ZZ	10000CT	1200CT	50	12.33	11.10	9.99	9.39
03F018	SP-21	TF5SX13ZZ	10000CT	2000CT	50	11.21	10.09	9.08	8.54
03F1037	SP-22	TF5SX13ZZ	10000CT	2000CT/500 #	50	12.79	11.51	10.36	9.74
02F450	SP-29	TF5SX13ZZ	10000CT	500CT	50	11.00	9.90	8.91	8.38
03F1048	SP-33	TF5SX17ZZ	1000	50	50	10.14	9.13	8.22	7.73
05F1369	SP-42	TF5SX17ZZ	150CT	12	50	9.02	8.12	7.31	6.87
03F1038	SP-49	TF5SX17ZZ	300CT	600	50	10.47	9.42	8.48	7.97
05F1370	SP-50	TF5SX17ZZ	500CT	600	50	10.05	9.05	8.15	7.66
02F451	SP-51	TF5SX17ZZ	900CT	600	50	11.07	9.96	8.96	8.42
03F283	SP-52	TF5SX13ZZ	1500CT	600	50	10.29	9.26	8.33	7.83
03F292	SP-66*	TF5SX13ZZ	10KCT	10KCT	50	11.24	10.12	9.11	8.56
02F452	SP-67*	TF5SX17ZZ	600CT	600CT	50	10.55	9.50	8.55	8.04
02F453	SP-69*	TF5SX17ZZ	600	600CT/150 #	50	10.55	9.50	8.55	8.04
02F454	SP-70*	TF5SX17ZZ	600	600	50	9.17	8.25	7.43	6.98
03F1049	SP-107	TF5SX20ZZ	1.25HY Audio Choke			7.81	7.03	6.33	5.95
03F1050	SP-310	Magnetic Shield				1.62	1.46	1.31	1.23

Split Secondary *Output Isolation

C Case

PLUG-IN AUDIO TRANSFORMERS



X Case

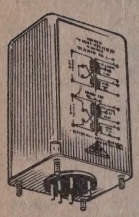
Stock No.	Type	Fig.	Out-put	Impedance Primary	Impedance Secondary	Pri. DC Unbalance	Dimensions	1-9	10-24	25-49	50-99
02F473	TY-141P	C	100mW	10,000CT	10,000CT	4 ma	⅝ x 13/16 x 19/32	5.69	5.12	4.61	4.33
02F477	TY-145P	C	100mW	600CT	600CT	15 ma	⅝ x 13/16 x 19/32	5.00	4.50	4.05	3.81
02F1037	TY-142P	C	100mW	10,000CT	2,000CT	4 ma	⅝ x 19/32 x 3/16	5.10	4.59	4.13	3.88
02F1038	TY-146P	...	1 Watt	600CT/150	600CT/150	—	1⅛ x 1⅛ x 1⅜	8.52	7.67	6.90	6.49

X CASE

MINIATURE AUDIO 'TRIJETS'

Stock No.	Type	Application	Pri. Imp.	Sec. Imp.	Resp.	1-9	10-24	25-49	50-99
05F1362	T-1X	Line to Grid	600/250/50	50,000	60-15,000	8.62	7.76	6.98	6.56
03F1039	T-20X	Plate to Line	15,000	600/250/50	60-15,000	7.95	7.16	6.44	6.05
03F917	T-31X	Line to Line	600/250/50	600/250/50	50-15,000	7.36	6.62	5.96	5.60
03F1040	T-25X	Plate to Line	12,000CT	600CT/150 #	50-16,000	6.86	6.17	5.55	5.22
03F1041	T-32X	Trans to Line	1,500CT	600CT/150 #	50-20,000	5.84	5.26	4.73	4.45
03F1042	T-33X	Isol High Imp	5,000CT	5,000CT	60-15,000	9.62	8.66	7.79	7.32
05F1365	T-34X	Line to Line	500CT	500CT/125 #	50-20,000	5.64	5.08	4.57	4.30
05F1366	T-35X	Line to Trans	600CT	2,000CT/500 #	50-20,000	7.09	6.38	5.74	5.40

Split Secondary



Case HS and HSM

X CASE

MINIATURE AUDIO TRANSISTOR TRANSFORMERS

Stock No.	Type	Pri. Match Imped.	Pri. Cur. mADC	Sec. Match Imped.	Max. Level	Size	1-9	10-24	25-49	50-99
02F950	TY-31X	200CT	50	8/4	2W	13/16 x 2 1/16 x 1¼	5.98	5.38	4.84	4.55
03F1043	TY-37X	2000CT	4	8000CT	.2	13/16 x 1⅜ x 1	7.72	6.95	6.26	5.88
05F2172	TY-45X	500CT	5	16/8/4	.2	13/16 x 1⅜ x 1	8.02	7.22	6.50	6.11
03F1044	TY-56X	1000	1	2000CT	.05	13/16 x 1⅜ x 1	8.71	7.84	7.06	6.64
02F458	TY-48X	100CT	40	16/8/4	.5	13/16 x 1⅜ x 1	7.03	6.33	5.70	5.36
03F1051	TY-53X	200CT	10	400CT	.6	115/16 x 35/16 x 1¾	6.86	6.17	5.55	5.22
02F953	TY-61X	100	100	100CT	.5	115/16 x 35/16 x 1¾	5.45	4.91	4.42	4.15
02F955	TY-64X	32CT	575	16/8/4	10W	115/16 x 35/16 x 1¾	7.79	7.01	6.31	5.93
03F1052	TY-65Z	32CT	575	6K/4K/3K	10W	2 5/16 x 2⅞ x 2	7.90	7.11	6.40	6.02

TYPE HS MILITARY GRADE OUTPUT TRANSFORMERS

Stock No.	Type	Mil. Type	Primary Imp.	Secondary Imp.	Freq. Resp.	1-9	10-24	25-49	50-99
05F2170	HS-56V†	TF1VX16YY	600/250/150/62.5	600/250/150/62.5	10-30,000	58.62	52.76	47.48	44.63
05F2171	HS-66‡	TF1QX16YY	600/250/150/62.5	600/250/150/62.5	10-30,000	50.19	45.17	40.65	38.21

†70 dB Magnetic Shielding ‡45 dB Magnetic Shielding

J Series Case

J SERIES LOW LEVEL OUTPUT TRANSFORMERS

Stock No.	Type	Application	Freq. Resp.	Pri. Imp.	Sec. Imp.	Wt. Lbs.	1-9	10-24	25-49	50-99
05F1354	A-11J	Line to Grid	30-15,000	600/250/50	60,000	.35	23.24	20.92	18.83	17.70
05F1355	A-12J	Line to Grid	30-15,000	600CT/150	60,000 #	.35	21.09	18.98	17.08	16.06
03F1045	A-61J	Line to 2 Lines	60-15,000	600/150 #	600/150 #	.35	22.76	20.48	18.43	17.32
02F538	A-65J	Plate to Line	30-15,000	15,000CT	600CT/150 #	.35	18.93	17.04	15.34	14.42
03F1046	A-57J	Line to Line	30-30,000	600/250/50	600/250/50	.35	18.02	16.22	14.60	13.72
05F1357	A-67J	Line to Line	30-15,000	600CT/150 #	600CT/150 #	.35	19.34	17.41	15.67	14.73

Split Winding

Plug In, Isolation Transformers

Litton **TRIAD-UTRAD** Distributor Services

PLUG-IN PC POWER TRANSFORMERS—115 Volt, 50/60 Hz. Primary

Ideal for single or dual output DC supplies, isolated control circuits, reference supplies in transistorized control, instrumentation. Provide voltage stepdown and isolation from power line at relatively low power levels of 1½, 4½, 7 watts at 4 to 58 volts when connected in parallel, and 8 to 116 volts when series connected. Precision spaced plug-in terminals with fixed mounting centers.

Stock No.	Type	Fig.	Out-Put	Secondary Series	Secondary Parallel	Dimensions	Wt. Oz.	1-9	10-24	25-49	50-99
02F459	F-131P	B	1½ W	8VCT @ .188A	4V @ .376A	1⅛x1 25/64x1 5/32	3.5	5.17	4.65	4.19	3.94
P2F460	F-132P	B	1½ W	15VCT @ .100A	7.5V @ .200A	1⅛x1 25/64x1 5/32	3.5	5.29	4.76	4.28	4.02
02F461	F-133P	B	1½ W	30VCT @ .050A	15V @ .100A	1⅛x1 25/64x1 5/32	3.5	5.41	4.87	4.38	4.12
02F462	F-134P	B	1½ W	54VCT @ .028A	27V @ .056A	1⅛x1 25/64x1 5/32	3.5	5.86	5.27	4.74	4.46
02F463	F-135P	B	1½ W	76VCT @ .020A	38V @ .040A	1⅛x1 25/64x1 5/32	3.5	6.22	5.60	5.04	4.74
02F1039	F-138P	B	1½ W	25.2VCT @ .060A	12.6V @ .120A	1⅛x1 25/64x1 5/32	3.5	5.52	4.97	4.47	4.20
03F1021	F-141XP	A	4½ W	8VCT @ .562A	4V @ 1.124A	1 25/64x2⅜x1¼	7.5	5.86	5.27	4.74	4.46
02F465	F-142XP	A	4½ W	15VCT @ .300A	7.5V @ .600A	1 25/64x2⅜x1¼	7.5	5.86	5.27	4.74	4.46
02F466	F-143XP	A	4½ W	30VCT @ .150A	15V @ .300A	1 25/64x2⅜x1¼	7.5	5.93	5.34	4.81	4.52
02F467	F-144XP	A	4½ W	54VCT @ .084A	27V @ .168A	1 25/64x2⅜x1¼	7.5	5.86	5.27	4.74	4.46
02F469	F-147XP	A	4½ W	40VCT @ .112A	20V @ .224A	1 25/64x2⅜x1¼	7.5	5.86	5.27	4.74	4.46
02F1040	F-148XP	A	4½ W	25.2VCT @ .178A	12.6V @ .356A	1 25/64x2⅜x1¼	7.5	5.86	5.27	4.74	4.46
02F1041	F-149XP	A	4½ W	12.6VCT @ .350A	6.3V @ .700A	1 24/64x2⅜x1¼	7.5	5.86	5.27	4.74	4.46
02F470	F-151XP	A	4½ W	8VCT @ .940A	4.0V @ 1.880A	1 41/64x2 13/16x1 15/32	10.5	7.16	6.44	5.80	5.45
03F1022	F-152XP	A	7½ W	15VCT @ .500A	7.5V @ 1.00A	1 41/64x2 13/16x1 15/32		7.16	6.44	5.80	5.45
03F1023	F-153XP	A	7½ W	30VCT @ .250A	15V @ .500A	1 41/64x2 13/16x1 15/32	. .	7.16	6.44	5.80	5.45
02F471	F-154XP	A	7½ W	54 VCT @ .140A	27V @ .280A	1 41/64x2 13/16x1 15/32	10.5	7.16	6.44	5.80	5.45
02F1042	F-157XP	A	7½ W	40VCT @ .188A	20V @ .376A	1 41/64x2 13/16x1 15/32	10.5	7.16	6.44	5.80	5.45

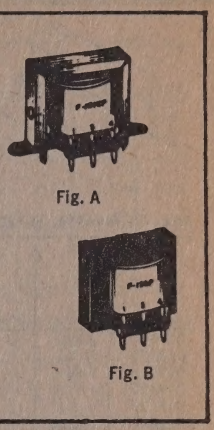
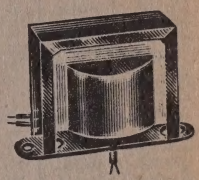


Fig. A

Fig. B

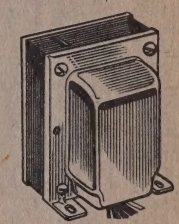
PLUG-IN PC POWER TRANSFORMERS, 115/230 Volt, 50/60 Hz. Primary

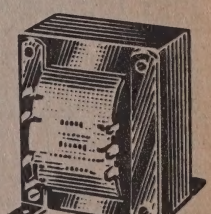
03F1024	F-333P	B	1½	30VCT @ .050A	15V @ .100A	1⅛x1⅛	. .	7.47	6.72	6.05	5.69
03F1025	F-348XP	A	4½	12.6VCT @ .350A	6.3V @ .700A	1⅜x2⅜x1¼	. .	8.45	7.61	6.85	6.44
03F1026	F-359XP	A	10	24VCT @ .450A	12V @ .900A	1 5/8x1 7/16x2 13/16	. .	9.31	8.38	7.54	7.09


Case X

TYPE N ISOLATION TRANSFORMERS, 50/60 Hz.

Stk. No.	Type	Case Type	VA Output	Primary Volts	Secondary Volts	Secondary Amps	Mt. Dimen. MW	Mt. Dimen. MD	Con-nections	Wt. Lbs.	Each Boxed 1-9	10-24	25-49	50-99
03F1017	N48X	X	15	115	115	.13	2 13/16		Leads	1.35	5.84	5.26	4.73	4.45
03F1018	N49X	X	35	115	57.5-115	.3	3⅛		Leads	1.9	8.22	7.40	6.66	6.26
03F750	N51X#	X	35	115	115	.3	3⅛		Leads	1.7	7.21	6.49	5.84	5.49
03F603	N68X	X	50	115/230	115	.435	3⅛		Leads	1.7	9.26	8.33	7.50	7.05
03F751	N53M	M	85	115	115	.74	2¼	2⅜	**	4.7	18.79	16.91	15.22	14.31
02F1043	N53MG*	M						3	**		28.14	25.33	22.80	21.43
03F604	N54M	M	150	115	115	1.3	2½	3	**	7.0	21.45	19.31	17.38	16.34
02F1044	N54MG*	M						3½	**		32.86	29.57	26.61	25.01
02F1045	N73A	A	150	115	115/230	.65	2½	2¾	Leads	7.0	20.33	18.30	16.47	15.48
03F786	N74A	A	150	115	57.5-115	1.3	2½	2¾	Leads	7.0	20.78	18.70	16.83	15.82
03F605	N67A	A	150	115/230	115	1.3	2½	3	Leads	7.0	18.69	16.82	15.14	14.23
03F541	N55M	M	250	115	115	2.17	3	3⅜	**	11.0	34.43	30.99	27.89	26.22
02F1046	N55MG*	M		115					**		38.10	34.29	30.86	29.01
02F1047	N255MG*	M		230					**		41.48	37.33	33.60	31.58
05F1361	N66A	A	250	115/230	115	2.17	3	3⅜	Leads	11.0	27.81	25.03	22.53	21.18
03F542	N57M	M	500	115	115	4.35	3½	5⅛	**	23.75	96.29	86.66	79.99	73.31
02F1048	N57MG*	M		115					**		89.88	80.89	72.80	68.43
02F1049	N257MG*	M							**		78.53	70.68	63.61	59.79
02F1050	N59M	M	1000	115	115	8.7	3½	6⅞	**	34.0	98.33	88.50	79.65	74.87
02F1051	N59MG*	M		115					**		92.64	83.38	75.04	70.54
02F1052	N259MG*	M		230					**		101.55	91.40	82.26	77.32
03F1019	N469A#	A	50	220/440	115	.435	2	1 9/16	Leads	2.3	12.21	10.99	9.89	9.30
02F1053	N470A#	A	150	220/440	115	1.3	2½	2½	Leads	5.5	18.83	16.50	14.85	13.96
03F1020	N471A#	A	300	220/440	115	2.6	3	3⅜	Leads	10.25	29.00	26.10	23.49	22.08

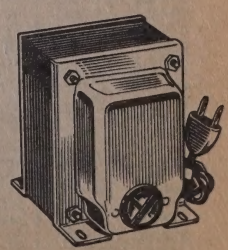

Case A


Case U

TYPE N STEPDOWN AUTOFORMER TRANSFORMERS, 50/60 Hz.

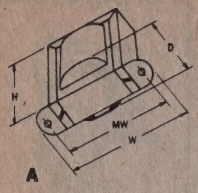
Stk. No.	Type No.	Case Type	VA Output	Primary Volts	Secondary Volts	Secondary Amps	Mt. Dimen. MW	Mt. Dimen. MD	Connec-tions	Wt. Lbs.	Each Boxed 1-9	10-24	25-49	50-99
05F1358	N1X	X	50	230	115	.435	3⅛		Leads	1.5	6.03	5.43	4.89	4.60
02F1055	N2X	X	100	230	115	.87	3 9/16		Leads	2.3	9.12	8.21	7.39	6.95
02F1054	N6U	U	200	230	115	1.7	2 13/16	2⅛		6.5	12.88	11.59	10.43	9.80
03F1014	N3M	M	85	230	115	.74	2¼	1⅝	**	3.0	15.24	13.72	12.35	11.61
02F1056	N3MG*	M						2¼	**		25.76	23.18	20.86	19.61
05F1359	N4M	M	150	230	115	1.3	2¼	2⅜	**	4.7	16.07	14.46	13.01	12.23
02F1057	N4MG*	M						3	**		28.21	25.39	22.85	21.48
04F433	N5M	M	250	230	115	2.17	2½	3	**	7.0	21.29	19.16	17.24	16.21
02F1058	N5MG*	M						3½	**		34.52	31.07	27.96	26.28
03F1015	N7M	M	600	230	115	5.22	3	3⅞	**	12.0	33.93	30.54	27.49	25.84
02F1059	N7MG*	M							**		37.40	33.66	30.29	28.47
02F1060	N9M	M	1250	230	115	10.85	3½	5⅛	**	24.0	89.79	80.81	72.73	68.37
02F1061	N9MG*	M							**		83.95	75.56	68.00	63.92
02F1062	N11M	M	2000	230	115	17.4	3½	6⅞	**	33.25	103.48	93.13	83.82	78.79
02F1063	N11MG*	M							**		98.22	88.40	79.56	74.79

**Has 3-wire plug, cord and socket
*6 ft. cord, plug, & socket
#60 Hz operation


Case M

14

ESSEX STANCOR Rectifier, Control, Filament Transformers



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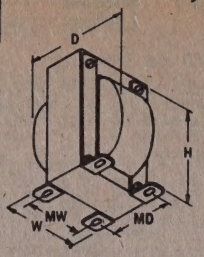

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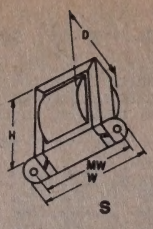

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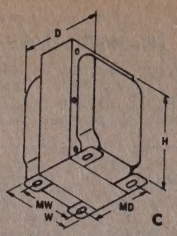

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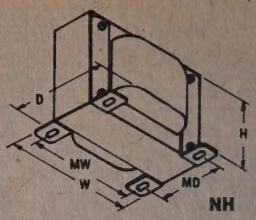


NH

ALL PRIMARIES 50/60 HZ.

Stk. No.	Type	Style	Secondary Volts	Secondary Amps.	Primary Volts 50-60 Hz	Insulation Test RMS Volts*	Case Dimension H	Case Dimension W	Case Dimension D	Mtg. Dimen MW	Mtg. Dimen MD	Wt. Lbs.	EACH BOXED 1-9	EACH BOXED 10-24	EACH BOXED 25-49	EACH BOXED 50-99	BULK PACKED 100-249	BULK PACKED 250-499
05F1409	P-8385	A	6.3C.T.	0.3	117	1500	1¼	2⅛	1⅜	1¾	—	0.3	3.64	3.28	2.96	2.75	2.32	2.17
01F375	P-6465	A	6.3C.T.	0.6	117	1500	1⅜	2⅜	1½	2	—	0.4	3.86	3.49	3.15	2.92	2.47	2.32
01F946	P-8389	A	6.3	1.0	117	1500	1⅝	2⅞	1½	2⅜	—	0.6	3.83	3.46	3.12	2.89	2.44	2.29
01F105	P-6134	A	6.3C.T.	1.2	117	3000	1⅝	2⅞	1⅞	2⅜	—	0.8	3.83	3.46	3.12	2.89	2.44	2.29
01F123	P-6466	A	6.3C.T.	3.0	117	2500	2	3¼	2⅛	2 13/16	—	1.4	5.52	4.98	4.49	4.17	3.51	3.30
05F001	P-8648	A	6.3C.T.	4.0	117	1500	2⅜	3¾	2⅛	3⅛	—	1.6	6.67	6.00	5.40	5.00	4.20	3.94
05F002	P-8649	A	6.3C.T.	5.0	117	1500	2⅜	3¾	2⅛	3⅛	—	1.8	6.00	5.40	4.80	4.50	3.78	3.54
01F139	P-6456	A	6.3C.T.	6.0	117/107	2000	2⅜	3¾	2⅜	3⅛	—	2.0	7.45	6.72	6.06	5.62	4.74	4.44
05F503	P-8651	A	6.3C.T.	8.0	117	1500	2⅝	4	2¼	3 11/16	—	2.4	7.92	7.13	6.42	5.94	4.99	4.67
05F1411	P-6464	C	6.3C.T.	10.0	117	2000	3½	2 13/16	3¼	2¼	2	3.5	11.87	10.70	9.65	8.95	7.55	7.09
01F109	P-6309	NV	6.3C.T.	20.0	117/107	2500	4 11/16	3¾	3⅜	3	2⅜	6.7	19.26	17.36	15.65	14.51	12.23	11.47
01F110	P-5015†	NV	7.5C.T.	4.0	117	2500	3⅛	2½	2¼	2	2⅛	2.7	10.60	9.56	8.62	8.00	6.74	6.33
01F337	P-6138†	NV	7.5C.T.	8.0	117	2500	3 13/16	3⅛	2¾	2½	2⅜	4.7	14.29	12.91	11.66	10.83	9.17	8.62
05F504	P-8652	A	10.0C.T.	1.0	117	1500	2	3¼	1⅝	2 13/16	—	0.9	4.00	3.60	3.24	3.00	2.52	2.36
01F048	P-8380	A	10.0C.T.	3.0	117	1500	2⅜	3¾	2¼	3⅛	—	1.6	6.34	5.72	5.15	4.78	4.03	3.78
05F506	P-8654	A	10.0C.T.	4.0	117	1500	2⅝	4	2⅛	3 11/16	—	2.3	7.17	6.45	5.81	5.38	4.52	4.23
05F507	P-8655	NV	10.0C.T.	6.0	117	1500	3⅛	2½	2¾	2	2 5/16	3.1	9.26	8.34	7.52	6.97	5.87	5.50
05F508	P-8656	NV	10.0C.T.	8.0	117	1500	3 11/16	2 13/16	3	2¼	2½	4.1	11.75	10.58	9.52	8.81	7.40	6.93
01F950	P-8390	A	12.0	.150	117	1500	1¼	2⅛	1¼	1¾	—	.25	3.83	3.46	3.12	2.89	2.44	2.29
01F951	P-8391	A	12.0	.350	117	1500	1⅜	2⅜	1⅜	2	—	.35	3.81	3.44	3.10	2.87	2.42	2.27
01F952	P-8392	A	12.0	.700	117	1500	1⅝	2⅞	2⅜	**1⅝**	—	.60	4.25	3.83	3.46	3.21	2.71	2.54
01F953	P-8393	A	12.0	1.200	117	1500	2	3¼	1⅝	2 13/16	—	.85	5.27	4.75	4.29	3.98	3.36	3.15
05F509	P-8657	A	12.0	2.0	117	1500	2	3¼	2⅛	2 13/16	—	1.3	4.58	4.12	3.71	3.44	2.89	2.70
05F510	P-8658	A	12.0	4.0	117	1500	2⅝	4	2¼	3 13/16	—	2.3	7.25	6.53	5.87	5.44	4.57	4.28
05F511	P-8659	NV	12.0	6.0	117	1500	3 11/16	2 13/16	2⅝	2¼	2⅛	3.4	10.34	9.31	8.38	7.76	6.51	6.10
05F512	P-8660	NV	12.0	8.0	117	1500	3 13/16	3⅛	2¾	2½	2⅛	4.3	12.25	11.03	9.92	9.19	7.72	7.23
05F1412	P-8384	A	12.6C.T.	1.0	117	1500	2	3¼	1¾	2 13/16	—	0.9	4.68	4.22	3.81	3.54	2.99	2.80
01F120	P-8130	A	12.6C.T.	2.0	117	1500	2	3¼	2⅛	2 13/16	—	1.4	5.25	4.73	4.27	3.96	3.34	3.13
01F882	P-8358	A	12.6C.T.	3.0	117	1500	2⅜	3¾	2¼	3⅛	—	1.6	6.09	5.49	4.95	4.59	3.87	3.63
05F1414	P-8641	A	12.6C.T.	4.0	117	1500	2⅝	4	2⅜	3 11/16	—	2.3	7.38	6.66	6.00	5.57	4.70	4.41
05F513	P-8642	C	12.6C.T.	6.0	117	1500	3½	2 13/16	3⅜	2¼	2 3/16	3.8	11.52	10.39	9.37	8.69	7.32	6.87
05F514	P-8643	C	12.6C.T.	8.0	117	1500	3⅞	3⅛	3⅝	2½	2⅜	5.0	15.25	13.76	12.43	11.52	9.73	9.13
05F515	P-8644	C	12.6C.T.	10.0	117	1500	4¼	3 11/16	3⅞	2¾	2¾	6.3	19.32	17.42	15.71	14.57	12.29	11.53
01F954	P-8394	A	24.0C.T.	.085	117	1500	1¼	2⅛	1¼	1¾	—	.25	4.68	4.22	3.81	3.54	2.99	2.80
01F955	P-8395	A	24.0C.T.	.200	117	1500	1⅜	2⅜	1⅜	2	—	.35	4.67	4.21	3.80	3.53	2.88	2.79
01F956	P-8396	A	24.0C.T.	.400	117	1500	1⅝	2⅞	1½	2⅜	—	.60	5.12	4.62	4.17	3.87	3.27	3.07
01F957	P-8397	A	24.0C.T.	.700	117	1500	2	3¼	**1¾**	2 13/16	—	.85	5.49	4.96	4.48	4.16	3.52	3.30
05F516	P-8661	A	24.0C.T.	1.0	117	1500	2	3¼	2 1/16	2 13/16	—	1.4	4.76	4.29	3.87	3.59	3.03	2.85
05F517	P-8662	A	24.0C.T.	2.0	117	1500	2⅝	4	2⅜	3 11/16	—	2.3	7.54	6.80	6.13	5.69	4.79	4.50
05F518	P-8663	NV	24.0C.T.	4.0	117	1500	3 13/16	3⅛	2 13/16	2½	2⅛	4.0	12.42	11.18	10.06	9.32	7.82	7.33
05F519	P-8664	NV	24.0C.T.	6.0	117	1500	4 3/16	3 1/16	3	2¾	2¼	5.7	15.43	13.89	12.50	11.58	9.72	9.11
05F520	P-8665	NV	24.0C.T.	8.0	117	1500	4 3/16	3 1/16	3⅜	2¾	2¾	7.3	18.30	16.48	14.83	13.74	11.55	10.82
05F521	P-8666	NV	24.0C.T.	12.0	117	1500	4 3/16	3¾	4⅝	3	3¼	11.2	26.38	23.75	21.38	19.80	16.63	15.58
01F116	P-6469	A	25.2	1.0	117	1500	2	3¼	2⅛	2 13/16	—	1.4	5.02	4.57	4.12	3.82	3.22	3.02
01F944	P-8180	A	25.2C.T.	1.0	117	1500	2	3¼	2⅛	2 13/16	—	1.4	5.08	4.58	4.13	3.83	3.23	3.03
01F883	P-8357	A	25.2C.T.	2.0	117	1500	2⅝	4	2¼	3 11/16	—	2.2	8.02	7.23	6.52	6.04	5.09	4.77
01F945	P-8388	A	25.2C.T.	2.8	117	1500	2⅝	4	2¼	3 11/16	—	2.2	9.46	8.53	7.69	7.13	6.00	5.63
05F522	P-8645	C	25.2C.T.	5.0	117	1500	4¼	3 11/16	3⅞	2¾	2 1/16	6.0	15.79	14.37	13.10	12.25	10.55	9.98
05F523	P-8646	C	25.2C.T.	7.5	117	1500	4¼	3½	4¼	2¾	3⅛	7.3	19.53	17.65	15.95	14.82	12.56	11.81
05F524	P-8647	C	25.2C.T.	10.0	117	1500	4 1/16	3¾	5	3	3⅞	12.3	27.95	24.27	21.85	20.24	17.02	15.95
01F966	P-8608	A	26.5C.T.	0.6	117	2500	2	3¼	2⅛	2 13/16	—	1.3	4.92	4.43	3.99	3.70	3.12	2.93
01F967	P-8609	A	26.8C.T.	1.0	117	1500	2	3¼	2⅛	2 13/16	—	1.3	5.07	4.57	4.12	3.82	3.22	3.02
01F958	P-8600	A	28.0C.T.	.085	117	1500	1¼	2⅛	1¼	1¾	—	.25	3.85	3.48	3.14	2.91	2.46	2.31
01F959	P-8601	A	28.0C.T.	.175	117	1500	1⅜	2⅜	1⅜	2	—	.35	4.50	4.06	3.66	3.40	2.86	2.69
01F960	P-8602	A	28.0C.T.	.300	117	1500	1⅝	2⅞	**1⅝**	2⅜	—	.60	4.28	3.86	3.49	3.24	2.74	2.57
01F961	P-8603	A	28.0C.T.	.800	117	1500	2	3¼	**2⅛**	2 13/16	—	1.0	5.42	4.89	4.41	4.09	3.45	3.23
05F525	P-8667	A	28.0C.T.	1.0	117	1500	2	3¼	2⅛	2 13/16	—	1.4	5.08	4.57	4.11	3.81	3.20	3.00
05F526	P-8668	NV	28.0C.T.	2.0	117	1500	3⅛	2½	2½	2	2 5/16	2.9	8.61	7.75	6.98	6.46	5.43	5.09
05F527	P-8669	NV	28.0C.T.	4.0	117	1500	3 13/16	3⅛	3¼	2½	2½	5.3	14.42	12.98	11.68	10.82	9.08	8.51
05F528	P-8670	NV	28.0C.T.	6.0	117	1500	4 3/16	3 1/16	3½	2¾	2⅝	7.0	17.30	15.58	14.02	12.99	10.92	10.23
01F962	P-8610	A	36.0C.T.	.065	117	1500	1¼	2⅛	1¼	1¾	—	.25	3.84	3.47	3.13	2.90	2.45	2.30
01F963	P-8611	A	36.0C.T.	.135	117	1500	1⅜	2⅜	1⅜	2	—	.35	3.75	3.38	3.05	2.83	2.39	2.25
01F964	P-8612	A	36.0C.T.	.300	117	1500	1⅝	2⅞	1½	2⅜	—	.60	4.26	3.84	3.47	3.22	2.72	2.55
01F965	P-8613	A	36.0C.T.	.550	117	1500	2	3¼	**1⅞**	2 13/16	—	1.0	5.43	4.90	4.42	4.10	3.46	3.24
05F529	P-8671	A	36.0C.T.	1.0	117	1500	2⅜	3¾	2¼	3⅛	—	2.0	4.67	4.20	3.78	3.50	2.94	2.76
05F530	P-8672	NV	36.0C.T.	2.0	117	1500	3 1/16	2 13/16	2¾	2¼	2⅛	3.5	10.09	9.08	8.17	7.57	6.36	5.95
05F531	P-8673	NV	36.0C.T.	4.0	117	1500	**3 1/16**	2⅞	2¾	2¾	2⅜	6.0	15.95	14.36	12.93	11.97	10.06	9.42
05F532	P-8674	NV	36.0C.T.	6.0	117	1500	4 3/16	3¾	3½	3	2⅝	8.3	21.25	19.13	17.21	15.94	13.29	12.54
01F970	P-8605	A	48.0C.T.	1.0	117‡	2500	2⅝	4	2⅜	3 11/16	—	2.3	9.80	8.83	7.96	7.38	6.22	5.84

†Has electrostatic shield. *Insulation test voltage: Twice allowable RMS working voltage plus 1000 volts.

‡Primary tapped to provide secondary voltages of 45 C.T., 51 C.T. or 54 C.T. All transformers have lead terminations.

14

Power and Audio Transformers

ESSEX STANCOR

RECTIFIER, CONTROL and FILAMENT TRANSFORMERS (Cont.)

WITH DUAL C.T. SECONDARIES: All primaries 115 V 50/60 Hz except (*) 60 Hz. All terminations are solder lug type. Insulation test voltage: 1500 RMS.

Stk. No.	Type	Style	Secondary▲ Volts	Secondary▲ Amps.	Case Dimension H	Case Dimension W	Case Dimension D	Mtg. Dimension MW	Mtg. Dimension MD	Wt. Lbs.	EACH BOXED 1-9	EACH BOXED 10-24	EACH BOXED 25-49	EACH BOXED 50-99	BULK PACKED 100-249	BULK PACKED 250-499
01F052	P-8682	S	12.0C.T.	0.5	2⅜	2⅞	1⅞	2⅜	...	1.1	6.05	5.48	4.96	4.61	3.92	3.69
			12.0C.T.	0.5												
01F053	P-8683	S	12.0C.T.	1.0	2¾	3⅛	2⅛	2 13/16	...	1.7	6.58	5.92	5.33	4.94	4.15	3.88
			12.0C.T.	1.0												
01F058	P-8679	NH	12.0C.T.	6.0	3½	4⅛	3 1/16	3 1/16	2⅜	5.8	18.25	16.43	14.78	13.69	11.50	10.77
			12.0C.T.	6.0												
01F059	P-8684*	NH	18.0C.T.	1.0	2½	3	2½	2½	2	2.3	9.40	8.50	7.69	7.15	6.07	5.71
			18.0C.T.	1.0												
01F060	P-8685*	NH	18.0C.T.	2.0	3¼	3 13/16	3⅛	3⅛	2¼	4.5	13.83	12.58	11.46	10.71	9.21	8.71
			18.0C.T.	2.0												
01F061	P-8686*	NH	18.0C.T.	4.0	3 1/16	4⅛	3⅛	3 1/16	2¼	5.8	17.17	15.45	13.91	12.88	10.82	10.13
			18.0C.T.	4.0												
79W068	P-8687*	NH	18.0C.T.	8.0	3⅜	4½	4⅛	3¾	2¾	8.9	22.42	20.20	18.21	16.88	14.22	13.33
			18.0C.T.	8.0												
79W070	P-8675	NH	34.0C.T.	4.0	3¾	4½	4¼	3¾	3⅜	11.3	28.76	25.88	23.30	21.57	18.12	16.97
			34.0C.T.	4.0												

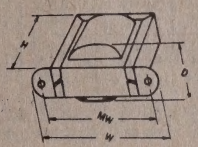
▲RMS Values

CONSTANT VOLTAGE TYPES—LINE TO VOICE COIL

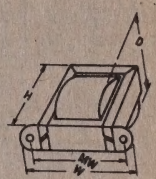
25 VOLT—Termination Lugs except A-8087 leads. RM test voltage, 1000

- **RM test voltage, 1000**
- **In styles S or A**
- **25 Volt—termination lugs except A-8087 leads.**

STYLE A



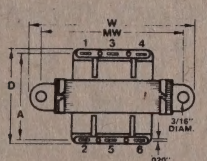
STYLE S



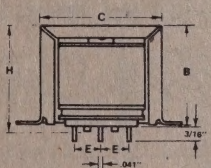
Stock No.	Type	Style	Impedance Ohms Pri.	Impedance Ohms Sec.	Power Steps In Watts	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim.	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
05F1468	A-8097	S	39/78/156/312/625/1250	4/8/16	16/8/4/2/1/0.5	2¾	3⅛	2¼	2 3/16	1.6	8.32	7.50	6.77	6.28	5.30	4.97
01F389	A-8095	A	125/250/500/1000/2000	4/8	5/2.5/1.25/.62/.31	1⅜	2⅜	1½	2	0.4	5.15	4.65	4.20	3.90	3.30	3.10
05F1469	A-8087	A	312/625/1250	8	2/1/0.5	1⅜	2⅜	1⅜	2	0.4	3.77	3.40	3.07	2.85	2.41	2.27
01F1010	A-8055	A	625/1250	8*	1/.5	1¼	2⅛	1 5/16	1¾	0.25	2.83	2.55	2.29	2.12	1.78	1.67
01F1011	A-8071	A	625/1250	8	1/.5	1¼	2⅛	1 5/16	1¾	0.25	3.08	2.77	2.49	2.31	1.94	1.82

(†) Includes C.T. connection for balanced line operation.
(*) Sec.—self leads 2" long, tinned 1".

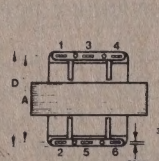
PLUG-IN PRINTED CIRCUIT POWER TRANSFORMERS



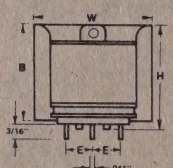
STYLE APC (BOTTOM VIEW)



STYLE APC (SIDE VIEW)



STYLE PC (BOTTOM VIEW)



STYLE PC (SIDE VIEW)

WITH SINGLE PRIMARY FOR 115 VOLTS, 50-60 HERTZ INPUT

Stk. No.	Type	Style	VA Cap.	OUTPUT FROM TWO SECONDARY WINDINGS▲ Individually	Parallel	Series	CASE DIMENSION H	W	D	Mtg. DIM. MW	Wt. Lbs.	Each Boxed 1-9	10-24	25-49	50-99	Bulk Packed 100-249	250-499
01F062	PPC-1	PC	1.5	4.0V. @ .188A.	4.0V. @ .376A.	8.0V. @ .188A.	1⅛	1 13/32	1 5/32	...	.22	5.50	4.95	4.46	4.13	3.47	3.25
01F063	PPC-2	PC	1.5	7.5V. @ .100A.	7.5V. @ .200A.	15V. @ .100A.	1⅛	1 13/32	1 5/32	...	.22	5.58	5.02	4.52	4.19	3.52	3.29
01F064	PPC-3	PC	1.5	15V. @ .050A.	15V. @ .100A.	30V. @ .050A.	1⅛	1 13/32	1 5/32	...	.22	5.67	5.10	4.59	4.25	3.57	3.35
01F066	PPC-5	PC	1.5	38V. @ .020A.	38V. @ .040A.	76V. @ .020A.	1⅛	1 13/32	1 5/32	...	.22	6.67	6.00	5.40	5.00	4.20	3.94
01F069	PPC-7	PC	1.5	20V. @ .038A.	20V. @ .076A.	40V. @ .038A.	1⅛	1 13/32	1 5/32	...	.22	3.50	3.15	2.84	2.63	2.21	2.07
01F070	PPC-11	APC	4.5	4.0V. @ .562A.	4.0V. @ 1.13A.	8.0V. @ .562A.	1 13/32	2⅜	1¼	2	.47	5.17	4.65	4.19	3.88	3.26	3.05
01F071	PPC-12	APC	4.5	7.5V. @ .300A.	7.5V. @ .600A.	15V. @ .300A.	1 13/32	2⅜	1¼	2	.47	5.42	4.88	4.39	4.07	3.41	3.20
01F072	PPC-13	APC	4.5	15V. @ .150A.	15V. @ .300A.	30V. @ .150A.	1 13/32	2⅜	1¼	2	.47	5.58	5.02	4.52	4.19	3.52	3.29
01F073	PPC-14	APC	4.5	27V. @ .084A.	27V. @ .168A.	54V. @ .084A.	1 13/32	2⅜	1¼	2	.47	5.75	5.18	4.66	4.31	3.62	3.39
01F077	PPC-21	APC	7.5	4.0V. @ .940A.	4.0V. @ 1.88A.	8.0V. @ .940A.	1⅝	2 1/16	1 15/32	2⅜	.66	5.50	4.95	4.46	4.13	3.47	3.25
01F078	PPC-22	APC	7.5	7.5V. @ .500A.	7.5V. @ 1.00A.	15V. @ .500A.	1⅝	2 1/16	1 15/32	2⅜	.66	5.58	5.02	4.52	4.19	3.52	3.29
01F079	PPC-23	APC	7.5	15V. @ .250A.	15V. @ .500A.	30V. @ .250A.	1⅝	2 1/16	1 15/32	2⅜	.66	5.67	5.10	4.59	4.25	3.57	3.35

▲RMS Values

ESSEX STANCOR

Power Transformers

PLATE AND FILAMENT TYPE FOR CAPACITOR INPUT SYSTEMS

Primaries 117 Volts 60 Hz. Primary and Secondary termination: Leads. § Also has 5V rect. fil. winding.
†† Use in half-wave circuits, ** copper shorting band.

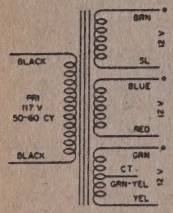
Stock No.	Type	Style	Plate		Filament		Case Dim.			Mtg. Dim.		Wt. lbs.	Each, Boxed				Bulk Packed	
			ACV	DCMA	V	A	H	W	D	MW	MD		1-9	10-24	25-49	50-99	100-249	250-499
01F026	PS-8415	S	125††	15	6.3	0.6	1 15/16	2 3/8	1 11/16	2	.....	0.7	4.69	4.23	3.82	3.55	3.00	2.81
01F027	PS-8416	S	125-0-125	25	6.3	1.0	2 5/16	2 13/16	1 3/4	2 3/8	.....	1.0	5.54	5.00	4.51	4.19	3.53	3.32
05F1401	P-8625	S	125-0-125	25	12.6	0.6	2 5/16	2 13/16	1 3/4	2 3/8	.....	1.0	5.69	5.13	4.63	4.30	3.63	3.40
01F035	PA-8421	A	125††	50	6.3	2.0	2 1/4	3 1/16	2 1/16	3 1/16	.....	1.5	6.78	6.11	5.51	5.11	4.31	4.05
01F525	P-8181	VE	150††	25	6.3CT	0.5	1 15/16	2 3/8	1 13/16	2	.....	0.8	5.97	5.39	4.86	4.51	3.81	3.58
05F1403	P-8627	VE	150††	25	12.6CT	0.3	1 15/16	2 3/8	1 13/16	2	.....	0.8	6.47	5.84	5.27	4.89	4.13	3.87
01F029	PC-8418	C	230-0-230	50	6.3	2.5	3 1/16	2 1/2	2 5/8	2	1 11/16	2.2	9.04	8.17	7.38	6.85	5.80	5.45
01F031	PC-8419	C	240-0-240	70	6.3	3.0	3 1/8	2 1/2	2 7/8	2	1 13/16	2.6	9.85	8.88	8.01	7.43	6.27	5.89
01F004	PC-8403	C	250-0-250	70	6.3CT§	2.5	3 1/8	2 1/2	3 1/2	2	2 1/16	3.2	11.92	10.75	9.70	9.00	7.60	7.14
01F006	PC-8404	C	260-0-260	90	6.3CT§	3.0	3 1/2	2 13/16	3 1/2	2 1/4	2 1/4	4.0	13.22	11.92	10.75	9.97	8.41	7.89
01F008	PC-8405	C	270-0-270	120	6.3CT§	3.5	3 7/8	3 1/8	3 1/2	2 1/2	2 3/16	4.9	15.18	13.68	12.33	11.43	9.63	9.03
05F1404	P-8356	C**	270-0-270	260	6.3§	8.8	3 7/8	3 1/8	3 3/8	2 1/2	2 1/4	6.5	23.70	21.37	19.27	17.87	15.06	14.13
01F018	PC-8410	C	360-0-360	120	6.3CT§	3.5	3 7/8	3 1/8	3 3/4	2 1/2	2 1/16	5.5	17.31	15.61	14.08	13.06	11.02	10.34
01F022	PC-8412	C	400-0-400	200	6.3CT§	5.0	4 1/16	3 3/4	4	3	2 13/16	8.2	25.36	22.86	20.61	19.11	16.11	15.11

UNIVERSAL CONTROL/RECTIFIER POWER TRANSFORMERS

Primaries 115/230 V, 50/60 Hz. Solder lug termination. With dual secondary winding.

Stock No.	Type	Style	VA Cap	Output From Two Secondary Windings*			Case Dim.			Mtg. MW	Dim. MD	Wt.	Each, Boxed				Bulk Packed	
				Individually	Parallel	Series	H	W	D				1-9	10-24	25-49	50-99	100-249	250-499
01F197	P-6375	S	12	6V @ 1A	6V @ 2A	12V @ 1A	2 3/8	2 7/8	1 5/8	2 3/8	—	1.0	5.50	4.96	4.47	4.15	3.49	3.28
01F818	P-6376	S	24	6V @ 2A	6V @ 4A	12V @ 2A	2 3/4	3 1/8	1 7/8	2 13/16	—	1.5	6.62	5.97	5.39	5.00	4.22	3.96
01F819	P-6377	S	48	12V @ 2A	12V @ 4A	24V @ 2A	3 1/8	3 5/8	2 1/4	3 1/8	—	2.5	8.46	7.63	6.88	6.38	5.37	5.02
01F820	P-6378	NV	96	12V @ 4A	12V @ 8A	24V @ 4A	3 7/16	2 13/16	2 7/8	2 1/4	2 1/4	4.2	13.94	12.57	11.33	10.50	8.85	8.30
01F198	P-6379	NV	192	12V @ 8A	12V @ 16A	24V @ 8A	4 1/16	3 7/16	3 5/8	2 3/4	3	8.0	25.30	22.80	20.55	19.05	16.05	15.05
05F1434	P-8615	S	12	24V @ 0.25A	24V @ 0.5A	48V @ 0.25A	2 3/8	2 7/8	1 5/8	2 3/8	—	1.0	6.09	5.49	4.95	4.59	3.87	3.63
05F1435	P-8616	S	24	24V @ 0.5A	24V @ 1A	48V @ 0.5A	2 3/4	3 1/8	1 7/8	2 13/16	—	1.5	6.97	6.29	5.67	5.26	4.44	4.17
05F1436	P-8617	S	48	24V @ 1A	24V @ 2A	48V @ 1A	3 1/8	3 5/8	2 1/4	3 1/8	—	2.5	8.47	7.64	6.89	6.39	5.38	5.05
05F1437	P-8618	NV	96	24V @ 2A	24V @ 4A	48V @ 2A	3 7/16	2 13/16	2 7/8	2 1/4	2 1/4	4.2	13.65	12.30	11.09	10.28	8.66	8.12
05F1438	P-8619	NV	192	24V @ 4A	24V @ 8A	48V @ 4A	4 7/16	3 7/16	3 5/8	2 3/4	3	8.0	20.25	18.25	16.45	15.25	12.85	12.05

(*) By connecting primaries in series (for 230) Volts) but using only 115 V input, a series of half voltage output ratings becomes available at the full rated current from each secondary.



VERSATILE LOW CURRENT CONTROL TRANSFORMERS

Primaries 117 V, 50/60 Hz. Lead Wire Termination. Multiple secondaries. Three isolated 12 V secondaries (one with a center tap) provide many combinations of output voltages and current by series or parallel combinations.

Stock No.	Type	Style	Amperes Each Sec.	Case Dim.			Mtg. Dim.	Wt. Wt.	Each Boxed				Bulk Packed	
				H	W	D			1-9	10-24	25-49	50-99	100-249	250-499
01F146	P-8361	S	.10	1 3/4	2	1 1/2	1 3/4	.36	5.55	5.01	4.52	4.20	3.54	3.33
01F147	P-8362	S	.15	2	2 3/8	1 3/4	2	.60	5.12	4.62	4.17	3.87	3.27	3.07
01F148	P-8363	S	.25	2 3/8	2 7/8	1 3/4	2 3/8	.85	5.63	5.08	4.59	4.26	3.60	3.38
01F149	P-8364	S	.50	2 3/8	2 7/8	2 1/8	2 3/8	1.25	6.43	5.81	5.24	4.87	4.12	3.87

14

SMOOTHING CHOKES—INDUCTANCE TOL. Minus 15% Plus 50% at 10V 60 HZ. Termination—Leads.

Stock No.	Type	Style	Ind. Henries	DC MA	DC Res. Ohms	RMS V*	Case Dim.			Mtg. Dim. MW	Wt. Lbs.	Each Boxed				Bulk Packed	
							H	W	D			1-9	10-24	25-49	50-99	100-249	250-499
01F163	C-1001	A	10.5	110	225	3000	2 5/8	4	2 1/8	3 1/16	2.3	6.75	6.08	5.48	5.08	4.28	4.02
01F897	C-2343	A	0.75	300	32	1500	1 5/8	2 7/8	1 3/8	2 3/8	0.7	3.21	2.89	2.61	2.42	2.04	1.91
01F176	C-2328	A	0.8	375	25	1500	2 3/8	3 3/4	1 7/8	3 1/8	1.5	5.56	5.01	4.52	4.19	3.53	3.31
01F896	C-2708	A	0.32	600	10	1500	2	3 1/4	1 5/8	1 3/4	1.3	4.23	3.81	3.44	3.19	2.69	2.52

(*) Insulation Test Voltage: Twice allowable RMS Working Volts plus 1000 V.

NOTE: Inductance values shown are measured at full amount of DC listed and at specified values of RMS Voltage and frequency. All items are made with Class "A" insulating materials and will withstand operation up to a limit of 105° continuously.

HIGH CURRENT CHOKES—INDUCTANCE MEASURED AT 1 VOLT 60 HZ. Termination Leads.

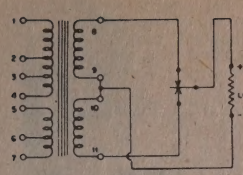
Stock No.	Type	Style	Induct. mH	DC Amps	DC Res. Ohms	RMS V*	Case Dim.			Mtg. Dim.		Wt. Lbs.	Each Boxed				Bulk Packed	
							H	W	D	MW	MD		1-9	10-24	25-49	50-99	100-249	250-499
05F1485	TC-1	A2	3.0	1.0	.25	1000	1 3/16	1 1/2	1 1/8	1 3/16	7/16	0.6	2.37	2.14	1.93	1.79	1.51	1.41
01F721	TC-2	A2	11.0	1.0	.75	1000	1 3/16	1 1/2	1 1/8	1 3/16	7/16	0.3	2.54	2.29	2.07	1.92	1.62	1.52
01F893	C-2685	NH	35	2.0	.75	1500	2 5/16	2 5/8	2 1/8	2 5/16	2	1.9	7.16	6.46	5.83	5.41	4.57	4.29
01F894	C-2686	NH	25	4.0	.43	1500	2 7/8	3 3/8	2 5/8	2 13/16	2 1/8	3.4	10.53	9.49	8.55	7.93	6.67	6.26
01F049	C-2687	NH	10	8.0	.15	1500	3 3/16	3 3/4	3	3 1/8	2 1/2	5.3	13.13	11.83	10.66	9.88	8.32	7.80
01F895	C-2688	NH	10	12.5	.11	1500	3 1/2	4 1/8	2 7/8	3 7/16	2 3/8	5.9	16.10	14.52	13.09	12.14	10.24	9.61

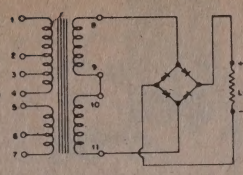
(*) Insulated Test Voltage: Twice allowable RMS Working Volts plus 1000 V.

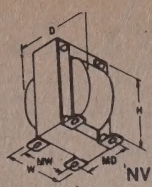
NOTE: The above listed High Current Chokes are normally used in low voltage, high current DC power supply filter applications, where low voltage drop across filter and good voltage regulation is required without any type of voltage regulator

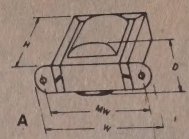
Rectifier Transformers

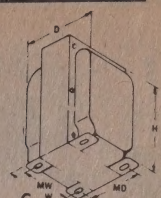
ESSEX STANCOR











UNIVERSAL RECTIFIER TRANSFORMERS - Primaries 117 V, 50/60 Hz. Solder Lug Termination. Style NV.

Stock No.	Type	Rect. Circuit	Range of Applied AC Volts Under Load (Approx.)	Output Resistive or Inductive Load Max. DC Volts	Output Resistive or Inductive Load Max. DC Amp.	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	Each, Boxed 1-9	Each, Boxed 10-24	Each, Boxed 25-49	Each, Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
01F378	RT-201	C.T.	11.7 to 29.4	11.2	2.0	3⅛	2½	2⅜	2	2⅛	2.5	10.24	9.24	8.34	7.74	6.54	6.14
		Bridge	11.1 to 28.5	23.0	1.25												
01F379	RT-202	C.T.	12.0 to 29.8	11.1	4.0	3 11/16	2 13/16	2¾	2¼	2⅜	3.8	14.08	12.71	11.47	10.64	8.99	8.44
		Bridge	12.0 to 29.8	24.3	2.0												
01F380	RT-204	C.T.	11.7 to 29.2	12.0	8.0	3 13/16	3⅛	3½	2½	2⅞	6.1	19.52	17.60	15.88	14.73	12.43	11.66
		Bridge	11.6 to 29.2	24.0	4.0												
01F381	RT-206	C.T.	12.0 to 29.7	11.5	12.0	4 3/16	3 7/16	4	2¾	3¼	9.1	26.64	24.01	21.64	20.06	16.89	15.84
		Bridge	12.0 to 29.7	24.0	6.0												
01F382	RT-208	C.T.	12.1 to 29.2	11.4	15.0	4 3/16	3¼	5	2 5/16	3¾	12.6	34.46	31.06	28.00	25.96	21.88	20.52
		Bridge	12.1 to 29.2	23.7	8.0												
01F383	RT-2012	C.T.	12.2 to 29.0	11.4	22.5	5 5/16	4⅜	5⅞	3½	4¼	20.5	55.63	50.09	45.10	41.77	35.12	32.90
		Bridge	12.2 to 29.0	23.5	12.0												
05F1444	RT-400	C.T.	23.5 to 60.0	25.0	1.0	3⅛	2½	3⅜	2	2¼	2.7	14.42	13.00	11.73	10.88	9.18	8.61
		Bridge	23.5 to 60.0	53.0	0.5												
05F1445	RT-401	C.T.	24.0 to 59.0	52.0	2.0	3 7/16	2 13/16	3 11/16	2¼	2½	4.1	15.61	14.08	12.70	11.78	9.93	9.32
		Bridge	24.0 to 59.0	52.5	1.0												
05F1446	RT-402	C.T.	23.0 to 58.0	25.0	4.0	3 13/16	3⅛	4½	2½	3 11/16	6.9	20.94	18.87	17.01	15.77	13.29	12.47
		Bridge	23.0 to 58.0	51.5	2.0												
01F384	RT-408	C.T.	25.0 to 53.5	...	...	5 5/16	4⅜	6¾	3½	5¼	26.5	92.61	83.44	75.19	69.69	58.68	55.02
		Bridge	25.0 to 53.5	44.0	8.0												
01F1447	RT-4012	C.T.	25.0 to 53.0	...	...	7⅛	5⅜	6½	4⅝	5½	34.0	113.30	102.30	92.40	85.80	72.59	68.19
		Bridge	25.0 to 53.0	43.5	12.0												

* Higher D.C. voltage output with capacitive load.

For Transistor Power Supplies - Primaries 117 V, 60 Hz

Lead Wire Termination.

Stock No.	Type	Style	Secondary 1 Volts	Secondary 1 Amps	Secondary 2 Volts	Secondary 2 Amps	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	Each, Boxed 1-9	Each, Boxed 10-24	Each, Boxed 25-49	Each, Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
05F1460	P-8604*	A	20 C.T.	1.0 Amps. RMS	—	—	2	3¼	2⅛	2 13/16	—	1.4	5.09	4.59	4.14	3.84	3.24	3.04
05F1461	P-8614*	C	30	3.0 Amps. RMS	—	—	3½	2 13/16	3⅝	2¼	2 5/16	4.2	12.60	11.40	10.32	9.60	8.16	7.68
01F046	P-8197	C	50 C.T.	1.0 Amps. RMS	—	—	3⅛	2½	2 1/16	2	1¾	2.3	9.74	8.78	7.92	7.34	6.19	5.81
01F047	P-8198	C	64 C.T.	0.5 Amps. RMS	6.3	5 Amps. RMS	2⅝	2 3/16	2 5/16	1¾	1⅝	1.7	7.95	7.17	6.46	5.99	5.05	4.74
01F1462	P-8194	NV	36	3.0 Amps. RMS	36	3 Amps. RMS	4 5/16	3¾	3¾	3	3	—	30.30	27.30	24.60	22.80	19.20	18.00
01F828	P-8196	C	80 C.T.	1.2 Amps. RMS	—	—	3½	2 13/16	3⅝	2¼	2⅜	4.5	12.77	11.50	10.36	9.60	8.08	7.58

(*) May be operated from 117 volts 50/60 Hz at full rated load. and allowable DC Current.
Write **Newark** for Bulletin 587 for Rectifier Circuits showing DCV

RECTIFIER TRANSFORMERS

Primaries 117 V, 60 Hz. Lead Wire Termination. Multiple primary and secondary taps offer a wide selection of output Voltages. All DC current rating are based on capacitor input Filtering. Max. DCMA for TP-1 is for each secondary.

Stock No.	Type	Style	Max. DC MA Full-Wave CT	Max. DC MA Bridge	Max. DC MA Half Wave	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
01F441	TP-1	C	1500	900	450	3⅛	2½	3	2	2	2.7	10.57	9.54	8.61	7.99	6.74	6.33
01F825	TP-2	A	150	100	50	1⅝	2⅛	1⅞	2⅜	—	0.7	5.57	5.03	4.54	4.22	3.56	3.35
01F826	TP-3	A	400	300	150	2⅜	3¾	2⅛	3⅜	—	1.5	6.84	6.17	5.57	5.17	4.37	4.11
01F827	TP-4	C	1500	1000	500	3⅛	2½	3⅛	2	2⅛	3.2	11.95	10.79	9.74	9.04	7.64	7.18
05F1448	TP-5	A	1100	750	375	2⅝	4	2⅜	3 11/16	—	2.3	8.50	7.67	6.92	6.42	5.41	5.08

POWER SUPPLY TRANSFORMERS FOR PERIPHERAL COMPUTER ACCESSORIES

PCA Series. Designed for use in power supplies delivering regulated positive and negative D.C. voltage for op-amps and separate 5-6 V regulated voltage for logic circuits. All transformer ratings are for continuous duty with a 105°C max. operating temp. limit. All primaries for 120 V, 50-60 Hz. With solder lug terminals.

Stock No.	Type	Style	Sec. #1 A.C. Volts	Sec. #1 A.C. Amps	Sec. #2 A.C. Volts	Sec. #2 A.C. Amps	Case Dimension H	Case Dimension W	Case Dimension D	Mfg. Dimen. MW	Mfg. Dimen. MD	Wt. Lbs.	Each, Boxed 1-9	Each, Boxed 10-24	Each, Boxed 25-49	Each, Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
01F001	PCA-1	S	35 C.T.	0.21	—	—	2⅜	2⅞	1⅝	2⅜	—	1.0	4.92	4.45	4.02	3.73	3.16	2.97
01F003	PCA-2	S	33 C.T.	0.35	—	—	2 1/16	3⅛	1⅞	2 3/16	—	1.4	5.78	5.22	4.72	4.39	3.72	3.49
01F005	PCA-3	NV	33 C.T.	0.21	18 C.T.	1.25	3⅛	2½	2⅝	2	2⅜	3.0	10.37	9.35	8.42	7.81	6.58	6.17
01F009	PCA-4	NV	34 C.T.	0.35	19 C.T.	2.50	3 7/16	2 13/16	2⅞	2¼	2⅜	3.9	12.45	11.21	10.09	9.35	7.85	7.36

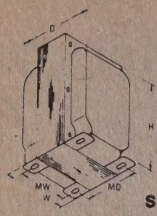
CONSTANT VOLTAGE-LINE TO VOICE COIL

70.7 Volt—Termination Lugs except A-8083 and A-8084 leads. RMS test voltage: 1000.

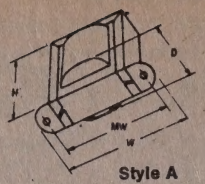
Stock No.	Type	Style	Imp. Ohms Pri.	Sec.	Power Steps in Watts	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. MW	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
01F373	A-8102	S	625/1250/2500/5000/10000	4/8/16	8/4/2/1/0.5	2	2⅜	1⅝	2	0.7	5.49	4.96	4.48	4.16	3.52	3.30
05F1470	A-8103	S	312/625/1250/2500/5000/10000	4/8/16	16/8/4/2/1/0.5	2¾	3⅛	2¼	2 3/16	1.5	7.87	7.10	6.41	5.95	5.03	4.73
01F126	A-8105	A	1000/2000/4000/8000/16000	4/8	5/2.5/1.25/.62/.31	1⅜	2⅜	1½	2	0.4	5.16	4.66	4.21	3.91	3.31	3.11
05F1471	A-8109	A	2500/5000/10000	4/8	2/1/0.5	1¼	2⅛	1⅜	1¾	0.3	4.45	4.02	3.63	3.37	2.85	2.67
01F344	A-8084	A	1250/2500/5000/10000/20000/40000	8	4/2/1/.5/.25/.12	1⅝	2⅞	1⅝	2⅜	0.7	5.73	5.17	4.67	4.34	3.67	3.44
01F974	A-8078	S	167/250/500/1000	4/8/16	30/20/10/5	2⅜	2⅞	1¾	2⅜	1.0	6.95	6.26	5.64	5.22	4.39	4.11

For a Complete Listing of Stancor Transistor Transformers Ask NEWARK For the latest complete Stancor Catalog

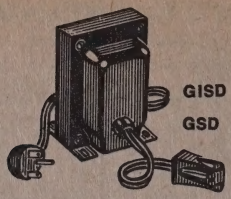
Power Transformers

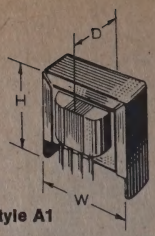


Style C



Style A





Style A1

STEP DOWN AUTO-TRANSFORMERS

Primaries 230 Volts 50/60 Hz. Line cord and plug secondaries 115 Volts, standard female receptacle except (†).

Stock No.	Type	Style	VA Cap	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
05F305	P-8620†	A	50	2 5/16	3 1/16	1 7/8	3 1/8	...	1.5	4.91	4.43	3.99	3.70	3.12	2.93
05F1415	P-8630	C	85	3 1/2	2 5/8	2 3/4	2	1 3/4	2.5	11.45	10.33	9.31	8.64	7.29	6.84
05F1416	P-8631	C	125	3 1/2	2 5/8	3	2	2	3.0	11.96	10.79	9.73	9.02	7.60	6.14
05F1417	P-8632	C	200	3 3/8	3 1/8	3 3/4	2 1/2	2	4.2	160.5	14.48	13.06	11.11	10.22	9.59
05F1418	P-8633	C	300	3 3/8	3 1/8	4 1/8	2 1/2	2 13/16	5.2	17.78	16.03	14.46	13.41	11.31	10.61
05F1419	P-8634	C	400	3 3/8	3 1/8	4 3/4	2 1/2	3	7.0	21.29	19.19	17.30	16.04	13.52	12.68
05F1420	P-8635	C	500	4 3/16	3 3/4	4 3/4	3	3 5/16	10.3	26.99	24.32	21.92	20.32	17.12	16.06
05F1421	P-8636	C	1000	4 3/16	3 3/4	6 3/8	3	4 7/8	17.0	38.03	34.26	30.87	28.61	24.09	22.59

STEP-UP AUTO-TRANSFORMERS

Primaries 115V, 50/60 Hz., line cord and plug. Secondaries 230V, standard female receptacles.

01F085	P-8637	C	85	3 1/2	2 5/8	2 3/4	2	1 3/4	2.5	11.29	10.18	9.18	8.52	7.19	6.74
01F092	P-8638	C	125	3 1/2	2 5/8	3	2	2	3.0	11.96	10.79	9.73	9.02	7.61	6.14
01F089	P-8639	C	300	3 3/8	3 1/8	3 7/8	2 1/2	2 3/8	5.2	18.65	16.82	14.17	14.07	11.86	10.13
01F088	P-8640	C	500	4 3/16	3 3/4	4 3/4	3	3 5/16	10.3	28.37	25.58	23.07	21.39	18.04	16.92

STEP-DOWN AUTO-TRANSFORMERS—THREE CONDUCTOR LINE CORD AND RECEPTACLE

50/60 Hz. Case and core internally connected to third conductor of NEMA standard cord and receptacle.

Stock No.	Type	Voltage In-put	Voltage Out-put	Style	VA Cap	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
05F1422	GSD-75	230	115	C	75	3 3/8	3 3/16	2 3/4	2 1/2	1 1/2	3.0	14.68	13.25	11.96	11.10	9.37	8.80
05F1423	GSD-100	230	115	C	100	3 3/8	3 3/16	3	2 1/2	1 3/4	3.7	16.19	14.61	13.18	12.23	10.33	9.70
05F1424	GSD-150	230	115	C	150	3 3/8	3 3/16	3 1/4	2 1/2	2	4.4	16.98	15.31	13.81	12.81	10.81	10.15
05F1425	GSD-250	230	115	C	250	3 3/8	3 3/16	3 5/8	2 1/2	2 3/8	7.6	22.28	20.11	18.16	16.86	14.26	13.40
05F1426	GSD-350	230	115	C	350	3 3/8	3 3/16	4 5/16	2 1/2	3	7.4	23.65	21.32	18.50	17.82	15.01	14.08
05F1427	GSD-500	230	115	C	500	4 5/8	3 13/16	4 7/16	3	3 3/8	9.6	27.00	24.33	21.93	20.33	17.13	16.07
05F1428	GSD-750	230	115	C	750	4 5/8	3 13/16	5 3/16	3	4 1/8	14.4	37.03	33.36	33.06	27.86	23.46	21.99
05F1429	GSD-1000	230	115	C	1000	4 5/8	3 13/16	6	3	5	16.5	42.70	27.90	34.15	31.65	26.65	24.98
05F1430	GSD-1500	230	115	C	1500	5 1/2	4 5/8	6	3 1/2	4 3/8	20.1	70.27	63.44	57.28	53.18	44.98	42.25

STRAIGHT ISOLATION—ELECTROSTATIC SHIELDS GROUNDED TO CORE

Primaries 50/60 Hz. Line cord P-6410 Secondary female receptacle. P-6411, P-6412, Lead Term. P-6160, P-6161 Tap Switch.

01F043	P-6411	115	115	A	15	2	3 1/4	1 7/8	2 13/16	—	1.0	5.26	4.74	4.28	3.97	3.35	3.14
05F1432	P-6412	115	115	A	35	2 3/8	3 3/4	2	3 1/8	—	1.7	6.77	6.10	5.50	5.10	4.30	4.05
01F317	P-6410	115	115	C	50	3 1/2	2 13/16	3 1/8	2 1/4	1 7/8	3.7	14.29	12.89	11.63	10.79	9.11	8.55
01F315	P-6160	105/115/125	115	C	100	4 1/16	3 3/4	3 3/4	3	2 5/16	7.0	28.49	25.70	23.19	21.51	18.16	17.04
01F923	P-6161	105/115/125	115	C	250	4 1/16	3 3/4	5 1/2	3	4 5/16	14.2	38.93	35.10	31.65	29.35	24.74	23.21

STRAIGHT ISOLATION—THREE CONDUCTOR LINE CORD AND RECEPTACLE

115/115 Volts, 50/60 Hz. Case, core, and electrostatic shield internally connected to 3rd conductor of NEMA standard cord and receptacle for safety.

Stock No.	Type	Voltage In-put	Voltage Out-put	Style	VA Cap	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	EACH BOXED 1-9	EACH BOXED 10-24	EACH BOXED 25-49	EACH BOXED 50-99	BULK PACKED 100-249	BULK PACKED 250-499
01F1000	GIS-100	115	115	C	100	3 1/2	2 13/16	3 9/16	2 1/4	2 7/16	4.5	16.51	14.89	13.44	12.47	10.53	9.88
01F1001	GIS-150	115	115	C	150	3 7/8	3 3/16	4 3/16	2 1/2	2 5/16	7.0	20.91	18.83	16.95	15.70	13.20	12.37
01F1002	GIS-250	115	115	C	250	4 1/16	3 1/4	4 3/8	3	3 3/16	9.3	26.57	23.94	21.58	20.01	16.85	15.80
01F1003	GIS-500	115	115	C	500	4 1/16	3 3/4	6	3	4 13/16	16.5	40.69	36.69	33.09	30.69	25.89	24.29
01F1004	GIS-1000	115	115	C	1000	5 1/2	4 5/16	8 1/8	3 1/2	6 1/2	31.5	79.61	71.86	64.88	60.23	50.93	47.83

STEP-DOWN ISOLATION—THREE CONDUCTOR LINE CORD AND RECEPTACLE

230/115 Volts, 50/60 Hz. Case, core and electrostatic shield internally connected to third conductor of NEMA standard cord and receptacle for safety.

Stock No.	Type	Voltage In-put	Voltage Out-put	Style	VA Cap	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	EACH BOXED 1-9	EACH BOXED 10-24	EACH BOXED 25-49	EACH BOXED 50-99	BULK PACKED 100-249	BULK PACKED 500-499
01F1005	GSD-100	230	115	C	100	3 1/2	2 13/16	3 9/16	2 1/4	2 7/16	4.5	17.54	15.83	14.29	13.27	11.22	10.53
01F1006	GSD-150	230	115	C	150	3 7/8	3 3/16	4 3/16	2 1/2	2 5/16	7.0	21.43	19.31	17.39	16.12	13.57	12.72
01F1007	GSD-250	230	115	C	250	4 1/16	3 1/4	4 1/4	3	3 3/16	9.0	27.06	24.39	21.99	20.39	17.19	16.13
01F1008	GSD-500	230	115	C	500	4 1/16	3 3/4	6	3	4 13/16	16.0	48.53	43.74	39.42	26.55	33.80	28.88
01F1009	GSD-1000	230	115	C	1000	5 1/2	4 5/16	8 1/8	3 1/2	6 1/2	31.0	81.10	73.08	65.38	61.08	51.46	48.27

STEP-DOWN ISOLATION—ELECTROSTATIC

Primaries 50/60 Hz, line cord secondary female receptacles. Tested at 1500V RMS. Primary Switch.

05F1433	P-6385	210/230/250	115	C	250	4 1/16	3 3/4	5 1/2	3	4 5/16	14.2	37.92	35.99	32.45	30.09	25.36	23.79

ISOLATION TESTING TRANSFORMERS—ELECTROSTATIC SHIELD GROUNDED TO CORE

Primaries 50/60 Hz. line cord secondary three female receptacles Tested at 1500V RMS.

01F316	P-6415	117	105/115/125	C	350	5 1/2	4 5/8	5 1/16	3 1/2	4 1/16	17	46.18	41.56	38.41	36.64	29.09	27.25

Variable Transformers

STACO

SINGLE PHASE MODELS—120 VOLTS INPUT

Type numbers without suffix are open styles designed for bench or panel mounting. Suffix "C" denotes coils enclosed in a metal housing. Suffix "CT" have coils and terminals enclosed, for panel/conduit mounting. All are for 50/60 Hz, except (*)60 Hz only, or † 60 Hz on overvoltage.

Stk. No.	Type	Fig.	Output Volts	Output Amps	Output KVA	Size, Inches H x W x D	Wt. Lbs.	Each
05F345	221	A	┼0-120/132	2.25	0.30	2 13/16 x 3 5/32 x 2 1/8	3	17.70
5F301	171	A	┼0-120/132	1.75	0.23	2 13/16 x 3 5/32 x 1 7/8	3	16.25
79W028	201	A	┼0-120/132	2.0	0.26	2 13/16 x 3 5/32 x 1 7/8	3	16.70
05F302	251	A	┼0-120/132	2.5	0.33	2 13/16 x 3 5/32 x 2 5/16	3	18.55
79W029	291	A	┼0-120/132	3.0	0.39	2 13/16 x 3 5/32 x 2 5/16	3	19.05
05F303	371	B	┼0-120/140	3.75	0.53	4 5/32 x 3 3/4 x 3 1/4	5	27.75
05F304	501	B	0-120/140	5.0	0.70	5 5/32 x 3 3/4 x 3 5/16	6	27.85
05F306	1010	C	0-120/140	10.0	1.4	5 29/32 x 5 x 4 5/32	11	37.65
05F1312	1010CT	E	0-120/140	10.0	1.4	6 7/8 x 5 x 4 7/16	12	55.15
79W030	SQ1010	B	0-120/140	10.0	1.4	5 3/16 x 4 1/4 x 4 5/32	11	39.15
05F307	1210	C	*0-120	12.0	1.4	5 29/32 x 5 x 4 5/32	11	39.90
05F308	1510	D	0-120/140	15.0	2.1	6 13/16 x 6 1/8 x 4 1/4	20	70.75
05F330	2510	D	0-120/140	25.0	3.5	8 1/4 x 7 3/8 x 4 1/8	23	103.00
05F1319	2510CT	E	0-120/140	25.0	3.5	10 1/16 x 7 3/8 x 4 3/8	25	126.20
05F334	5010	F	0-140	50.0	7.0	15 3/8 x 13 7/8 x 5 1/4	60	241.95
79W034	5010C	G	0-140	50.0	7.0	15 3/8 x 14 1/8 x 7 1/8	62	251.00
79W035	6010	F	0-120/140	60.0	8.4	15 3/8 x 13 7/8 x 5 1/4	70	279.90
79W036	6010C	G	0-120/140	60.0	8.4	15 3/8 x 14 1/8 x 7 1/8	72	290.50
79W037	6010CT	—	0-120/140	60.0	8.4	17 15/16 x 14 1/8 x 7 1/8	73	318.20

SINGLE PHASE MODELS—240 VOLTS INPUT

Stk. No.	Type	Fig.	Output Volts	Output Amps	Output KVA	Size, Inches H x W x D	Wt. Lbs.	Each
79W038	252	A	†0-240/264	0.8	0.21	2 13/16 x 3 5/32 x 2 1/8	3	30.00
05F309	1020	C	0-240/280	3.5	0.98	5 29/32 x 5 x 4 5/32	11	46.40
05F1314	1020CT	E	0-240/280	3.5	0.98	6 7/8 x 5 x 4 7/16	12	58.55
05F310	1520	D	0-240/280	9.5	2.7	6 13/16 x 6 1/8 x 4 5/8	21	70.75
79W040	1520C	—	0-240/280	9.5	2.7	6 13/16 x 6 3/16 x 4 7/8	22	78.65
05F1318	1520CT	E	0-240/280	9.5	2.7	6 13/16 x 8 31/32 x 4 7/8	23	94.85
05F1320	2520	D	0-240/280	10.0	2.8	8 1/4 x 7 3/8 x 4 1/8	23	103.00
05F336	5020	F	0-240/280	28.0	7.8	15 3/8 x 13 7/8 x 5 1/4	60	229.10
79W044	6020	F	0-240/280	35.0	9.8	15 3/8 x 13 7/8 x 5 1/4	70	270.40
79W045	6020C	G	0-240/280	35.0	9.8	15 3/8 x 14 1/8 x 7 1/8	73	290.50
79W046	6020CT	—	0-240/280	35.0	9.8	17 15/16 x 14 1/8 x 7 1/8	74	318.20

PORTABLE MODELS

Prefix "3PN" indicates 3-prong cord, plug and receptacle; prefix "2PF" denotes 2-wire cord, plug and recept. Supplied with line cord, and plug w/recept., fuse & pilot.

Stk. No.	Type	Fig.	Input Volts	Output Volts	Output Amps	Output KVA	Size, Inches H x W x D	Wt. Lbs.	EACH
5F329	2PF171	H	120	†0-132	1.75	0.23	4 x 4 x 3 5/16	3 1/2	35.85
5F333	3PN171	H	120	†0-132	1.75	0.23	4 x 4 x 3 5/16	3 1/2	43.15
5F328	3PN501	H	120	0-120/240	5.0	0.70	4 15/32 x 6 1/16 x 5 3/8	9	54.50
5F312	2PF1010	J	120	0-120/140	10.0	1.4	7 5/8 x 5 x 4 7/16	13	55.05
5F326	3PN1010	J	120	0-120/140	10.0	1.4	7 5/8 x 5 x 4 7/16	13	55.70
5F1303	3PN1510	K	120	0-120/140	15.0	2.1	9 x 6 3/16 x 4 1/2	22	104.00
5F313	3PN2210	K	120	0-140	25.0	3.5	10 3/4 x 7 5/8 x 4 3/8	25	151.25
5F1305	3PN1020	J	240	0-240/280	3.5	0.98	7 5/8 x 5 x 4 7/16	13	68.80
5F1309	3PN1520	K	240	0-240/280	9.5	2.7	9 x 6 3/16 x 4 7/8	23	108.00

METERED PORTABLE MODELS

120 Volt model has 0-150V voltmeter and 240 Volt model has 0-300V voltmeter.

05F858	3PN1010V	L	120	0-140	10.0	1.4	7 5/8 x 5 x 4 7/16	13	85.50
05F859	3PN1020V	L	240	0-280	3.5	0.98	7 5/8 x 5 x 4 7/16	13	97.35

THREE-PHASE MODELS—240 VOLTS INPUT

Stock No.	Type	Fig.	Output VAC	Output Amps	Output KVA	Size, in. H x W x D	Wt. Lbs.	Each
02F1090	221-3	P	0-240	2.25	.94	3 7/8" x 3 7/8" x 8 1/8"	9	91.75
02F1091	1010-3	P	0-240/280	10.0	4.85	6 1/8" x 5" x 14 13/32"	36	145.95
02F1092	1510-3	P	0-240/280	15.0	6.22	7 1/16" x 6 1/8" x 14 1/16"	56	261.45
79W093	2510-3	P	0-240/280	25.0	12.1	8 5/8" x 7 5/8" x 14 5/8"	72	372.85
79W094	5010-3Y	P	0-280	50.0	24.2	15 7/16" x 13 7/8" x 19 5/8"	225	865.00

THREE-PHASE MODELS—480 VOLTS INPUT

02F1093	252-3	P	0-480/528	.8	.73	3 7/8" x 3 7/8" x 8 1/8"	9	142.25
02F1094	1020-3	P	0-480/560	3.5	3.4	6 1/8" x 5" x 14 13/32"	36	172.55
02F1095	1520-3	P	0-480/560	9.5	9.2	7 1/16" x 6 1/8" x 15 1/16"	56	261.45
79W095	2520-3	P	0-480/560	10.0	9.70	8 5/8" x 7 5/8" x 14 5/8"	72	372.85
79W096	5020-3Y	P	0-480/560	28.0	27.2	15 7/16" x 13 7/8" x 19 5/8"	225	836.00

AC POWER SUPPLIES

With 3 conductor line cord, plug & matching receptacle pilot light, switch & circuit breaker. Available with voltmeter (V), ammeter (A) or a wattmeter (W) or combination. 120V input.

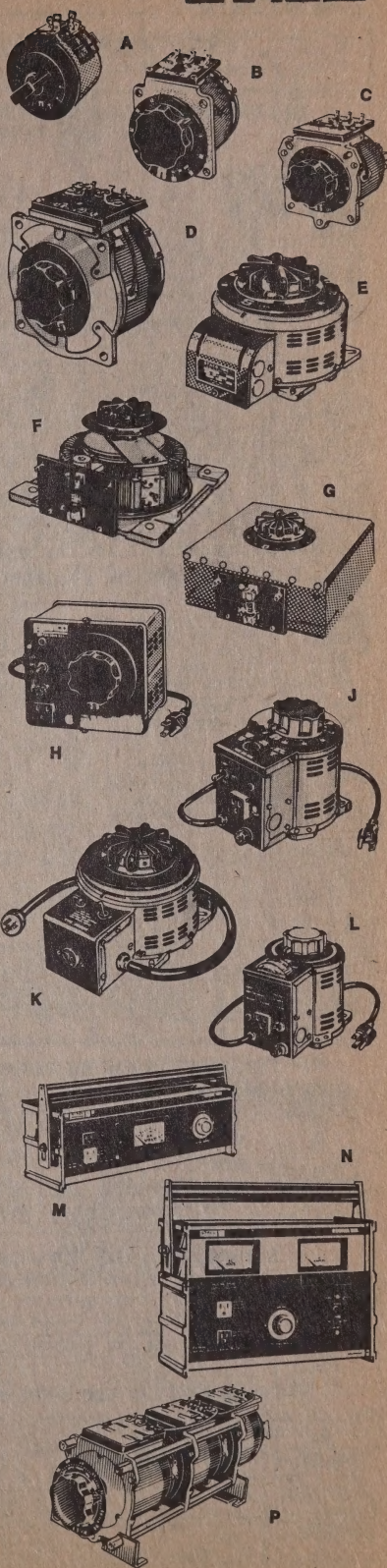
05F322	E1010VA	N	0-120/140	10.0	1.4	10 x 15 1/16 x 5 7/8	21	245.45

ISOLATED AC/DC POWER SUPPLIES

Output voltage is isolated from the power line. Has isolated DC outputs equal to AC rating. UL listed & CSA approved. 120V input.

05F324	EJ401V	M	0-140	4.0	0.56	10 x 15 3/32 x 5 7/8	30	193.70
05F325	EJ901V	M	0-140	9.0	1.26	10 x 16 3/32 x 7 1/2	36	274.00

Note: Manually operated types are available with motor drive

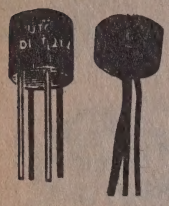


14

TRW UTC Transformers and Inductors

APPLICATION CODE: A-Output, **B**-Match, **C**-Mixing, **D**-Isol., **E**-Interstage, **F**-Driver, **G**-Input, **H**-Inductor, **I**-Single, **J**-PP-Output, **K**-Hipermalloy Shield, **L**-Chopper.

DI-T200 TRANSISTOR TRANSFORMERS MEET MIL-T-27C-TF4RX



Smaller than the DO-T Deci-Ouncers (below). With uninsulated leads spaced on .1" radius for printed circuit boards. Power ratings and other characteristics identical to DO-T's, except frequency response is approximately ±3 dB, 400-1000,000 Hz. Hermetically sealed; rated for Class R (105°C max. operating) temperature conditions. Size 5/16" dia. x 3/8". Wt., 1/15 oz.

Stock No.	Type	Application	Pri. Imp.	Sec. Imp.	1-4	5-9	10-24
02F651	DI-T240	E/A	400/500 CT	400/500 Split	17.12	14.84	13.54
02F652	DI-T245	A/B	500/600 CT	50/600 CT	14.05	12.18	11.11
02F653	DI-T250	A/C	500 CT	600 CT	14.69	12.74	11.62
02F655	DI-T260	A	1500 CT	600 CT	14.69	12.74	11.62
12F1815	DI-T265	D/E	2K/2.5K CT	8K/10K Solit	17.75	15.39	14.04
02F657	DI-T270	A/F	10K/12K CT	500/600 CT	15.88	13.77	12.56
02F658	DI-T273	A/F	10K/12.5K CT	2K/2.5K Split	15.88	13.77	12.56
02F661	DI-T283	D/E	10/12K CT	10K/12K CT	17.12	14.84	13.54
02F662	DI-T288	E/F	20K/30K CT	800/1200 CT	16.49	14.30	13.04
12F1814	DI-T200SH	K	15 to 20 db shielding. 37/64" h. x 3/8" dia., no cover		1.54	1.34	1.22

DO-T TRANSISTOR TRANSFORMERS

Unprecedented power handling capacity, reliability; plus ultra-small size. Hermetically sealed, metal cased to MIL-T-27C. Power rating, ±2 dB, 200-20,000 Hz. Low distortion. Anchored leads stand 10-lb. pull test; tinned and insulated copper conductors. Size 5/16" x 13/32" long. Weight 1/10 oz.

Stock No.	Type	Application	Pri. Imp.	Sec. Imp.	1-4	5-9	10-24
03F550	DO-T1	E	20K/30K	800/1200	12.22	10.59	9.67
03F554	DO-T5	A	1200	3.2	11.06	9.59	8.75
05F1334	DO-T7	G	200K	1K	18.92	16.40	14.97
03F557	DO-T8	H	3.5 Hy 2mA	.....	9.80	8.50	7.75
03F660	DO-T9	F/A	10/12K	500/600 CT			
03F661	DO-T10	F	10K/12.5K	1.2K/1.5K CT	13.47	11.68	10.65
03F662	DO-T11	F	10K/12.5K	2K/2.5K CT			
12F1816	DO-T14	I/J	600/800 CT	12/16			
03F666	DO-T15	A	800/1070 CT	12/16			
12F1817	DO-T17	I/J	1.5K/2K CT	12/16	12.22	10.59	9.67
03F671	DO-T20	A	500 CT	600			
03F673	DO-T22	A	1.5K CT	600			
03F674	DO-T23	E	20K/30K CT	800/1.2K CT	14.06	12.19	11.12
03F675	DO-T24	G	200K CT	1K CT	20.20	17.51	15.98
12F1818	DO-T25	E	10K/12K CT	1.5K/1.8K CT	14.73	12.77	11.65
03F658	DO-T27	H	1.25 Hys. @ 2 ma DC		9.82	8.51	7.78
03F255	DO-T36	E	10K/12K CT	10K/12K CT	15.35	13.31	12.14
12F1819	DO-T38	E	10K/12K CT	2K/2.4K Split	15.90	13.79	12.58
02F670	DO-T41	E	400/500 CT	400/500 Split	15.35	13.31	12.14
12F1820	DO-T46	G/L	100K CT	500 CT	19.59	16.98	15.50
03F659	DO-TSH	K	.....	.....	1.88	1.63	1.49

PIP TRANSISTOR PULSE TRANSFORMER

Meets Mil. Spec. MIL-T-21038B-TP6RX Subminiature, hermetically sealed metal case. Checked in transistor test circuit to give required pulse width. Size 5/16" dia. x 3/16"/ Wt. 1/20 oz.

Stock No.	Type	Width μ sec.	Rise Time	Imp. Out	1-4	5-9	10-24	25-99
02F558	PIP-9	10.0	.35	200	12.22	10.61	9.67	8.85
02F554	PIP-5	1.0	.08	100				

MINIATURE WIDE APPLICATION PULSE TRANSFORMERS

Hermetically sealed to MIL-T-21038B-TP7SX by vacuum molding. Temperature.—70°to +130°C. Wound core structure.

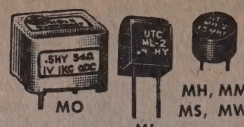
03F087	H51	3	.10	500	17.45	15.13	13.80	12.63

TYPE LS HYBRID AND REPEAT COILS

High efficiency, low waveform distortion. Electrostatic shielding. 3⅛x2⅝x3¼".

Stock No.	Type No.	Primary Impedance	Secondary Impedance	1-4	5-9	10-24	25-99
02F831	LS-68	600/150 split	2 split 600/150	84.96	73.66	67.20	61.51
03F549	LS-140	600/600 split	500/600 split	86.57	75.06	68.48	62.68
03F290	LS-141	3 sets of Bal. Wdgs.	500/600 CT	83.31	72.23	65.90	60.32

MINIDUCTORS (MIL-T-27D-TF5RX)



MH, MM, MS, MW

Hi Q in ultracompact form. Grade 5, hermetically sealed to MIL-T-27C. Temp. stability from ±1% to ±3%, −55° to +105°C. **MH:** Epoxy molded toroidal with max. Q at 100 kHz; 7/16 dia. x ¼". **MM:** Same as MH but max. Q at 30 kHz. **ML:** Hipermalloy cased, with maximum Q at 800 Hz or 1.5 kHz; 7/16x31/64x9/16". **MO:** Epoxy mounted, laminated; max. Q at 600 or 1500 Hz; ¾x1 1/16x1 3/16". **MS:** Ultraminiature toroidal, max. Q at 20 kHz; 35" dia. x .23". **MW:** Toroidal, max. Q at 10 kHz; 23/32" dia. x 13/32". **SR series:** Ideal for switching regulator and AC filter choke applications. Inductance measured at 1V, 10kHz, O DC with tolerance of +15%, −5%. Sizes: **SRA,** ⅞" dia. x 7/16"; **SRB,** 1 3/16" dia. x 9/16"; **SRC,** 1⅜" dia. x ¾".

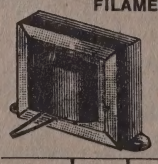
Stock No.	Type	Inductance — 0 mA	Max. DC mA	1-4	5-9	10-24	25-99
04F529	MH-6	15 mHy	18	16.67	15.00	14.17	12.92
02F800	ML-0	0.15 Hy	12				
03F183	ML-1	0.25 Hy	9	16.59	14.93	14.10	12.86
04F530	ML-2	0.4 Hy	7				
04F531	ML-3	0.7 Hy	5				
03F186	ML-4	1.4 Hy	3				
03F194	ML-8	10.0 Hy	0.5	16.59	14.93	14.10	12.86
04F536	MM-8	120 mHy	8				
02F684	MO-2	2 Hy	8	21.73	19.56	18.47	16.84
02F682	MO-5	5 Hy	5	21.73	19.56	18.47	16.84
04F540	MO-20	20 Hy	2.7	21.73	19.56	18.47	16.84
02F688	MO-50	50 Hy	1.4	22.65	20.39	19.25	17.55
04F541	MS-1	1 mHy	60	20.31	18.28	17.26	15.74
04F546	MS-50	50 mHy	9	22.68	20.41	19.28	17.58
02F903	MW-.10	.10 Hy	18	14.36	12.92	12.21	11.13
02F804	MW-.25	.25 Hy	11	14.36	12.92	12.21	11.13
12F1821	SRA-350	350 mHy	.2	13.53	11.73	10.70	9.80
12F1822	SRA-500	500 mHy	.3	13.61	11.80	10.77	9.85
12F1823	SRA-800	800 mHy	.45	13.80	11.96	10.92	9.99
12F1824	SRA-1250	1250 mHy	.7	13.88	12.03	10.98	10.05
12F1825	SRB-320	320 mHy	.13	13.36	11.58	10.57	9.67
12F1826	SRB-520	520 mHy	.2	13.53	11.73	10.70	9.80
12F1827	SRB-780	780 mHy	.3	13.71	11.89	10.84	9.93
12F1828	SRB-1200	1200 mHy	.5	14.07	12.20	11.13	10.19
12F1829	SRB-2000	2000 mHy	.8	14.15	12.27	11.19	10.24
12F1830	SRB-3000	3000 mHy	1.2	14.24	12.35	11.26	10.31
12F1831	SRC-1000	1000 mHy	.21	15.58	13.51	12.32	11.28
12F1832	SRC-1600	1600 mHy	.34	15.03	13.03	11.89	10.88
12F1833	SRC-2500	2500 mHy	.55	15.39	13.34	12.17	11.14
12F1834	SRC-6400	6400 mHy	1.4	15.58	13.51	12.32	11.28
12F1835	SRC-10000	10,000 mHy	2.1	15.85	13.74	12.54	11.48

HVC HERMETIC VARIDUCTORS

Variable inductors with higher "Q" and wider inductance ranges . . . plus hermetic sealing to MIL-T27B specs. Screw adjustment on top permits inductance changes from −70% to +200% of mean value. DC current shown is maximum recommended. All 1⅛x 25/32x1 9/32". Weight, 2 ounces.

Stock No.	Type No.	Min. Hys.	Mean Hys.	Max. Hys.	DC Ma	1-4	5-9	10-24
03F534	HVC-1	.002	.006	.02	100			
03F535	HVC-2	.005	.015	.05	60			
03F536	HVC-3	.011	.040	.11	40	19.44	17.50	16.52
03F538	HVC-5	.07	.25	.7	20			
03F539	HVC-6	.2	.6	2	15			
03F540	HVC-7	.5	1.5	5	10			
03F541	HVC-8	1.1	4.0	11	7	18.31	16.48	15.56
03F542	HVC-9	3.0	10	30	5			

FILAMENT/TRANSISTOR TRANSFORMERS



Type FT Channel Frame. Primary: 115 volts 50/60 Hz. Test Volts RMS: 1500. All units are low temperature rise, vacuum-sealed against humidity with impregnating materials to prevent corrosion and electrolysis. Approximate weight 2 lbs. FT13, FT14 and FT15 have taps on primary to modify nom. sec. V. ±6% +12%.

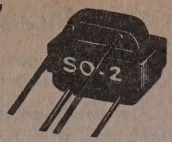
Stock No.	Type No.	Secondary Volts	Secondary Amps	Mtg. Ctrs.	1-4	5-9	10-24
03F295	FT2	6.3 VCT	1.2	2⅜"	11.94	10.35	9.44
03F298	FT8	6.3 CT	8	3 9/16"	21.75	18.86	17.20
03F299	FT10	24 CT or 12	2 4	3 9/16"	19.33	16.76	15.29
02F702	FT13	26 VCT	.04	1¾"	15.16	13.14	12.00
02F703	FT14	26 VCT	.25	2⅜"	14.25	12.35	11.27
02F822	FT15	48 VCT	1	3 9/16"	21.92	19.00	17.34

14

Miniature Transformers

TRW

"SUB-OUNCERS"



Tiny lead-mounted transformers for use in hearing aids, pocket radios, etc. Measure only 2³⁄₃₂x⅞x1⁹⁄₃₂". Weighs .03 lb. each. Frequency response, 100 to 10,000 Hz, 2dB. (*) indicates printed circuit type. (**) indicates split winding.

Stock No.	Type	Application	Pri-Imp.	Sec. Imp.	1-4	5-9	10-24	25-99
03F390	SO-1	Input	50/200	62,500/250,000	11.61	10.07	9.18	8.41
03F392	SO-3	Plate to line	10,000/25,000	200/500	9.10	7.89	7.20	6.59
03F396	SO-7	Transis. interstage	20,000/30,000	80/1200	7.90	6.85	6.25	5.72
03F398	SO-9	Transis. to VC	500CT	3.2	8.41	7.29	6.65	6.08
03F595	SO-11	Transis. interstage	400 CT 500 CT	400** 500**	8.98	7.79	7.10	6.50

SUB-SUBOUNCER UNITS

Impedance ratios are constant; these units can be used for other impedances if in same ratios. Units may be reversed. Suffix "P" means printed circuit molded types to MIL Grade 5. Size: 4³⁄₆₄x ¾x⁷⁄₁₆". Weight .02 lb. Approx. 2dB, 140-10,000 Hz.

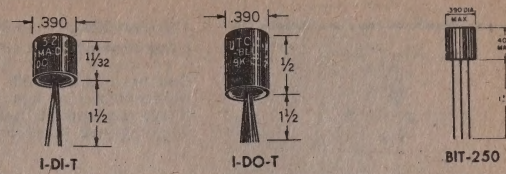
03F382	SSO-8	Transis. interstage	10K	2,000 CT	10.02	8.69	7.93	7.25
03F384	SSO-10	Transis. to VC	10K	3.2	8.51	7.38	6.73	6.16
03F326	SSO-17	Output	10K	500/600 CT	8.78	7.61	6.95	6.36
03F328	SSO-19	Matching	500 CT	600 CT	8.33	7.22	6.59	6.03
03F329	SSO-20	Output	1500 CT	600 CT	8.33	7.22	6.59	6.03

"OUNCER" AUDIO TRANSFORMERS

Famous one-ounce audio transformers for high fidelity use, from 30-20,000 Hz. Maximum output level -8 dB at 6.3 mW. Application: Input and Mixing, Interstage and Output Transformers. Fully impregnated and sealed in drawn aluminum housing. ⅞" dia. x 1¹³⁄₁₆". Wt. 1 oz.

Stock No.	Type	Primary Imped., Ohms	Secondary Imped., Ohms	1-4	5-9	10-24	25-99
03F360	0-1	50, 200, 500	50K	16.14	13.99	12.77	11.69
03F361	0-2	50, 200, 500	50K CT	18.98	16.46	15.01	13.74
03F362	0-3	7,530	50K	16.51	14.31	13.06	11.95
03F363	0-4	15K	60K	14.80	12.83	11.71	10.72
03F365	0-6	15K	95K CT	16.29	14.12	12.89	11.79
03F367	0-8	15K	50, 200, 500	16.14	13.99	12.77	11.69
03F369	0-10	30K CT	50, 200, 500	17.29	14.99	13.68	12.52
03F370	0-12	50, 200, 500	50, 200, 500	16.14	13.99	12.77	11.69
03F374	0-16	250 CT	50K	23.59	20.45	18.66	17.08
03F157	0-18	10K split	2000 split	17.71	15.35	14.01	12.82
03F322	0-19	10K split	4000 split	17.51	15.18	13.85	12.68
05F1456	0-26	10K CT, 4 mA	10K CT	16.27	14.11	12.87	11.78
03F136	0-30	500/125 split	500/125 split	16.43	14.24	13.00	11.90
03F325	0-17	Mumetal shield, slip fit		3.30	2.86	2.61	2.39
02F754	0-BR	Mounting Bracket for Ouncers.		.88	.76	.70	.64

MINIATURE INDUCTORS



I-DI-T I-DO-T BIT-250

Plastic case; temperature to 85°C. 50 WVDC. Size: **I-DI-T** 25⁄64" dia. x 1¹⁄₃₂", tinned insul. copper leads; **I-DI-T500**, .390" dia. x .406", gold plated Dumet leads; **I-DO-T**, 25⁄64" dia. x ½", tinned insul. copper leads. *Series. †Parallel. Test cond. 5V, 1KHz.

I-DI-T AND I-DO-T INDUCTORS

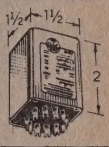
Stock No.	Type No.	Inductance, Hys, Min.	At DC mA	1-4	5-9	10-24	25-99
04F517	I-DI-T328	0.1/0.08	4/10	6.45	5.59	5.10	4.68
04F488	I-DO-T150	0.075*/0.018†	10*/20†	7.35	6.37	5.81	5.32
04F489	I-DO-T128	0.3	4	6.45	5.59	5.10	4.67
04F490	I-DO-T127	1.25	2	6.45	5.59	5.10	4.67
04F491	I-DO-T108	3.5	2	6.45	5.59	5.10	4.67
04F493	I-DO-T149	20.0*/5.0†	1*/2†	8.43	7.31	6.67	6.10

BIT-250 INDUCTORS

Compatible with flat pack. MIL type TF5RX20ZZ. Ribbon style Kovar leads. Size, .27" x .27" x .27".

04F494	BIT-250-03	8.6*/2.4†	0	17.57	15.23	13.90	12.72
04F496	BIT-250-06	0.80/0.25	1/6	20.24	17.55	16.00	14.65
04F497	BIT-250-09	0.60*/0.15†	0	17.57	15.23	13.90	12.72

VARIABLE INDUCTORS



For use in tuned audio circuits. Adjustment of set screw on side of case gives inductance change of +85% to −45% of mean value, with 600° rotation. Die-cast case, 1¹³⁄₃₂x1 ¼x1 ⁷⁄₁₆". 5½ oz.

Stock No.	Type No.	Maximum DC mA	Ind., Hys	1-4	5-9	10-24	25-99
04F526	VIC-2	60	.013	14.09	12.68	11.98	10.92
04F520	VIC-16	5	8.5	15.61	14.05	13.27	12.10
04F521	VIC-18	3.5	21	16.15	14.54	13.73	12.52

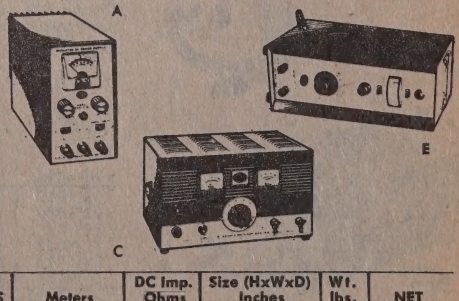
TYPE LS HYBRID AND REPEAT COILS

High efficiency, low waveform distortion. Electrostatic shielding. 3⅛x2⅝x3¼".

Stock No.	Type No.	Primary Impedance	Secondary Impedance	1-4	5-9	10-24	25-99
02F831	LS-68	600/150 split	2 split 600/150	84.96	73.66	67.20	61.51
03F549	LS-140	600/600 split	500/600 split	86.57	75.06	68.48	62.68
03F290	LS-141	3 sets of Bal. Wdgs. 500/600 CT		83.31	72.23	65.90	60.32

14

EPSCO POWER SUPPLIES



For use in design, development, and testing of transistor circuitry. For servicing and operating auto, aircraft, marinecraft radio, electronic equipment, etc. For production line testing, industrial and educational laboratory work, and many other applications. Features include: Voltage regulation, AC ripple filtering, adjustable output voltage, large easy-to-read meters, isolated output terminals, 1-year warranty. Input—Regulated Models: 105-125 VAC, 60 Hz. Industrial and General Purpose Models: 117 VAC, 50/60 Hz. Note: (*)—No-load to full-load unless otherwise specified. (†)—Output voltage change for each ampere of output current change, except on regulated units, % applies for either line or load. (††)—All 2% accuracy except 5% for general purpose units. Rectifiers: Selenium and Silicon. (**)—From 105-125 VAC.

REGULATED

Stock No.	Model	Volts Output	Amps. Output	Fig.	Line Reg.**	Load Reg.*	Max. Ripple, RMS	Meters	DC Imp. Ohms	Size (HxWxD) Inches	Wt. lbs.	NET
66F454	PSR-12-25	0-25	0-500mA	A	0.01% +2mV	0.01%	100μV	0-30V/600mA	.006	5⁷⁄₃₂x3⁷⁄₃₂x9³⁄₃₂	7	169.74
66F455	PSR-12-50	0-50	0-250mA	A	0.01% +2mV	0.01%	100μV	0-60V/300mA	.02	5⁷⁄₃₂x3⁷⁄₃₂x9³⁄₃₂	7	169.74

INDUSTRIAL

Stock No.	Model	Voltage Output	Amps. Output	Fig.	Load Reg.* (V/A)†	Max. Ripple %	Meters††	DC Imped., Ohms*	Size (HxWxD) Inches	Wt. lbs.	NET
66F145	EFB	0-32	0-4	.....	1.25	0.1	0-40/20V, 0-10A	1.25	7x12x8½	28	252.25
		0-16	0-8		1.0	0.1		1.0			

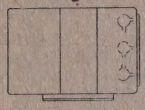
GENERAL PURPOSE

66F119	D-612T	0-16	0-10	C	0.44 (3-10A)	0.5 @ 5A	0-20V, 0-10A	0. 44 (3-10A)	7x12x8½	20	136.92
		0-8	0-10		0.3 (3-10A)	2 @ 10A		0.3 (3-10A)			
66F261	EC-2	0-16	0-5	E	1.8	0.5	0-20V, 10A	1.8	10¾x4¾x6½	11	101.17

Constant Voltage Transformers

CVS HARMONIC NEUTRALIZED TYPE TRANSFORMERS

Fig. 1



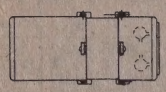
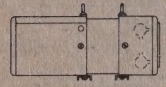


Fig. 2



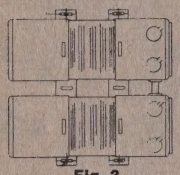
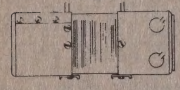


Fig. 3



- **Use no filters**
- **No need for extra capacitors and noisy chokes**
- **Small and rugged**
- **Recommended for all AC applications where harmonics can affect operation**

Contain less than 3% total rms harmonic content in the output. For all AC applications where harmonics can affect operation. Features built-in harmonic neutralizing circuits. No filters required. Regulation is ± 1% for an input range of 15% of nominal voltage. Input range: (*) 95-130/175-235/190-260. (**) 190-260/380-520. (†) 95-130/190-260. (††) 95-130.

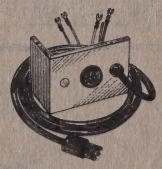
60 HERTZ SINGLE PHASE

Stock No.	Type	VA	Lbs.	Fig.	Adapt.	Size Inches	1-4	5-9	10-49
05F1108	23-13-030-2††	30	8	1	c	6 1/8 x 5 3/16 x 4	69.00	64.90	60.75
05F987	23-13-060-2††	60	10	1	c	6 1/8 x 5 3/16 x 4	81.60	76.70	71.80
05F1102	23-23-060-2**	60	10	1	c	6 7/16 x 6 1/8 x 5 3/16 x 4	89.05	83.70	78.40
05F988	23-22-112-2†	120	14	1	c	8 1/8 x 5 3/16 x 4	105.05	98.75	92.45
05F1103	23-23-112-2†	120	14	1	c	8 1/8 x 5 31 x 4	110.65	104.10	97.50
05F943	23-22-125†	250	28	1	a	9 5/8 x 7 7/16 x 5 3/8	142.45	133.90	125.35
05F1104	23-23-125**	250	29	1	a	9 5/8 x 7 7/16 x 5 3/8	151.25	142.20	133.10
05F944	23-22-150†	500	45	1	b	12 7/16 x 6 7/16 x 9 1/16	231.80	217.90	204.00
05F1105	23-26-150**	500	46	1	b	12 7/16 x 6 7/16 x 9 11	229.70	215.95	202.15
05F467	23-25-175*	750	54	1	b	16 13/16 x 6 7/16 x 9	296.60	278.80	261.00
80W014	23-25-210*	1000	72	1	...	17 7/8 x 6 7/16 x 9	361.25	339.60	317.90
05F1106	23-26-210**	1000	72	1	...	17 7/8 x 6 7 x 9	362.10	340.40	318.65
80W005	23-25-215*	1500	128	2	...	9 5/16 x 9 1/32 x 10 111	486.75	457.55	428.35
80W009	23-25-220*	2000	140	2	...	19 7/8 x 9 1/32 x 10 111	614.90	578.00	541.15
80W011	23-26-220**	2000	148	3	...	19 7/8 x 9 1/32 x 10 111	616.60	579.60	542.60
80W010	23-25-230-3*	3000	194	3	...	21 7/8 x 9 1/32 x 10 1 1/16	854.70	803.45	752.15
80W012	23-26-230**	3000	196	3	...	21 7/8 x 9 1/32 x 10 1 1/16	854.70	803.45	752.15
80W013	23-25-250*	5000	335	3	...	20 13/16 x 9 1/32 x 10 1 1/16	1335.05	1254.95	1174.85
80W022	23-26-250**	5000	342	3	...	20 13/16 x 9 1/32 x 10 1 1/16	1335.10	1255.00	1174.90
80W023	23-28-275**	7500	502	#	...	20 13/16 x 9 3/8 x 11 1/32	1642.45	1543.90	1445.35

CORD/RECEPTACLE ADAPTER KITS

(*) Two wire input cord. Two wire recept. (**) 3-wire input cord. 3-wire recept.

Stock No.	Type	Adapter Code	Each
05F160	999-005*	a	
05F097	999-019**	a	
05F575	999-009*	b	
05F998	999-020**	b	10.50
05F957	999-104*	c	11.15
05F958	999-105**	c	11.15



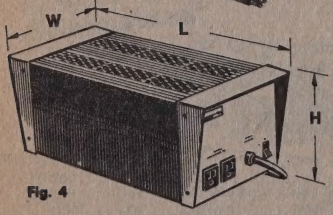


Fig. 4

Dimensions in inches			
Fig.	H	W	L
4A	5.56	6.00	14.00
4B	7.31	8.12	15.60
4C	8.68	8.92	18.60
4D	10.62	11.38	18.84

SOLA MINICOMPUTER REGULATOR

Provides transient protection for any type of load. Particularly useful in computer applications where noise and transients cause errors; or low voltage and short duration disruptions can cause loss of memory. Output waveshape is sinusoidal and contains less than 3% harmonic distortion. Better than 60 dB noise rejection and effective capacitance less than 0.1 μF. Input line variations of ±15% are regulated to ±3% variation on the output. Output will remain within NEMA volt. specs. of +5%-10%, for input volt. as low as 65% of nominal. Especially designed for office type environment. Oper. Temp. —20°C to +50°C. Full load efficiency 85%. External noise level 45 dB measured 12 inches from equipment.

60 HERTZ SINGLE PHASE

Stock No.	Type	Max. Output VA Rtg.	Nom. Output Volt.	Input* Volt Range	Fig.	Approx. Shpg. Wt.	1-4	5-9	10-49
02F1069	63-13-114	140	120	95-130	4A	18	160.00	150.40	140.80
02F1070	63-13-125	250	120	95-130	4B	31	190.00	178.60	167.20
79W021	63-13-150	500	120	95-130	4C	47	263.00	247.25	231.45
79W022	63-13-175	750	120	95-130	4C	60	336.00	315.85	295.70
79W023	63-13-210	1000	120	95:130	4C	75	389.00	365.70	342.35
79W024	63-13-220	2000	120	95-130	4D	125	662.00	622.30	582.60

* For +3% output regulation. Unit will operate at lower voltage.

50 HERTZ SINGLE PHASE

Stock No.	Type	Max. Output VA Rtg.	Nom. Output Volt.	Input* Volt Range	Fig.	Approx. Shpg. Wt.	1-9	10-49	50-99
02F1071	63-13-614	140	220	180-260	4A	22	192.00	180.00	169.00
02F1072	63-13-625	250	220	180-260	4B	35	228.00	214.35	200.65
79W025	63-13-650	500	220	180-260	4C	53	323.00	303.64	284.25
79W026	63-13-710	1000	220	180-260	4C	85	469.00	440.90	412.75
79W027	63-13-720	2000	220	180-260	4D	140	799.00	751.10	703.15

Computer Line Voltage Regulators

SOLA ELECTRIC
A UNIT OF GENERAL SIGNAL

Solatron® for Computers

Designed specifically to meet the stringent requirements of EDP equipment. Delivers clean, consistent, reliable power despite power line transients. **Line regulation:** ±¼%. **Input Voltage:** 208/230 V, 3 phase, +10%/−20%. **Output Voltage:** 208/230 V delta or wye, adjustable from 208 to 240. **Load regulation:** ±¼%. **Frequency:** 57-63 Hz. **Transient Response Time:** Starts immediately, complete within 5 cycles. **Power Efficiency:** 95% typical. **VA Efficiency:** 75% typical. **Maximum Harmonics:** Balanced line and load 3%; unbalanced line and/or load 6%. **Load Power Factor:** with little derating −.75 lagging to .95 leading; without derating −.95 lagging to unity.

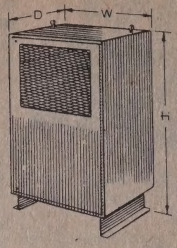


Fig. 1

REGULATORS

Stock No.	Type	KVA Rating	NAED EDP No. 5888	Approx. Shpg. Wt.	Fig.	Dimensions H	W	D	Net
79W001	39-59-310	10	27001	540	1	50″	27″	20″	**5227.00**
79W002	39-59-315	15	27002	700	1	50″	27″	20″	**5850.00**
79W003	39-59-325	25	27003	1,080	2	65″	36″	27″	**6442.00**
79W004	39-59-350	50	27004	1,510	2	65″	36″	27″	**10286.00**
79W005	39-59-375	75	27005	1,785	2	65″	36″	27″	**15341.00**

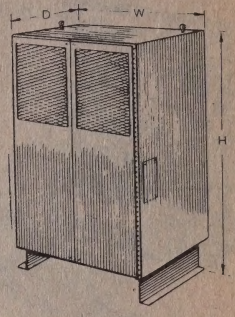


Fig. 2

THREE-CABINET REGULATORS

Stock No.	Type	KVA Rating	NAED EDP No. 5888	Approx. Shpg. Wt.	Fig.	Dimensions H	W	D	Net
79W006	39-59-410	100	27006	1,200	2	65″	36″	27″	**19,592.00**
79W007	39-59-415	150	27007	1,385	2	65″	36″	27″	**28,459.00**
79W008	39-59-422	225	27008	1,585	2	65″	36″	27″	**39,318.00**

UNINTERRUPTIBLE POWER SOURCES

The Sola Electric Uninterruptible Power System is a solid state, ferroresonant controlled AC power supply equipped with battery back-up for continuous, uninterrupted operation during a commercial failure. Any critical AC operated electronic device or system is a candidate for UPS. The UPS is equipped with an inverter, rectifier/charger, and solid state transfer switch. The Sola UPS will interface with virtually any type of battery of proper voltage and capacity, thus allowing customer versatility in the choice of back-up power.

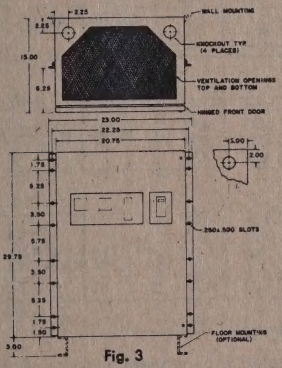


Fig. 3

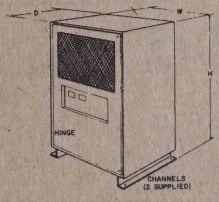


Fig. 4

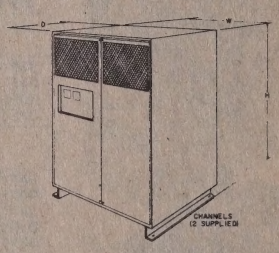


Fig. 5

MODEL SPECIFICATION TABLE

		SINGLE PHASE						THREE PHASE	
Sola Type No.		**26-00-81150**	**26-00-11250**	**26-00-11500**	**26-00-11750**	**26-00-12100**	**26-00-12150**	**26-00-11750**	**26-00-12150**
KVA Rating		**1.5 KVA**	**2.5 KVA**	**5.0 KVA**	**7.5 KVA**	**10 KVA**	**15 KVA**	**7.5 KVA**	**15 KVA**
Input-Voltage		120	120	120	120	120	120	120/208	120/208
Max Amps		25	42	84	125	160	250	42	84
Phase		Single	Single	Single	Single	Single	Single	Three	Three
Config.		2W/GND	2W/GND	2W/GND	2W/GND	2W/GND	2W/GND	4W/GND	4W/GND
Output Voltage		120	120	120	120	120	120	120/208	120/208
Load Amps		12.5	20.8	41.7	62.5	83.3	125	20.8	41.7
Overload Amps		15.6	26	52.1	78.1	104	156.3	26	52.1
Phase		Single	Single	Single	Single	Single	Single	Three	Three
Config.		2W/GND	2W/GND	2W/GND	2W/GND	2W/GND	2W/GND	4W/GND	4W/GND
Dimensions (Inches)	H	29½	50	50	50 50	50 50	50 50	50 50	50 50
	W	20	27	48	27 48	27 28	48 48	27 48	48 48
	D	15	20	20	20 20	20 20	20 20	20 20	20 20
Outline Figure		3	4	5	4 & 5	4 & 5	5 & 5	4 & 5	5 & 5
Weight (Lbs.)		300	650	1100	1500	1700	2500	1500	2500
Battery Voltage		48	120	120	120	120	120	120	120

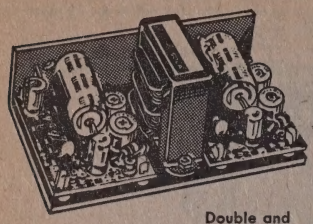
All single phase models are available with 240 volt input and output circuits.
All three phase models are available with 277/480 volt input and output circuits.
All models are available for 50 Hz operation.

Battery Information

For long life, high power battery back-up, Sola utilizes lead calcium wet cells. These batteries offer the most economical method of providing reliable back-up power. Battery banks are available for back-up for 15 minutes or longer. The rectifier/charger built in the UPS automatically charges the batteries.

SOLA ELECTRIC
A UNIT OF GENERAL SIGNAL

Power Supplies



Double and Triple Output

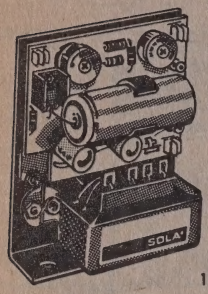
MICROPROCESSOR POWER SUPPLIES

Fully isolated independent outputs. Positive or negative operation. Convection cooled. Complete serviceability. Integrated circuit regulation. Constant voltage. 120/240 VAC 50/60/400 Hz input. Full rated power 0° to +55°C. Regulation: .05% line or load. U.L. listed.

DOUBLE & TRIPLE OUTPUT

Stk. No.	Type	Output Volts	Output Amps	Height	Width	Depth	1-4	5-9	10-49
62F1205	83-81-2225	5, 9-12	2.5/.5	7.12	4.12	2.70	53.55	50.35	47.15
62F1219	83-82-2230	±5	3/.1	7.12	4.12	2.70	53.55	50.35	47.15
62F1216	83-81-2250	5, 9-12	5/.8	8.35	4.12	3.12	95.25	89.55	83.85
62F1204	83-82-2250	±5	5/.1	8.35	4.12	3.12	95.25	89.55	83.85
62F1212	83-83-3225	5, ± 9-12	2.5/.25	7.12	4.12	2.70	83.40	78.40	73.40
62F1208	83-84-3225	±5, 9-12	2.5/.25/.1	7.12	4.12	2.70	83.40	78.40	73.40
62F1214	83-83-3250	5, 9-12	5/.5	8.35	4.12	3.12	105.95	99.60	93.25
62F1202	83-84-3250	± 5, 9-12	5/.5/.1	8.35	4.12	3.12	105.95	99.60	93.25

For Single Output see 15/30 and 60 Watt Standard Power Supplies



15 Watt

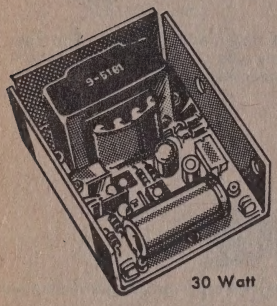
OEM LINE REGULATED DC POWER SUPPLIES

Precise integrated circuit regulator with superior drift characteristics. Convection cooled. Complete serviceability. Completely protected, short circuit proof. Isolated, floating output. Low noise and ripple. Positive or negative polarity. Oper. Temp: 0°C to 50°C. Input Freq. Range: 50-400 Hz (derate load to 75% for 400 Hz). Input Voltage Range: 15 watt (105-125 VAC, 210-250 VAC), 30/60/120 watt (115/230 ±15%). Temp. Coefficient: .03%°C. UL listed.

15 WATT

115 VOLT INPUT, 230 VOLT INPUT AVAILABLE

Stk. No.	Type	Output Volts Adj.	Output Amps	Height	Width	Depth	1-4	5-9	10-49
62F1200	81-05-230-1	5-6	3-2.5	4.50	4.00	2.39	31.75	29.85	27.95
62F1206	81-12-215-1	12-15	1.5-1.2	4.50	4.00	2.39			
62F1211	81-24-180-1	24	.8	4.50	4.00	2.39			



30 Watt

30 WATT

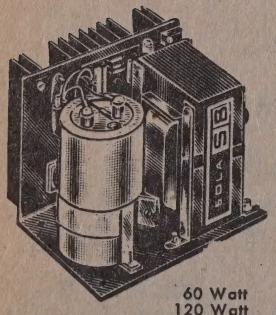
62F1201	83-05-230-2	4.8-5.5	3	4.75	4.00	2.50	35.70	33.55	31.45
62F1215	83-12-218-2	11.5-12.5	1.8	4.75	4.00	2.50			
62F1220	83-15-216-2	14.5-15.5	1.6	4.75	4.00	2.50			
62F1207	83-24-212-2	23-25	1.2	4.75	4.00	2.50			

60 WATT

05F1129	83-05-260-2	4.8-5.5	6	4.94	6.00	4.94	73.55	69.15	64.75
05F1130	83-12-250-2	11.5-12.5	5	4.94	6.00	4.94			
05F1131	83-15-240-2	14.5-15.5	4	4.94	6.00	4.94			
05F1132	83-24-225-2	23-25	2.5	4.94	6.00	4.94			

120 WATT

05F1133	83-05-312-2	4.8-5.5	12	5.00	7.00	6.60	111.40	104.75	98.05
05F1134	83-12-310-2	11.5-12.5	10	5.00	7.00	6.60			
05F1135	83-15-280-2	14.5-15.5	8	5.00	7.00	6.60			
05F1136	83-24-260-2	23-25	6	5.00	7.00	6.60			
05F1137	83-48-230-2	46-50	3	5.00	7.00	6.60			

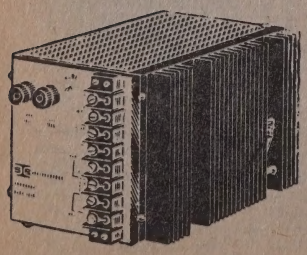


60 Watt
120 Watt

DUAL & TRIPLE OUTPUT

Convection cooled. Complete serviceability. Fully isolated independent outputs. Positive or negative operation. Full rated output 0° to +55°C. 120/240 VAC 50/60/400 Hz input. Regulation: 0.05% line or load. Ripple: 0.01% rms. Series or parallel operation. Constant voltage.

Stk. No.	Type	Output Volts	Output Amps	Height	Width	Depth	1-4	5-9	10-49
62F1217	83-12-2180	±12	.8	7.12	4.12	2.39	51.05	48.00	44.95
62F1203	83-15-2170	±15	.7	7.12	4.12	2.39	51.05	48.00	44.95
62F1222	83-12-2218	±12	1.8	8.35	4.12	2.94	78.25	73.55	68.90
62F1210	83-15-2216	±15	1.6	8.35	4.12	2.94	78.25	73.55	68.90
62F1221	83-12-2250	±12	5	10.06	6.30	5.50	153.10	143.95	134.75
62F1213	83-15-2240	±15	4	10.06	6.30	5.50	153.10	143.95	134.75
62F1209	83-12-3218	5, 12, 12	6, 1.8, 1.8	10.06	4.12	4.94	128.20	120.50	112.85
62F1218	83-15-3216	5, 15, 15	6, 1.6, 1.6	10.06	4.12	4.94	128.20	120.50	112.85



Premier Regulated DC Power Supply

PREMIER REGULATED DC POWER SUPPLIES

Completely protected short circuit proof; automatic current limiting. Convection cooled. Complete serviceability. Remote sensing. Regulation: ±.2% line or load. Ripple and noise: .1% Vrms. Input range: 120/240 VAC ±10%, 47-420 Hz. Temp. coefficient: .03°C. Polarity: may be used positive or negative. Oper. temp.: 0°C to +55°C. Automatic cutoff if heat sink temp. is exceeded. Storage temp: −62° to +85°C. Recovery time less than 50 μsec ½L to FL. U.L. listed.

Stk. No.	Type	Output Volts	Output Amps	Height	Width	Depth	1-4	5-9	10-49
05F1158	82-05-315-50	4.8-5.5	15	5.25	5.75	8.19	155.65	146.35	137.00
05F1159	82-12-270-50	11.5-12.5	7	5.25	5.75	8.19			
05F1162	82-05-325-50	4.8-5.5	25	6.12	6.50	11.00	215.80	202.85	189.90
05F1163	82-12-312-50	11.5-12.5	12	6.12	6.50	11.00			

Power Supplies

SOLA ELECTRIC
A UNIT OF GENERAL SIGNAL

SOLA SOLIDS

Series regulated power supplies, **84 Series** for mounting on PC boards and **85 Series** for mounting on the chassis directly, for point of use regulation. Units are fully tested and burned in three times, and carry a two year warranty. Available in single ouput or dual tracking outputs. Input Voltage: 115V ±10V (50 to 400Hz). Output voltage accuracy: ±2%. Oper. Temp.: −25°C to 71°C (operation at elevated levels may require derating.) Input isolation: 50 megohms. Line regulation: ±.02% or 2.5 mV. Load regulation: ±.02% or 2.5 mV.

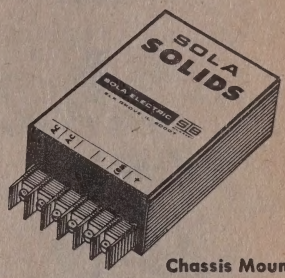
PC Board Mount
84 Series

84 SERIES

Stk. No.	Type	Output Voltage	Output Current	PARD	1-4	5-9	10-49
05F533	84-05-150	5VDC	500mA	1.0mV RMS	59.40	55.85	52.30
05F534	84-05-210	5VDC	1000mA	1.0mV RMS	83.75	78.75	73.70
05F535	84-12-110	12VDC	100mA	0.5mV RMS	35.00	32.90	30.80
05F536	84-15-110	15VDC	100mA	0.5mV RMS	35.00	32.90	30.80
05F537	84-12-2112	± 12VDC	120mA ea.	0.5mV RMS	59.40	55.85	52.30
05F538	84-12-2124	± 12VDC	240mA ea.	0.5mV RMS	83.75	78.75	73.70
05F539	84-15-2110	± 15VDC	100mA ea.	0.5mV RMS	59.40	55.85	52.30
05F540	84-15-2120	± 15VDC	200mA ea.	0.5mV RMS	83.75	78.75	73.70

85 SERIES

05F541	85-05-210	5VDC	1000mA	2mV RMS	96.50	90.75	84.95
05F542	85-12-2124	± 12VDC	240mA	1mV RMS	96.50	90.75	84.95
05F543	85-15-2110	± 15VDC	100mA	1mV RMS	78.45	73.75	69.05
05F544	85-12-2135	± 15VDC	350mA	1mV RMS	132.50	124.55	116.60

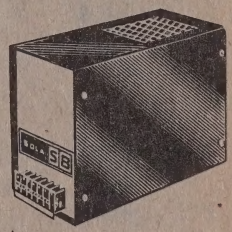


Chassis Mount
85 Series

MODULAR DC POWER SUPPLIES

Will hold output voltage to ±1% or less for input variations as great as ±15% of the nominal input voltage. Rated input range is 100 to 130 volts, 60 Hz. The response time is 25 milliseconds. Actual variation is linear over a ±5% change in frequency from 60 cycles. Have long life. Highly reliable and efficient. Multiple operation to increase current and to increase voltage. Oper. temp.: 0°C to 50°C. The output voltage will change approx. 1% for every 40°C change in ambient temp. Isolation and short circuit protection. Polarity: May be used positive or negative.

Stk. No.	Type	DC Output Volts	DC Output Amps	Load Regulation Volts VA	½L-FL	¼L-FL	Height	Width	Depth	Wt.	1-4	5-9	10-49
05F1139	28-05-315	5.2	15	78	0.5	0.8	3.50	5.25	13.00	14			
05F1140	28-06-315	6.3	15	95	0.5	0.8	3.50	5.25	13.00	14			
05F1141	28-10-312	10	12	120	0.6	1.0	3.50	5.25	13.00	14			
05F1142	28-12-310	12	10	120	0.6	1.0	3.50	5.25	13.00	14	133.15	125.20	117.20
05F1143	28-15-280	15	8	120	0.8	1.3	3.50	5.25	13.00	14			
05F1145	28-24-250	24	5	120	1.0	1.7	3.50	5.25	13.00	14			
05F1146	28-28-243	28	4.3	120	1.2	2.0	3.50	5.25	13.00	14			
05F1147	28-48-225	48	2.5	120	2.0	3.4	3.50	5.25	13.00	14			
05F1148	28-04-325	4	25	100	0.5	0.8	6.90	4.94	9.75	19			
05F1150	28-06-325	6.3	25	155	0.5	0.8	6.90	4.94	9.75	19			
05F1151	28-10-318	10	18	180	0.6	1.0	6.90	4.94	9.75	19			
05F1152	28-12-315	12	15	180	0.6	1.0	6.90	4.94	9.75	19	198.05	186.20	174.30
05F1154	28-18-310	18	10	180	0.6	1.0	6.90	4.94	9.75	19			
05F1155	28-24-280	24	8	192	0.7	1.2	6.90	4.94	9.75	19			
05F1156	28-28-270	28	7	196	0.7	1.2	6.90	4.94	9.75	19			



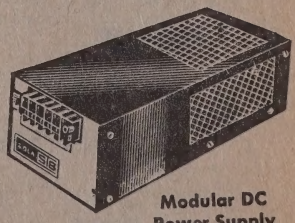
Modular DC
Power Supply

14

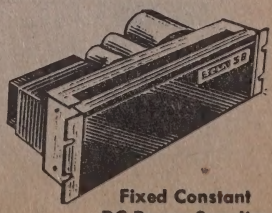
FIXED CONSTANT VOLTAGE DC POWER SUPPLIES

Will withstand high-transient overload without damage or output voltage drop. Output regulation ±1% or less over 100-130V input range. Total ripple content does not exceed one percent. Load regulation less than 4% from 20% to full load. Efficiency approx. 75%. Mounted on standard 19" rack panel. Input 100-130 60 Hz. AC.

Stk. No.	Type	Volts	Amps	VA	Load Regulation 20% FL	50% FL	Panel Ht.	Weight	Depth Max.	1-4	5-9	10-49
05F1114	281513-2	6	10	60	15%	7%	3½	27	7⅝	233.30	219.30	205.30
05F152	282123-1	6	15	90	10%	7%	5¼	38	7¼	269.85	253.65	237.50
05F1115	281514-2	12	5	60	7%	5%	3½	18	7⅝	233.30	219.30	205.30
05F153	282124-1	12	10	120	10%	5%	5¼	31	7¼	233.30	219.30	205.30
79W071	281845-2	12	15	180	10%	7%	5¼	45	7¼	269.85	253.65	237.50
79W073	282125-1	18	10	180	7%	5%	5¼	45	7¼	269.85	253.65	237.50
05F924	281024-1	24	6	144	6%	4%	5¼	30	9¾	233.30	219.30	205.30
05F156	282126-1	24	10	240	6%	4%	5¼	48	8¾	269.85	253.65	237.50
79W074	281203-2	24	15	360	7%	5%	7	64	7¼	290.20	272.80	255.40
80W001	282127-1	24	25	600	7%	5%	8¾	72	9	377.70	355.05	332.40
05F158	282128-1	28	15	420	7%	5%	7	55	7¼	290.20	272.80	255.40
05F925	281048	48	4	192	3.5%	2.5%	5¼	32	9¾	233.30	219.30	205.30
05F1119	281561-2	48	10	480	4%	2%	5¼	48	9¾	269.85	253.65	237.50
79W076	281125-1	125	2	250	2.5%	1.5%	5¼	44	9¾	269.85	253.65	237.50
05F927	281150-1	150	2	300	2%	1.5%	5¼	48	9¾	269.85	253.65	237.50
79W077	281200	200	1	200	3%	2%	5¼	39	9¾	269.85	253.65	237.50



Modular DC
Power Supply



Fixed Constant
DC Power Supplies

SOLA ELECTRIC
A UNIT OF GENERAL SIGNAL

Line Voltage Regulators

Static-magnetic unit featuring fast response, no moving parts, adjustable output, remote sensing, compactness, mounting flexibility, and high KVA capacity. Designed to fulfill the needs of modern electrical and electronic equipment while operating at (or controlling) high KVA loads. Regulation: +0.5% for line charges. Variation limits: line ±10%, or +10%/-20%. Zero load to full load. Temp. 15°C to 40°C. Current capability: withstands high inrush load currents and momentary overloads. Maintenance free.

Figure A

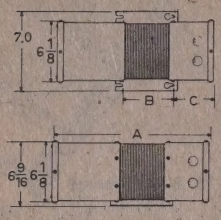


Figure B

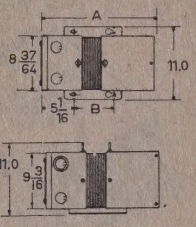


Figure C

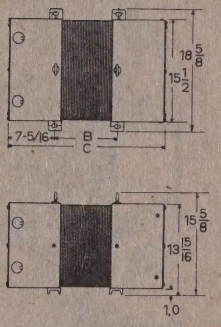


Figure D

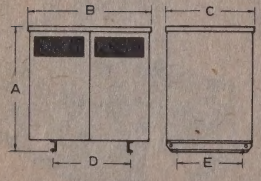
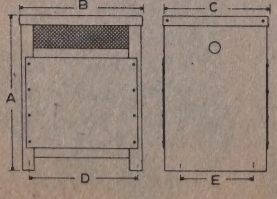


Figure E



SINGLE-PHASE (60 Hz ±3 Hz)

Stock No.	Type	Max. Output KVA Rating	Nom. Output Voltage	Output Voltage Adjust-ability	Input Voltage Range	Approx. Shipping Weight	Fig.	Dimensions (Inches) A	B	C	D	E	Net
80W760	33-16-150	.5	120		108-132	+10/−20%	40	A	13⅞	5⅜	3½		670.00
80W761	33-16-210	1	120		108-132	+10/−20%	58	A	16⅜	5⅜	3½		735.00
80W762	33-16-220-6	2	120		108-132	+10/−20%	81	B	18⅝	6¼			984.00
80W763	33-26-220-6	2	208/240		208-250	+10/−20%	81	B	18⅝	6¼			984.00
80W764	33-16-230-6	3	120		108-132	+10/−20%	95	B	19½	6¼			1131.00
80W765	33-26-230-6	3	208/240		208-250	+10/−20%	95	B	19½	6¼			1131.00
80W766	33-16-250-6	5	120		108-132	+10/−20%	127	B	21⅜	8¼			1474.00
80W767	33-26-250-6	5	208/240		208-250	+10/−20%	127	B	21⅜	8¼			1474.00
80W768	33-16-275-6	7.5	120		108-132	+10/−20%	168	B	23¾	10¼			1827.00
80W769	33-16-310-6	10	120		108-132	+10/−20%	193	B	23¾	10¼			1967.00
80W770	33-26-310-6	10	208/240		208-250	+10/−20%	193	B	23¾	10¼			1967.00
80W771	33-16-315	15	120		108-132	+10/−20%	400	C	23⅝	9			2142.00
80W772	33-16-325	25	120		108-132	+10/−20%	520	C	31⅝	9¾			2846.00
80W773	33-26-325	25	240		216-264	+10/−20%	520	C	31⅝	9¾			2846.00
80W774	33-46-325	25	480		432-528	+10/−20%	520	C	24⅜	9¾			2846.00
80W775	31-16-337	37.5	120		108-132	±10%	525	C	24⅜	9¾			3392.00
80W776	31-26-337	37.5	240		216-264	±10%	525	C	24⅜	9¾			3392.00
80W777	31-16-350-5	50	120		114-126	±10%	1050	E	42	34	28	21	20	3890.00
80W778	31-26-350-5	50	240		228-252	±10%	1050	E	42	34	28	21	20	3890.00
80W779	31-46-350-5	50	480		456-504	±10%	1050	E	42	34	28	21	20	3890.00
80W780	31-16-375-5	75	120		114-126	±10%	1625	E	55	37	34	21	26	4873.00
80W781	31-26-375-5	75	240		228-252	±10%	1625	E	55	37	34	21	26	4873.00
80W782	31-46-375-5	75	480		456-504	±10%	1625	E	55	37	34	21	26	4873.00
80W783	31-16-410-5	100	120		114-126	±10%	1900	E	55	37	34	21	26	5835.00
80W784	31-26-410-5	100	240		228-252	±10%	1900	E	55	37	34	21	26	5835.00
80W785	31-46-410-5	100	480		456-504	±10%	1900	E	55	37	34	21	26	5835.00
80W786	31-16-415-5	150	120		114-126	±10%	2200	E	65	42	38	24	30	6989.00
80W787	31-26-415-5	150	240		228-252	±10%	2200	E	65	42	38	24	30	6989.00
80W788	31-46-415-5	150	480		456-504	±10%	2200	E	65	42	38	24	30	6989.00

THREE-PHASE WYE (60 Hz ±3 Hz)

Stock No.	Type	Max. Output KVA Rating	Nom. Output Voltage	Line-to-Neutral Output Voltage Adjust-ability	Input Voltage Range	Approx. Shipping Weight	Fig.	Dimensions (Inches) A	B	C	D	E	NET
80W789	39-06-215	1.5	208/120	108-132	+10/−20%	210	D	24	19	16	17⅛	11	1933.00
80W790	39-06-230-0	3	208/120	108-132	±10/−20%	265	D	24	19	16	17⅛	11	2135.00
80W791	39-06-260-6	6	108/120	108-132	+10/−20%	325	D	43	29	19½	26¾	14½	2706.00
80W792	39-06-290-6	9	208/120	180-132	+10/−20%	370	D	43	29	19½	26¾	14½	3011.00
80W793	39-06-315-6	15	208/120	108-132	+10/−20%	452	D	43	29	19½	26¾	14½	3694.00
80W794	39-46-315-6	15	480/277	250-304	+10/−20%	452	D	43	29	19½	26¾	14½	3694.00
80W795	39-06-322-6	22.5	208/120	108-132	+10/−20%	558	D	43	29	19½	26¾	14½	4486.00
80W796	39-06-330-6	30	208/120	108-132	+10/−20%	610	D	43	29	19½	26¾	14½	5003.00
80W797	39-46-330-6	30	480/277	250-304	+10/−20%	610	D	43	29	19½	26¾	14½	5003.00
80W798	39-06-345	45	208/120	108-132	+10/−20%	1300	D	51½	36	27	33	16	5909.00
80W799	39-06-375	75	208/120	108-132	+10/−20%	1645	D	51½	36	27	33	16	7839.00
80W800	39-46-375	75	480/277	250-304	+10/−20%	1645	D	51½	36	27	33	16	7839.00
80W801	37-46-410-5	100	480/277	264-290	±10%	2100	E	46	52½	44½	16½	18	9442.00
80W802	37-06-411-8	112.5	208/120	108-132	±10%	1600	D	51½	36	27	33	16	10,728.00
80W803	37-06-415-5	150	208/120	114-126	±10%	3450	E	54	60	50	19¼	22	11,244.00

THREE-PHASE DELTA (60 Hz ±3 Hz)

Stock No.	Type	Max. Output KVA Rating	Nom. Output Voltage	Line-to-Neutral Output Voltage Adjust-ability	Input Voltage Range	Approx. Shipping Weight	Fig.	Dimensions (Inches) A	B	C	D	E	NET
80W804	39-29-217	1.7	240	216-264	+10/−20%	265	D	24	19	16	17⅛	11	2158.00
80W805	39-29-235-6	3.5	240	216-264	+10/−20%	325	D	43	29	19½	26¾	14½	2706.00
80W806	39-29-252-6	5.2	240	216-264	+10/−20%	370	D	43	29	19½	26¾	14½	3011.00
80W807	39-09-285-6	8.5	208	188-228	+10/−20%	452	D	43	29	19½	26¾	14½	3696.00
80W808	39-49-285-6	8.5	480	432-528	+10/−20%	452	D	43	29	19½	26¾	14½	3696.00
80W809	39-09-313-6	13	208	188-228	+10/−20%	508	D	43	29	19	26¾	14½	4486.00
80W810	39-29-313-6	13	240	216-264	+10/−20%	558	D	43	29	19½	26¾	14½	4486.00
80W811	39-09-317-6	17	208	188-228	+10/−20%	1000	D	51½	36	27	33	16	5003.00
80W812	39-29-317-6	17	240	216-264	+10/−20%	1000	D	51½	36	27	33	16	5003.00
80W813	39-09-326	26	208	188-228	+10/−20%	1300	D	51½	36	27	33	16	5909.00
80W814	39-29-326	26	240	216-264	+10/−20%	1300	D	51½	36	27	33	16	5909.00
80W815	39-09-343	43	208	188-228	+10/−20%	1645	D	51½	36	27	33	16	7837.00
80W816	39-29-343	43	240	216-264	+10/−20%	1645	D	51½	36	27	33	16	7837.00
80W817	37-29-365	65	240	216-264	±10%	1660	D	51½	36	27	33	16	7096.00

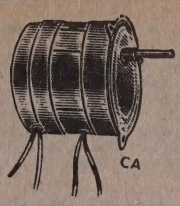
Instrument Motors

hurst

HYSTERESIS

PC-DA
AR-DA

DA



CA

SERIES PC-DA

Continuous duty reversible synchronous motor, 120 oz-in at 1 RPM. Positive clutch and instantaneous brake stops the shaft rotation within .2° at 1 RPM and 12° at 60 RPM. Starting time for the shaft is within 20 msec. Capacitor included. Ship. Wt. 1 lb. 5 oz.

Stk. No.	Type	RPM	1-9	10-24	25-49	50-99
24F1471	PC-DA-1	1	31.95	28.75	27.31	25.94
24F1582	PC-DA-2	2				
24F1472	PC-DA-4	4				
24F1473	PC-DA-6	6				
24F1474	PC-DA-10	10				
24F1583	PC-DA-12	12				
24F1475	PC-DA-30	30				
24F1476	PC-DA-60	60				

SERIES DA

Continuous duty synchronous motor, 150 in. oz. at 1 RPM. Instantly reversible with SPDT switching. Accurate both clockwise and counter clockwise. Capacitor included. Dimensions: 2½" dia. x 1¾" depth. Shaft of stainless steel 3/16" dia. x 1" long flatted. 60 Hz. 95/130V, 5 watts. Ship. Wt. 14 oz.

24F1456	DA-1	1	23.10	20.80	19.75	18.79
24F1580	DA-2	2				
24F1457	DA-4	4				
24F1458	DA-6	6				
24F1459	DA-10	10				
24F1581	DA-12	12				
24F1461	DA-60	60				

SERIES AR-DA

100 inch-ounce, reversible, high accuracy both clockwise and counter-clockwise. Operates as an automatic reset motor when a return spring is attached to the output shaft. When clutch is de-energized, the shaft is free for manual or automatic reset. Maximum error in seconds, 15625 divided by the rpm. Case: 2½x2 1/16" dia. Clutch actuator, ⅞"H x 1 3/16"W. Ship. Wt. 1½ lbs.

Stk No.	Type	RPM	1-9	10-24	25-49	25-49
24F3550	AR-DA 1	1	36.05	32.58	30.84	29.29
24F3551	AR-DA 4	4				
24F3552	AR-DA 6	6				
24F3553	AR-DA 10	10				
24F3555	AR-DA 60	60				

SERIES CA

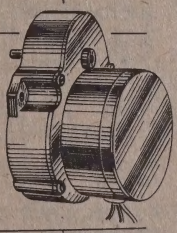
Instantly reversible with SPDT switching. 100 inch-ounce torque rating at 1 RPM. Case dimensions, 2½" dia. x 2⅛". Shaft, 3/16" dia. x 1" long flattened. Ship. Wt. 1 lb. 2 oz.

24F1584	CA-½	½	20.80	18.72	17.79	16.91
24F1494	CA-1	1				
24F1585	CA-2	2				
24F1495	CA-4	4				
24F1496	CA-6	6				
24F1497	CA-10	10				
24F1586	CA-15	15				
24F1498	CA-30	30				
24F1499	CA-60	60				

MODEL A SYNCHRONOUS MOTOR

- **Reversible**
- **Fast Start/Stop**

Instrument grade motor is suitable for numerous types of application: chart drives, computer terminal and peripheral equipment, card readers and medical instrumentation. Rotor torque: 2.3 oz.-in. @ 300 rpm. "Drop in" replacement for pear shaped gear cut motors. Die cast gear housing. Perm. mag.

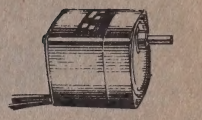


Stk. No.	Type	RPM	1-9	10-24	25-49	50-99
24F3528	3002-001	1	21.14	19.83	18.73	17.61
24F3529	3002-003	2				
24F3530	3002-005	4	20.10	18.97	17.92	16.86
24F3531	3002-007	6				
24F3532	3002-008	8				
24F3533	3002-009	10				
24F3534	3002-010	12				
24F3535	3002-013	20	19.20	18.11	17.11	16.10
24F3536	3002-015	30				
24F3537	3002-016	60				
24F3538	3002-020	120				
24F3539	3001-001	300*	14.41	13.42	13.07	11.23

*Direct drive.

MODEL T 115 VAC 60 Hz.

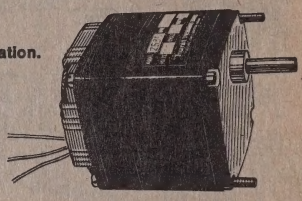
Permanent magnet synchronous reversible instrument motor. Specs: Gear train loading: 250 oz. in. @ 1 RPM. Heat rise: 40°C F.L. Voltage: 115 VAC. Freq: 60 Hz. Power input: 8½ watts. Rotation: reversible fast start/stop. Rotor speed: 300 RPM (synchronous). Torque (@ 300 RPM): 8 in. Capacitor included. Dim.: 2 17/32" x 2⅜" dia. Wt. less than 2 lbs.



Stk. No.	Part Number	Speed RPM	Rated Output Torque	1-9	10-24	25-49	50-99
24F1500	2602-001	1	250	39.03	36.86	34.69	32.52
24F1501	2602-004	2	233	37.02	34.95	32.90	30.84
24F1502	2602-012	4	218				
24F1503	2602-013	6	210	35.26	33.32	31.36	29.39
24F1504	2602-006	10	168				
24F1505	2602-014	30	64				
24F1506	2602-009	60	32				
24F1507	2602-015	120	16				
24F1508	2601-001	300	8	23.21	21.94	20.65	19.36

K-det SERIES INSTRUMENT MOTORS

- **"Heli-Spur" Gearing Combination.**
- **"Drop-In" Replacement for Other Motors of This Type.**
- **No Maintenance Lubrication Required.**



Designed for continuous duty applications requiring exceptional reliability, compact size and high output torque. Sealed ball bearings on rotor shaft. Stainless steel output shaft is supported by bronze inboard and output bearings with axial thrust provisions. "Heli-Spur" gearing combination consists of a "helical" primary gear stage and a "spur" secondary gear stage. Torque: 250 oz.-inch @ 1 rpm. Shaft: stainless steel ¼" dia. x 1" length, flatted (geared models). Direct drive: 3/16" dia. ⅝" length. Power: 115V 60Hz. Temp. rise: 40°C. Mounting: 2 of 4 frame screws on geared motors are extended for face-to-face mounting. Capacitor included.

MODEL KN (NORMAL SLIP-NONSYNCHRONOUS)

Stk. No.	Type	Lgth. (In.)	Torque (In-Oz.)	RPM	1-9	10-24	25-49	50-99
24F3540	2472-591	2 17/32	250	0.9	54.51	50.72	49.68	39.90
24F3541	2472-592	2 17/32	220	1.9				
24F3542	2472-593	2 17/32	205	2.8				
24F3543	2472-596	2 17/32	178	5.5	56.37	52.48	51.38	40.53
24F3544	2482-599	3 1/32	160	8.8				
24F3545	2482-603	3 1/32	150	13				
24F3546	2482-609	3 1/32	125	22	55.11	51.31	50.22	40.53
24F3547	2482-611	3 1/32	105	26				
24F3548	2482-613	3 1/32	54	52				
24F3549	2492-615	2⅞	35	86	51.99	48.39	47.38	38.05
24F3556	2492-616	2⅞	24	130				
24F3557	2492-618	2⅞	12	260				
24F3558	2462-590	2⅞	2.4	1550	34.32	31.76	30.24	24.01

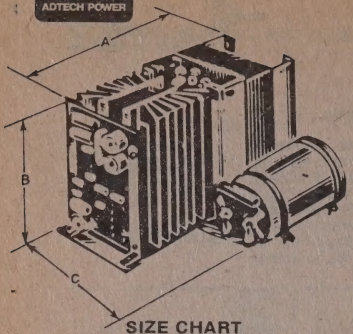
MODEL KS (RELUCTANCE SYNCHRONOUS)

Stk. No.	Type	Lgth. (In.)	Torque (In.-Oz.)	RPM	1-9	10-24	25-49	50-99
24F1509	2422-535	2 17/32	250	1	54.51	50.72	49.68	39.90
24F1510	2422-563	2 17/32	200	1.5				
24F1511	2422-536	2 17/32	150	2				
24F1512	2422-537	2 17/32	100	3				
24F1513	2422-538	2 17/32	85	4				
24F1515	2422-541	3 1/32	95	6	56.37	52.48	51.38	40.53
24F1517	2432-543	3 1/32	72	10				
24F1519	2432-547	3 1/32	48	15				
24F1521	2432-553	3 1/32	29	25	55.11	51.31	50.22	40.53
24F1523	2432-555	3 1/32	27	30				
24F1524	2432-557	3 1/32	15	60				
24F1525	2442-559	2⅞	8.9	100	51.99	48.39	47.38	38.05
24F1526	2442-560	2⅞	5.9	150				
24F1527	2442-561	2⅞	4.4	200				
24F1528	2442-562	2⅞	2.9	300				
24F1529	2412-588	2 1/16	0.6	1800	34.32	31.76	30.24	24.01

14

Adtech Power Supplies

HIGH POWER—ADJUSTABLE DC POWER SUPPLY



SIZE CHART

Model	A	B	C
Brute I	6.750	11.000	7.690
Brute II	6.750	12.000	7.650
Brute III	10.000	14.000	11.120

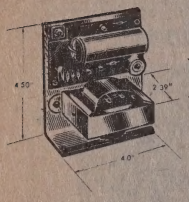
• 0.1% Regulation • Constant Current • High efficiency, low noise

Provides regulated high current DC continuously adjustable over 2-25V or 5-50V range. Can be set for constant voltage or constant current operation. Wide voltage range suitable for many slot applications where different supplies would normally be required for each application. In constant current mode, can be used as battery charger. Adjustable damping for inductive loads for driving relays, solenoids and motors. SCR regulators used to provide precision regulation (±0.1%) with max. efficiency (75%). Series inductance and capacitor filter circuit provide low noise operation over all load and line conditions. AC input 105-130/210-260 VAC, 1 phase, 47-63 Hz. Controls include current limit adjust 0-100%; output volts adjust 10-100%; ripple adjust. Wt. 300W—20 lbs.; 600W—30 lbs.; 120W—50 lbs.

Stock No.	Type	Range Power	DC Output	1-9	10-24	25-49
99F1493	Brute I	300 Watts	5-50/2-25V 6/12A	215.00	204.00	194.00
99F1494	Brute II	600 Watts	5-50/2-25V 12/24A	265.00	252.00	239.00
99F1495	Brute III	1200 Watts	5-50/2-25V 25/50A	477.00	453.00	429.00

Stock No.	Type	Description	1-9	10-24	25-49
99F1532	K3	OVP-1 Overvoltage Protection	60.00	57.00	54.00

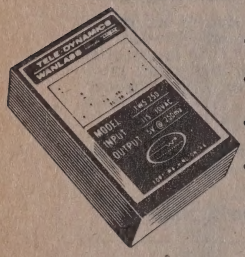
MODEL DPS—DC POWER SUPPLY



AC input 105 to 125 volts, one-phase, 57 to 63 HZ. (derate twenty percent for 400 Hz. operation). DC output voltage 5 to 6, 12 to 15, and 24 volts floating. Power 20 watts. Regulation line ±.25%; load ±.25%. Ripple is 0.3% + 10 millivolts RMS. Automatic recovery. (Derate current 2% C° over 40°C.) Weight: 1.9 pounds. (*) Rated at 1 amp over 115-125 volt AC line voltage.

Stk. No.	Type	DC Output	Power Group	Fuse	1-9	10-24	25-49
99F1486	DPS-1	5/6V @ 3/2.5A	20 watts	3A	28.00	26.60	25.20
99F1487	DPS-2	12/15V @ 1.5/1.2A	20 watts	2A			
99F1488	DPS-3	24V @ 0.8AJ*	20 watts	1.5A			
99F1516	OVP-2-53	Overload protection device	DPS-1		9.45	9.00	8.50
99F1526	OVP-3-241	For use with	DPS-3				

TW/TWD MINIATURE DC POWER SUPPLIES



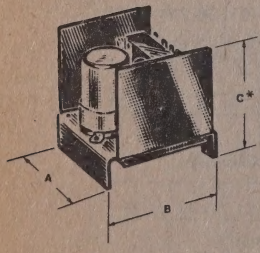
- Small size, low cost
- 50-400 Hz freq. range
- 50 megohms input isolation.
- Output within ±2% rated V

Input voltage: 115 ±10VAC. Input frequency, 50-400 Hz. Input isolation, 50 megohms. Output Impedance, 0.2 ohms at 10 kHz. Output voltage setting, ±2% of rated voltage. Operating temperature, −25 to +71°C. Rated for full current at temperatures between −25 and +70°C with no derating.

CASE SIZE

1—2 x 3 x 1 3—2.50 x 3.50 x .875
2—1.75 x 2.25 x 1 4—2.50 x 3.50 x 1.25

Stock No.	Model	Output Volts	Output ma	Regulation Line (%)	Regulation Load (%)	Ripple (mv rms)	Temp. Coeff.	Size	1-9	10-24	25-49
99F1630	TW 5-250	5.0	250	±0.05	±0.1	1.0	0.05	1	42.00	40.00	37.80
99F1631	TW 5-500	5.0	500	±0.05	±0.1	1.0	0.05	3	57.00	54.00	51.30
99F1632	TW 5-1000	5.0	500	±0.05	±0.1	1.0	0.05	4	79.00	75.00	71.10
99F1635	TW 10-120	10	120	±0.05	±0.05	0.5	0.02	2	34.00	32.00	30.60
99F1636	TW 12-120	12	120	±0.05	±0.05	0.5	0.02	2	34.00	32.00	30.60
99F1637	TW 15-100	15	100	±0.05	±0.05	0.5	0.02	2	34.00	32.00	30.60
99F1640	TW 24-50	24	50	±0.05	±0.05	1.0	0.02	2	34.00	32.00	30.60
99F1641	TW 28-40	28	40	±0.05	±0.05	1.0	0.02	2	34.00	32.00	30.60
99F1644	TWD 12-120	±12	120	±0.02	±0.02	0.5	0.02	3	57.00	54.00	51.30
99F1645	TWD 12-240	±12	240	±0.02	±0.05	1.0	0.02	4	79.00	75.00	71.10
99F1646	TWD 15-25	±15	25	±0.2	±0.2	2.0	0.02	3	42.00	40.00	37.80
99F1647	TWD 15-65	±15	65	±0.04	±0.02	1.0	0.02	3	49.00	46.00	44.10
99F1648	TWD 15-100	±15	100	±0.03	±0.02	1.0	0.02	3	57.00	54.00	51.30
99F1649	TWD 15-200	±15	200	±0.02	±0.05	1.0	0.02	4	79.00	75.00	71.10



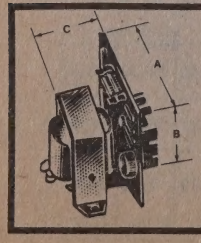
Input and output are through a terminal strip on the open-type construction chassis. Operates from any AC input of 105-125V, 1-Phase, 57-63 Hz. Reg. of ±1% for line and ±1% for load. DC output adjustable 3.6 to 60 volts in four ranges, floating. Wt.: 30W, 5 lbs., 60W, 7 lbs.; 120W, 12 lbs.

Model	A	B	C
30-OEM	5.0	5.0	5.0
60-OEM	5.0	7.0	5.38*
120-OEM	5.0	10.00	7.00

*7.0 for 60-OEM-4

II-OEM SERIES

Stock No.	Power Group	Type	DC Output	1-9	10-24	25-49
99F1354	30 Watts or 2.5 Amps	30-OEM-3	17 to 30V	61.00	58.00	55.00
99F1355		30-OEM-4	30 to 60V			
99F1358	60 Watts or 5 Amps	60-OEM-3	17 to 30V	69.00	66.00	62.00
99F1359		60-OEM-4	30 to 60V	80.00	76.00	72.00
99F1362	120 Watts or 10 Amps	120-OEM-3	17 to 30V	113.00	107.00	102.00
99F1363		120-OEM-4	30 to 60V			



- 47-420 Hz input
- ±0.5% line reg.
- ±0.5% power reg.

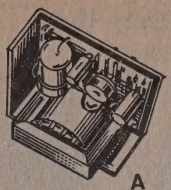
CLIP-AC™ AC VOLTAGE REGULATOR

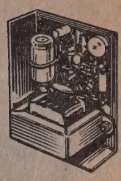
Both load and line regulator. Good for photo-optical applications where RMS regulated power is required. 100-130V, 47-420 Hz input. Line and Load regulation ±0.5%. ±0.5% power factor regulation. Response time 10-50 μsec. Oper. Temp: 0 to 50°C.

Stk. No.	Type	Fig.	Power (VA)	Weight (lbs.)	Fuse (A)	Dimensions HxWxD	1-9	10-24	25-49
99F1394	C3003	A	30	1.5	0.4	3"x4"x2⅞"	53.00	50.00	48.00
99F1396	C3012	. . .	120	3.2	1.5	3¼"x4½"x4"	67.00	64.00	60.00

Adtech Power Supplies

All units are 115/230V input, ±10%; 47-63 Hz; single-phase; no derating at 47-63 Hz range. Each power supply is equipped with floated outputs, allowing for positive or negative grounding. Regulation is 0.1% for ±10% line voltage changes; 0.1% for no load to full load changes. 3 mV ripple peak to peak for 5 to 15V units, 5 mV for 24 to 28V, and .02% peak to peak (.01 RMS) on 150 to 250V power supplies. ±.02% stability for 24 hr. period after 30 min. warmup. Screwdriver adj. for ±5% voltage adjustment. .02%/°C temp. coefficient 0.005%/°C typical. Automatic foldback circuit protects against short circuit conditions. TAPS Series 5V supplies are equipped with crowbar over voltage protection. Single units may be paralleled to achieve higher output.

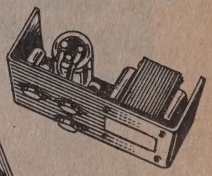

A


B

SINGLE OUTPUT

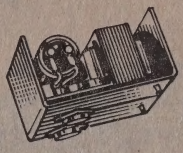
15 TO 24 WATT "RED BARON" SERIES

Stk. No.	Type	Ratings VDC	Ratings Amps	Dimensions	Fig.	1-4	5-9	10-24
54F610	APS 5-3	5	3	4x2.75x4.87"	A	42.00	34.00	32.20
54F611	APS 12-16	12	1.6	4x2.75x4.87"	A	42.00	34.00	32.20
54F612	APS 15-1.5	15	1.5	4x2.75x4.87"	A	42.00	34.00	32.20
54F613	APS 24-1	24	1.0	4x2.75x4.87"	A	42.00	34.00	32.20


C

30 TO 60 WATT "GREEN HORNET" SERIES

54F616	APS 5-6	5	6.0	5.62x3.4x4.87"	D	70.00	55.00	52.10
54F617	APS 12-4	12	4.0	5.62x3.4x4.87"	D	70.00	55.00	52.10
54F618	APS 15-3	15	3.0	5.62x3.4x4.87"	D	70.00	55.00	52.10
54F619	APS 24-2.2	24	2.2	5.62x3.4x4.87"	D	70.00	55.00	52.10
54F620	APS 48-1	48	1.0	5.62x3.4x4.87"	D	86.00	68.00	64.75

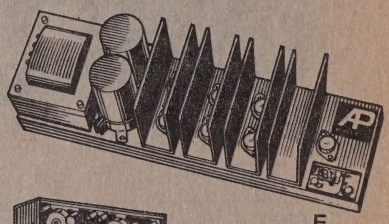

D

25 WATT HIGH VOLTAGE "GOLDEN EAGLE" SERIES

54F614	APS 150-.15	150	.15	4.87x4x2.75"	B	53.00	43.00	39.90
54F615	APS 250-.1	250	.10	4.87x4x2.75"	B	53.00	43.00	39.90

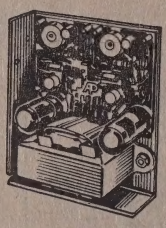
50 TO 120 WATT "BLACK BEAUTY" SERIES

54F621	APS 5-10	5	10	9x3.65x4.87"	C	95.00	75.20	71.30
54F622	APS 5-12	5	12	9x3.65x4.87"	C	105.00	85.00	80.95
54F623	APS 5-18	5	18	14x3.65x4.87"	C	134.00	108.00	101.45
54F624	APS 15-6	15	6	9x3.65x4.87"	C	105.00	75.20	71.30
54F625	APS 24-5	24	5	9x3.65x4.87"	C	105.00	75.20	71.30


E

120 TO 250 WATT "BLUE MAX" SERIES

54F626	APS 5-25	5	25	16.72x4.87x6.6"	E	200.00	158.00	149.95
54F1037	APS 12-17	12	17	16.72x4.87x6.6"	E	200.00	158.00	149.95
54F627	APS 24-10	24	10	16.72x4.87x6.6"	E	200.00	158.00	149.95


F

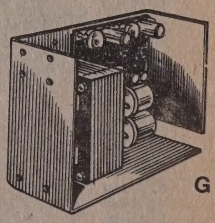
DUAL OUTPUT UNITS

"GOLD DUST TWINS" SERIES

54F1048	DAPS 12-.75	±12	0.75	4x2.75x4.87"	F	53.00	43.00	40.70
54F1049	DAPS 15-.60	±15	0.60	4x2.75x4.87"	F	53.00	43.00	40.70

"BIG RED" HIGH CURRENT MODELS

54F1050	DAPS 12-1.5	±12	1.5	4x2.75x4.87"	G	73.00	59.00	55.90
54F1051	DAPS 15-1.3	±15	1.3	4x2.75x4.87"	G	73.00	59.00	55.90


G

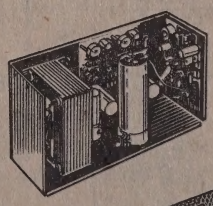
"RED MONSTER" HIGHER CURRENT MODELS

54F1052	DAPS 12-3	±12	3.0	7x3.4x4.87"	G	106.70	84.00	79.60
54F1053	DAPS 15-3	±15	3.0	7x3.4x4.87"	G	106.70	84.00	79.60

TRIPLE OUTPUT "TAPS" MICROPROCESSOR/GENERAL PURPOSE SERIES

Stk. No.	Type	Output #1 VDC	Output #1 Amps	Output #2 VDC	Output #2 Amps	Fig.	1-4	5-9	10-24
54F1054	TAPS-1U	5	4.0	±9-12	0.5	H	118.00	94.00	89.20
54F1055	TAPS-2U	5	6.0	±9-12	1.0	H	137.00	107.00	101.60
54F1056	TAPS-3U	5	9.0	±9-12	1.5	H	164.00	137.00	129.80
54F1057	TAPS-4U	5	12.0	±9-12	3.0	H	200.00	168.00	159.00

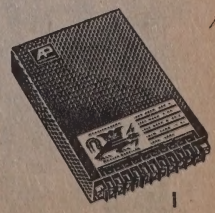
Dimensions: 8.62 x 3.65 x 4.87" to 15 x 4.5 x 4.87"


H

"BLACK DEMON" SWITCHING POWER SUPPLIES

Stk. No.	Type	Input Volt.	Output Volt. VDC	Max. Amps.	Fig.	1-9	10-24
54F1038	AS 5-10	115 AC	5.25	10	I	282.30	270.20
54F1039	AS 12-5	115 AC	12.00	5	I		
54F1040	AS 15-4	115 AC	15.00	4	I		
54F1041	AS 28-2.2	115 AC	28.00	2.25	I		
54F1042	AS 48-1.5	115 AC	48.00	1.5	I		
54F1043	2 DS 5-10	28 DC	5.25	10	I	343.65	328.95
54F1044	2 DS 12-5	28 DC	12	5	I		
54F1045	2 DS 15	28 DC	15	4	I		
54F1046	2 DS 28	28 DC	28	2.25	I		
54F1047	2 DS 48	28 DC	48	1.3	I		

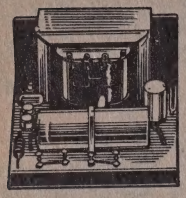
Black Demon switching power supplies use a pulse width modulated circuit to achieve exceptional reliability. All units are short circuit and overload protected. Output voltage is limited to 130% rated output in event of internal failure. AC units are 95-130 VAC at 47-440 Hz or 130 to 180 VDC. DC to DC units are 10-14 VDC, 20-32 VDC or 34-54 VDC input.


I

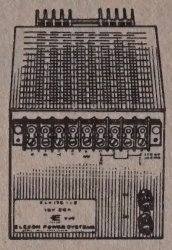
ELPAC POWER SYSTEMS
A DIVISION OF ELPAC ELECTRONICS, INC.

Elpac Power Systems (Elexon)

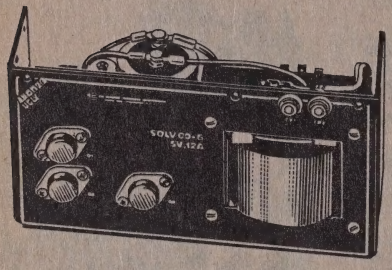
Another Ugly™



OLV



ELV



SOLV

COMPUTER GRADE POWER SUPPLIES

Open Frame OLV & U.L. Recognized SOLV Series.
Enclosed ELV Series

- **Integrated Circuit Regulation**
- **Short Circuit Protected**
- **Remote Voltage Sensing**
- **Floating Output**

Computer grade, all-silicon DC power supplies include integrated circuit regulator for precision regulation. Open frame construction, black anodized chassis for increased thermo-conductivity. ELV Series enclosed ventilated anodized aluminum case with barrier strip terminals. Standard features include short circuit protection, electrostatic shielded transformer and remote voltage sensing. Floating output permits positive or negative ground operation.

Input Voltage	120/240 VAC ±10%, single phase, 47-420 Hz (47 Hz optional for OLV-15)
Output Regulation	±0.1% for line variations ±10%, ±0.1% 0 to full load.
Noise and ripple	Less than ±0.1% peak-to-peak.
Output Voltage Adjust	±5% at nominal line, full load.
Temperature Range	0° to +55°C ambient operating. No additional cooling required.

OPTIONAL OVERVOLTAGE PROTECTION FOR OLV SERIES

Stock Number	Type		NET EACH 1-4	NET EACH 5-24
62F2847	OVP-1	For OLV 15, 30	**8.00**	**7.00**
62F2848	OVP-2	For OLV 60	**10.00**	**9.00**
62F2849	OVP-3	For OLV 90, 120	**12.50**	**12.00**
02F1215	OVP-4	For SOLV 30, 60	**10.00**	**9.00**

Stock Number	Type	Output* Volts	Output* Amps	OVP Option	Dimensions, Inches	NET EACH 1-4	5-9	10-24	25-49
62F2899	SOLV-15-5	5	3						
62F2900	SOLV-15-12	12	1.5	Standard					
62F2855	SOLV-15-15	15	1.2	Fixed	4x4.88x2.0	34.00	32.00	31.00	29.00
62F2856	SOLV-15-18	18	1	OVP					
62F2857	SOLV-15-24	24	0.75						
02F1216	SOLV-30-5	5	6						
02F1217	SOLV-30-12	12	4						
02F1218	SOLV-30-15	15	3.3	OVP	4.87x5.62x3	56.00	53.00	52.00	48.00
02F1219	SOLV-30-18	18	2.6	4					
02F1220	SOLV-30-24	24	2.0						
02F1221	SOLV-60-5	5	2.0						
02F1222	SOLV-60-12	12	8.0	OVP					
02F1223	SOLV-60-15	15	6.6	4	4.87x9x3.35	84.00	80.00	78.00	69.00
02F1224	SOLV-60-18	18	5.2						
02F1225	SOLV-60-24	24	4.0						
62F2890	OLV-15-5	5	3						
62F2891	OLV-15-12	12	1.5	OVP					
62F2863	OLV-15-15	15	1.2	1	4x4½x2¾	31.00	29.00	28.00	26.00
62F2892	OLV-15-18	18	1						
62F2893	OLV-15-24	24	0.75						
62F2864	OLV-30-5	5	6						
62F2865	OLV-30-12	12	4	OVP	4.88x5.75x3.5	56.00	53.00	52.00	48.00
62F2866	OLV-30-15	15	3.3	1					
62F2868	OLV-30-24	24	2						
62F2869	OLV-60-5	5	12						
62F2870	OLV-60-12	12	8	OVP	4¾x4⅜x7	77.00	73.70	70.00	66.00
62F2871	OLV-60-15	15	6.6	2					
62F2889	OLV-60-24	24	4						
62F2894	OLV-120-5	5	24						
62F2895	OLV-120-12	12	16	OVP					
62F2896	OLV-120-15	15	13.2	3	5⅛x6¼x13	150.00	145.00	138.00	134.00
62F2897	OLV-120-18	18	10.4						
62F2898	OLV-120-24	24	8						
ELV Series enclosed with barrier strip terminals.									
62F2873	ELV-25-5	5	5						
62F2874	ELV-25-12	12	3	Standard	4x5½x6½	103.00	97.00	95.00	89.00
62F2876	ELV-25-24	24	1.5						
62F2877	ELV-75-5	5	15						
62F2878	ELV-75-12	12	7	Standard	5⅛x5¼x8	130.00	123.00	120.00	113.00
62F2880	ELV-75-24	24	4						
62F2881	ELV-125-5	5	25						
62F2882	ELV-125-12	12	12	Standard	6x6½x11	175.00	165.00	155.00	145.00
62F2884	ELV-125-24	24	6						
62F2885	ELV-250-5	5	50						
62F2886	ELV-250-12	12	20	Standard	6x10½x11	277.00	262.00	256.00	242.00
62F2888	ELV-250-24	24	10.4						

Additional outputs also available.

14

Elpac Power Systems (Elexon)

ELPAC POWER SYSTEMS
A DIVISION OF ELPAC ELECTRONICS, INC.

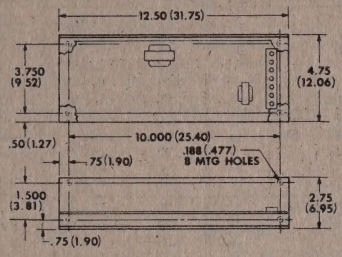
SWITCH MODE POWER SUPPLY

20 KHZ SWITCH MODE POWER SUPPLY

- High efficiency—70% TYP
- Small Size—Less Than 1 Cu. In. Per Watt
- Simplified Design—121 Components
- Full Temp. Range 0-40°C, Derate to 70°C.
- State of the Art Low Noise Design —Min. EMI & RFI
- 20 KHZ Pulse Width Modulated Design
- Soft Start & Overvoltage Protection Standard on All Units

Switch Mode Power Supplies operate at 90-125/180-250VAC, at 47-63 Hz., single phase. Outputs isolated from ground allow use with equipment designed for either positive or negative grounding. Line and load regulation within ±0.1% of specified values. Less than 10mV RMS of ripple and noise on a 50mV P-P signal. Temperature coefficient less than 0.02%/°C. Less than 0.2% voltage drift per 8 hours after 30 min. warm-up. Units are equipped with overload protection with current limiting and automatic recovery after removal of short circuit. Transient response time is 500 microseconds to 1% after a 25% load change at 5A/microsecond. Full regulated voltage remains for a minimum of 20 milliseconds after interruption of input power under full load and nominal input and output voltages. Remote sensing terminal compensates for load cable drop to 0.5V. Designed to meet Underwriters Lab UL 478 standards.

EPS 100
OUTPUT RATING
Volts* Amps
5V 20A

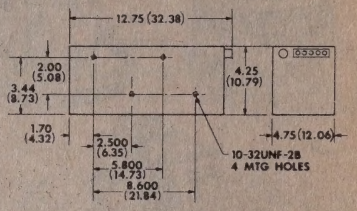


EPS 100
3 lbs.

Stk. No.	1-4	5-9	10-24	25-49
02F1200	220.00	210.00	205.00	191.00

*Other voltages available upon request

EPS 250
OUTPUT RATING
Volts* Amps
5V 50A



EPS 250
7 lbs.

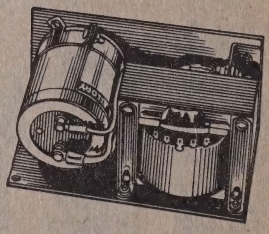
Stk. No.	1-4	5-9	10-24	25-49
02F1201	349.00	335.00	325.00	310.00

BRUTE FORCE SUPPLY

- **Isolated outputs for positive or negative operation.**
- **Full rated output from 0° to +55°C, 105-125 VAC, 47-440 Hz.**
- **Electrostatically-shielded transformer.**
- **Ideal for system applications which do not require regulated DC power.**

SPECIFICATIONS:

Input: 105-125 VAC, 47-440 Hz input.
Output Ripple: ±3% peak-to-peak, from DC to 10 MHz.
Input/Output Isolation: 100 megohms dc, 900 VAC.
Designed to meet UL requirements.



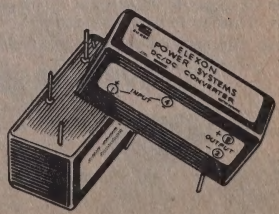
Stock No.	Type	Output Volts	Output Amps	Dimensions	Price 1-4	Price 5-9	Price 10-24
02F1202	BFS 15-7	7	1.8	3.33x4.62x2.09"	20.00	19.00	18.75
02F1203	BFS 15-12	12	1.2		20.00	19.00	18.75
02F1204	BFS 15-24	24	.6		20.00	19.00	18.75
02F1205	BFS 100-7	7	10.0	3.81x7.12x3.25"	51.00	48.00	46.00
02F1206	BFS 100-12	12	7.0		51.00	48.00	46.00
02F1207	BFS 100-24	24	3.5		51.00	48.00	46.00
02F1208	BFS 200-7	7	20.0	5.00x8.10x3.87"	68.00	65.00	63.00
02F1209	BFS 200-12	12	15.0		68.00	65.00	63.00
02F1210	BFS 200-24	24	12.5		68.00	65.00	63.00

LOW-COST AC-DC CONVERTERS

FEATURES:

- **High efficiency (60-70% typical).**
- **Wide tolerance to input voltage (+3 to +7 VDC).**
- **Can be used from 3V or 6V battery power.**
- **Full 300mW output capability.**
- **Both 12V and 15V outputs, positive or negative polarity.**
- **Good output regulation (12V ± 0.6VDC, 15V ±0.7VDC).**
- **Small size, p.c. board mounted (can be flow soldered).**
- **Full temperature range, 0°C-50°C, derated to +70°C.**
- **A quality product with excellent reliability.**

Ideal for last minute additions of 12V or 15V to a main power supply which can provide +3 to +7 volts DC. May also be driven by a 3V or 6V battery source. Can be used in many low current applications where it would be undesirable to add another power supply.



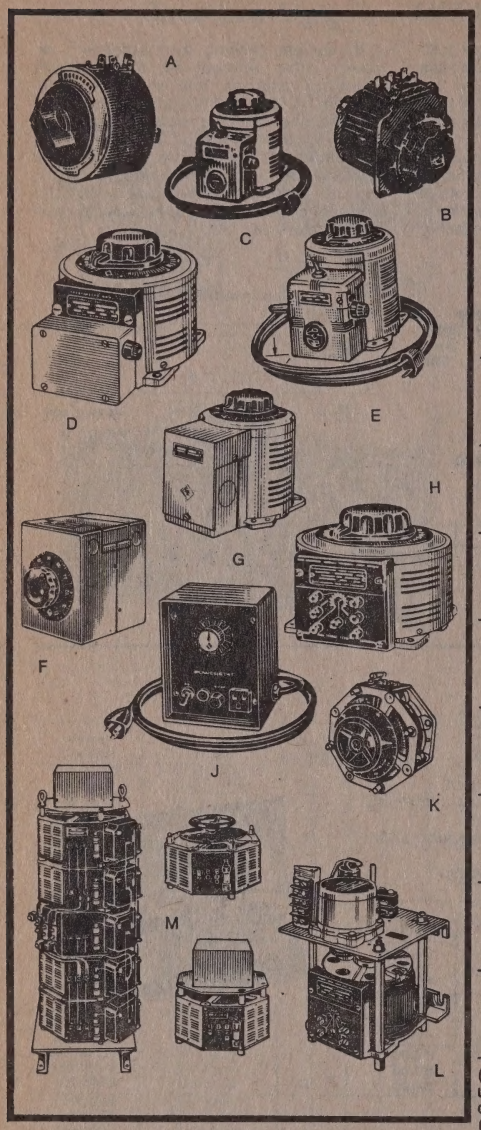
Stock No.	Type	Outputs Voltage	Current	Price 1-9	Price 10-24	Price 25-49
02F1211	DC 512	+12.0 ± .6VDC	0-25mA	6.75	6.50	6.00
02F1212	DC-512	-12.0 ± .6VDC	0-25mA	6.75	6.50	6.00
02F1213	DC 515	+15.0 ± .7VDC	0-20mA	6.75	6.50	6.00
02F1214	DC-515	-15.0 ± .7VDC	0-20mA	6.75	6.50	6.00

14

Superior Electric Variable Transformers

POWERSTAT® VARIABLE TRANSFORMERS

• Takes Overload • Boost Voltage • Sturdy Construction
• Efficient • Economical • Dependable



Epoxy-coated coils. An average of 20% higher current ratings; 10:1 greater overload capability; longer life; greater resistance to fungus, salt spray and other contaminating atmospheres. Commutator bars imbedded in place to prevent steady-state operating temperature and severe overloads from distorting the commutator. Designed to deliver continuously adjustable voltage from AC power lines. No waveform distortion. Precious metal plated commutators. Excellent regulation. High efficiency. Conservative ratings. All manually operated types listed below except the 10B-12 are available with motor drives. 1156D-1256D series types are available in ratings to 244 KVA. Contact Newark for details.

Stock No.	Type No.	(†) Fig.	Input Volts	Output Volts	Max. Amps	Max. KVA	Net Each
02F1068	9	A	120	0-132	1.50	.20	16.25
05F800	10B	A	120	0-132	2.25	.30	17.70
79W050	L10B	J	120	0-132	1.75	.23	47.10
05F809	21	B	120	0-140	5	.63	27.85
79W051	L21	J	120	0-140	4.5	.63	60.50
05F807	116BU	B	120	0-140	10	1.4	37.65
05F801	116B	C	120	0-140	10	1.4	55.05
79W052	116BT	G	120	0-140	10	1.4	55.15
05F1271	L116B	J	120	0-140	10	1.4	73.05
79W053	EN116B	F	120	0-140	8	1.1	83.85
05F857	3PN116B	C	120	0-140	10	1.4	55.70
79W054	VS3PN116B	E	120	0-140	10	1.4	155.55
05F743	117BU	B	120	0-120	12	1.4	39.90
05F839	117BT	G	120	0-120	12	1.4	53.70
79W055	EN117B	F	120	0-120	10	1.2	87.05
05F740	3PN117B	C	120	0-120	12	1.4	66.60
05F767	126U	B	120	0-140	15	2.1	70.75
79W056	126	D	120	0-140	15	2.1	78.65
79W057	3PN126	E	120	0-140	15	2.1	104.00
79W058	F126	D	120	0-140	15	2.1	100.60
06F158	136BU	B	120	0-140	22	3.1	103.00
05F812	136B	H	120	0-140	22	3.1	111.50
05F699	3PN136B	E	120	0-140	22	3.1	151.25
79W059	146U	B	120	0-140	30	4.2	162.60
05F1232	146	H	120	0-140	30	4.2	182.15
05F808	1156D	M	120	0-140	50	7.0	251.80
79W060	1156DU	K	120	0-140	50	7.0	241.95
**	M1156D	M	120	0-140	50	7.0	
05F1229	12	A	240*	0-240	.7	.17	30.00
05F895	22	B	240*	0-280	2.25	.63	39.30
05F672	216BU	B	240*	0-280	3.5	.98	46.40
05F802	216B	C	240*	0-280	3.5	.98	63.28
79W061	3PN216B	C	240*	0-280	3.5	.98	68.80
06F159	3PN217B	C	240*	0-240	5	1.2	74.25
05F769	226U	B	240*	0-280	7.5	2.1	70.75
05F768	226	D	240*	0-280	7.5	2.1	80.15
79W062	3PN226	E	240*	0-280	7.5	2.1	108.00
05F813	236B	H	240*	0-280	10	2.8	111.50
05F623	F236B	H	240*	0-280	10	2.8	140.40
06F160	3PN236B	C	240*	0-280	10	2.8	151.25
06F161	236BU	B	240*	0-280	10	2.8	103.00
79W063	246U	B	240*	0-280	15	4.2	169.00
05F1234	246	H	240*	0-280	15	4.2	182.15
79W064	F246	D	240*	0-280	15	4.2	214.45
05F806	1256D	M	240*	0-280	28	7.8	251.80
79W065	1256DU	K	240*	0-280	28	7.8	238.30

(†) Figures are approximate. Contact Newark for exact details. (*) All 240 volt units except Types 12 & 22 can be operated with 120 or 240 input but output current must then be derated. Contact your local Newark field office for details. (**) Contact Newark for information.

L Type. Meets OSHA. Equipped in grounded NEMA cord-plug assembly, on-off switch, pilot light, grounded output receptacle, fuse. Type 116B has integrally designed nonprojecting handle. Recessed panel controls. Rear slots accept wall hanger brackets. Type L21 & L116B have Powerkote coils.

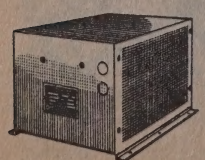
VS Type. Accuracy of ±3% full scale. Single units in 116B-216B thru 146-246 series available with knobs having direct-reading voltmeters. Can measure load voltage without need for installation of separate voltmeters. Voltmeter remains stationary as knob rim is turned to vary voltage.

EN Type. Enclosed in cast aluminum & aluminum sheet dust-tight housing. Benchwall, floor, back or front or panel mounted. Knockout on each side of each end section for cable/conduit wiring. Can be connected to allow either clockwise or counter-clockwise knob rotation to vary output voltage.

M Type. Compact, integral motor drive unit mounted on top of assembly. Same electrical ratings as manual counterparts. Operates on 120 volt, 50/60 Hz single phase. Speeds of 5, 15, 30 and 60 secs at 60 Hz. Adjustable limit switches at lower and upper limits of travel. Knockouts on screened models.

Note. For complete listing of single & 3 phase Powerstat Variable transformers contact local Newark sales office or Superior direct.

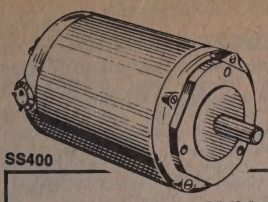
SVR SERIES STABILINE AUTOMATIC VOLTAGE REGULATORS

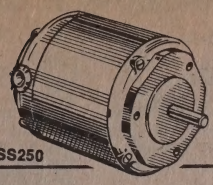


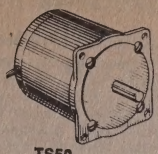
Lightweight, fast, efficient solid-state regulators for a variety of voltage control applications. Can be operated over an ambient temperature range of 0° to 50°C. 50/60 Hz., single phase. Nom. Output Volt: 115. Input Voltage Range: 100 to 135. For the full line of STABILINE regulators ranging from ½ KVA to 300 KVA see your Newark Distributor.

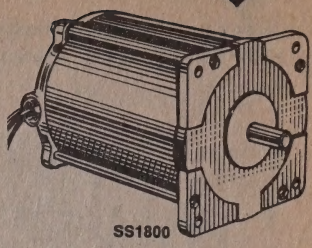
Stk. No.	Type	Max. Amps. Out	Rated Output KVA	Weight		Net
				Lbs.	Kg.	
02F1064	SVR81007	6.5	0.75	28	12.7	275.00
02F1065	SVR8101	8.7	1.0	28	12.7	325.00
02F1066	SVR8102	17.4	2.0	40	18.1	510.00
02F1067	SVR8104	34.8	4.0	45	20.4	695.00

Superior Electric Motors









SLO-SYN AC SYNCHRONOUS MOTORS WITH DESIGNER SPECIFIED FEATURES

Permanent magnet AC motors with extremely rapid starting, stopping and reversing characteristics. Slow basic shaft speed of 72 rpm synchronous with line frequency of 60 Hz. Three lead types need only single-pole, 3 position switch for complete forward, reverse and off control. Nearly identical starting/operating current. Can be completely stalled without overheating. Starts or stops in less than 5° of shaft rotation. No need for mechanical or electrical braking. Can remain coupled to load and safely overdriven when used with auxilliary high speed motor. Phase shifting resistor and capacitor must be used when operating from single-phase source, but not from two-phase. Rated for cont. duty at max. ambient temp. of 65°C.

- **Brushless Construction**
- **Bi-Directional**
- **Constant Speed**
- **Instant Start, Stop**

Stock No.	Type	Max. Amps	Torque (Oz.-In.)	Inertia Momentum (Lbs.-In.)	Phase-Shifting Components: Resistor ±5% tol.	Phase-Shifting Components: Capacitor µF ±6% @ 330VAC	Motor Net	Weight Shpg.	Over-hang (Lbs.)	(Lbs.) Thrust	Each
79W082	LS50*	0.2	40	0.50	1000, 10 W	1.50	4¼	5¾	15	25	**229.90**
05F2186	TS25†	0.2	25	0.12	200, 25 W	1.75	2	2½	8	10	**127.60**
06F143	TS50†	0.3	50	0.25	300, 25 W	3.75	4¾	5¾	15	25	**127.60**
06F134	SS25#	0.1	24	0.15	500, 5 W	0.75	1¼	1½	8	10	**77.25**
05F847	SS50#	0.3	50	0.50	400, 25 W	2.25	3	3½	15	25	**70.35**
24F1646	SS50-1268#	0.3	80	0.5	400, 25 W	2.25	3	3½	15	25	**70.35**
05F844	SS150#	0.4	150	1.5	250, 25 W	3.75	6½	8	25	50	**84.00**
05F2180	SS250#	0.6	250	30.0	150, 50 W	6.50	6½	8	25	50	**115.50**
05F2183	SS400#	0.6	400	4.50	150, 50 W	6.50	12¼	13¾	25	50	**176.40**
24F1647	SS400-1101#	1.0	700	10.0	150, 50 W	11.0	14	15½	25	50	**185.85**
05F2182	X1000#	3.0	1000	9.0	65, 160 W	30.0	31	33	50	100	**403.70**
05F2185	X1500#	3.0	1500	12.0	55, 375 W	30.0	38	42	50	100	**442.20**
05F2184	SS1800#	4.0	1800	16.0	40, 375 W	60.0	45	50	50	100	**526.90**

(*) 120V, 50/60 HZ, 1 phase, 28.8rpm @ 60 Hz. (†) 120V, 50/60 Hz, 1 phase, 200rpm @ 60 Hz. (#) 120V, 50/60 HZ, 1 phase, 72rmp @ 60 Hz.

SPECIAL TYPES

A number of SLO-SYN motors are available for AC applications requiring special features or where operation under severe conditions is required. Many special types available from stock. Remainder can be supplied subject to normal production/delivery time. A setup charge may apply.

Militarized—Planetary Gear—Dust—Ignition Proof—Nuclear Radiation Resistant—Double End—Enclosed Resistor/Capacitor—High Temperature—Limited Vacuum.

UL LISTED

Standard, planetary gear and double end shaft models of the TS25, TS50, LS50, SS25, SS50, SS150, SS250 and SS400 motors can be supplied for applications requiring UL listing. These are identified with letter U suffix on type numbers. Are identical to corresponding non-listed motors. Listed under UL file number E31544.

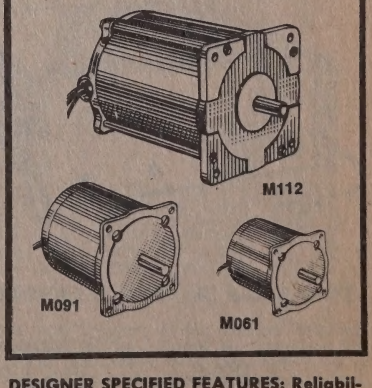
14

SLO-SYN STEPPING MOTORS

- **Wide Range of Sizes and Torques**
- **Highest Torque to Inertial Ratios**
- **High Stepping Rates**
- **Fast Single-Step Response**

Permanent magnet rotors and eight-pole stators. No brushes, ratchets or detents. Shielded ball bearings insure reliability and long life. Motor shaft advances 200 steps per revolution (1.8° per step). 400 steps per revolution (0.9° per step) in the half-step mode. Current is maintained on the motor windings when the motor is not being stepped to provide a high holding torque. Six-lead motors are standard. Can be used as five-lead motor. Accuracy ±5% noncumulative.

Stock No.	Type No.	DC Volts	Amps per Wndg.	Torque (Oz.-In.)	Holding Torque	Res. Torque	Rotor Inertia (Lb.-In.)	Shaft Dia. (")	Over-hang (Lb.)	Thrust Load (Lb.)	Net Wt. (Lb.)	Each
79W083	M112-FJ326	1.8	12.7	840	1125	30	2.75	.500	25	50	14½	**290.85**
79W084	M112-FD12	3.6	6.1	840	1125	30	2.75	.500	25	50	14½	**286.65**
05F2203	M112-FJ12	3.6	6.1	840	1125	30	2.75	.500	25	50	14½	**290.85**
79W085	M112-FD08	5.7	3.8	840	1125	30	2.75	.500	25	50	14½	**286.65**
79W086	M112-FJ08	5.7	3.8	840	1125	30	2.75	.500	25	50	14½	**290.85**
05F2200	M093-FD11	2.8	5.5	300	450	15	0.64	.375	25	50	7¾	**134.40**
79W087	M093-FD07	4.5	3.5	300	450	15	0.64	.375	25	50	7¾	**134.40**
05F2199	M092-FD09	2.5	4.5	200	300	10	0.42	.375	25	50	5½	**97.00**
79W088	M092-FD08	3.0	4.0	200	300	10	0.42	.375	25	50	5½	**97.00**
79W089	M091-FD308	8.0	0.85	110	150	5	0.23	.375	25	50	3¼	**86.00**
05F2198	M091-FD09	1.8	4.7	110	150	5	0.23	.375	25	50	3¼	**86.00**
05F2197	M091-FD06	2.9	3.1	110	150	5	0.23	.375	25	50	3¼	**86.00**
05F2196	M063-FD09	2.2	4.6	100	150	10	0.11	.250	15	25	2¾	**140.70**
05F2195	M063-FD06	3.4	2.9	100	150	10	0.11	.250	15	25	2¾	**140.70**
05F2194	M062-FD09	1.7	4.7	65	100	8	0.08	.250	15	25	2	**109.00**
79W090	M062-FD03	5.3	1.6	65	100	8	0.08	.250	15	25	2	**109.00**
05F2192	M061-FD08	1.3	3.9	35	53	5	0.04	.250	15	25	1¼	**89.00**

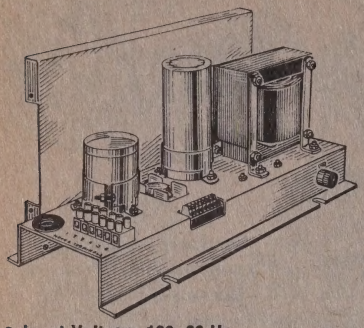


DESIGNER SPECIFIED FEATURES: Reliability (Billion Cycle) • Controllability • Variability • Repeatability • Positionability • Programmability

Superior ELECTRIC Motor Drives

SLO-SYN Stepping Motor Drives

MPS1000 POWER SUPPLY FOR STM101 AND PIM151



- **Input Voltage: 120, 60 Hz**
- **Output Voltages: 24VDC @ 6A**
  5VDC @ 1A
- **Oper. Temp.: 0 to 50°C, Free Air**
- **Size: 17″ long x 8″ high x 7″ wide**
- **Weight: Approx. 20 lbs.**

Chassis mounted power supply provides required voltage and current to operate STM101 Translator or PIM151 Preset Indexer. Provisions are made for physical mounting and interconnection of these modules. Six terminals are provided for motor leads, three for 120 VAC and ground, and eight for interconnections. Assures operation to specifications of STM101, PIM151 and all motors listed on this page.
05F831 .....NET 220.00

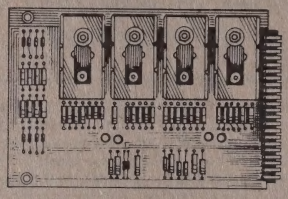
3000 STEP PER SECOND MODULES

Power Supply, Translator and Preset Indexer. Also available in 3000 step per second capability.

Stk. No.	Type & Desc.	1-9	10-24
02F1000	MPS3000 Power Supply Module	277.20	249.48
02F1001	PIM153 Preset Indexer Module	413.70	372.33
02F1002	STM103 Translator Module	149.10	134.19

TRANSLATORS

Receive low-level signal pulses or square waves supplied by external sources and convert them into the proper switching sequence needed to drive SLO-SYN motors in steps. Translators drive motors one step for each pulse received and are incapable of counting pulses, requiring an external source for this information.



TYPE STM101 SLO-SYN TRANSLATOR MODULE

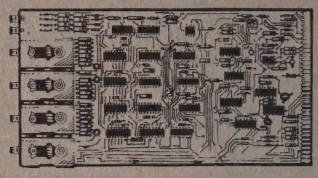
PC board contains logic elements for bi-directional control of SLO-SYN stepping motors. Separate 24VDC power supply (not supplied) is required. Triggered from an external pulse source or from internal oscillator. Motor driven one step for each pulse received. External pulse operation requires pulse width of 10 μs, 5VDC negative voltage change, and 1 μs rise and fall time.
05F829 .....NET 93.45

SPECIFICATIONS

Board Dimensions.....4¼″ x 6½″
Edge Connector (supplied).....Amphenol 22 pin
Power Supply.....24VDC 6 amperes
Temp. Range .....(oper.) 0-40°C
(store) −55 to +85°C
Internal Osc. Range.....4-1000 pulses/s
Oscillator Stability .....±5%
Speed Control .....single-turn, linear potentiometer
External Pulse Req. ....amp: 5VDC negative going width: 10 μs, min.
rise time: 1 μs, max.
Motor Compatibility .....**M061** thru **M112** (using series res.)
Stepping Mode.....full step

PRESET INDEXERS

Used to control indexing of SLO-SYN stepping motors. Provide count, direction and distance information from a single switch closure or pulse. Internal oscillators provide the necessary pulses and counting circuits assure that the motors are driven the correct number of steps. Some models can be directed by computer or by remote switches.



TYPE PIM151 SLO-SYN PRESET INDEXER MODULE

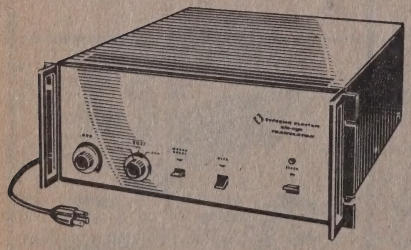
Has internal oscillators to provide the pulses and counting circuits to assure that motors are driven correct number of steps. PC board module contains preset indexer logic circuits, but not power supply and cabinet. Selection of number of steps motor is driven can be done with external BCD logic switches. Other externally controlled functions include Index Start, Run and Jog. Count Complete signal is generated upon completion of motor motion.
05F830 .....NET 291.90

SPECIFICATIONS

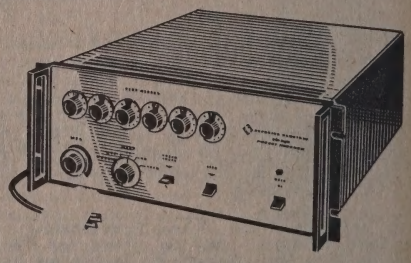
Board Dimensions. .....5¾″ x 11″
Edge Conn. (supplied).....Elco 36-pin
Power Supply .....24VDC, 6 amperes
5VDC, 1 ampere
Temp. Range .....(oper.) 0-40°C
(store) −55 to +88°C
Internal Osc. Range.....4-1000 pulses/s
Speed Control..... single turn pot
Acceleration Rate .....6000 steps/s²
Deceleration Rate .....6000 steps/s²
External Functions .....Index Start, Run
Count Complete Sig.
Count Insertion.....ext. BCD log. sw.
Maximum Count .....99,999 steps
Motor Compatibility ...**M061-M112** motors
Stepping Mode .....full step

14

PACKAGED TRANSLATOR AND PRESET INDICATOR



- **Enclosed Self-contained units.**
- **3000 steps per second in full-step mode.**
- **6000 steps per second in half-step mode.**
- **Operate SLO-SYN stepping motors.**



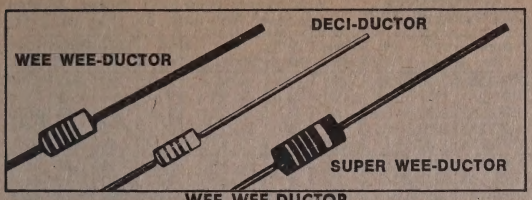
TYPE ST103 SLO-SYN PACKAGED TRANSLATOR

Operates through pulses received from external sources. Motor will be driven one step for each pulse received and can be driven in either half-step (0.9° increments) or the full-step (1.8° increments) mode. An internal oscillator is also provided for off-line positioning of motor. Maximum stepping rate is 3000 steps per second in full-step mode or 6000 steps per second in half-step mode. Translator can be mounted on any horizontal surface.
02F1003 ST103. NET.....497.00

TYPE SP153 PRESET INDEXER

Incorporate power supply and logic circuits needed for precise control of SLO-SYN stepping motors in indexing and other positioning applications. They drive motors at rates to 3000 full-steps or 6000 half-steps with adjustable acceleration to provide optimum performance with any appropriate combination of motor and load. Can provide indexing counts up to 99,999 motor steps, controlled from front panel switches or from a computer or microprocessor. Jog and run modes are also provided. Base speed of 0 to 1000 full-steps or 0 to 2000 half-steps per second without acceleration or deceleration is incorporated. Motor step increment is 0.9° in the half-step mode and 1.8° in the full-step mode. Relay contact closures allow operation of external equipment to be synchronized with preset indexer.
02F1004 SP153. NET.....860.00

Fixed and Variable Inductors **Nytronics**



WEE WEE-DUCTOR

This shielded inductor has great inductance-to-size ratio and meets the stringent requirements of MIL-C-15305C, Grade 1, Class B. The smallest shielded inductor for high density circuits. Dimensions: 0.133" diameter x 0.335" length. Operating Temperature: —55°C to +125°C. Dielectric strength: 700 volts RMS. Tolerance: ±10%. Weight 0.50 grams max.

Stk. No.	Type WEE-WEE	µH	QMin @ MHz		Stk. No.	Type WEE-WEE	µH	QMin @ MHz	
35F1894	0.10	.10	42	25	35F1910	47	47	42	2.5
35F1895	0.15	.15	42	25	35F1911	68	68	46	2.5
35F1896	0.22	.22	42	25	35F1912	100	100	43	2.5
35F1897	0.33	.33	42	25	35F1913	150	150	49	0.79
35F1898	0.47	.47	41	25	35F1917	680	680	56	0.79
35F1899	0.68	.68	56	25	35F1918	1000	1,000	49	0.79
35F1900	1.0	1.0	42	25					
35F1902	2.2	2.2	36	7.9					
35F1903	3.3	3.3	38	7.9					
35F1904	4.7	4.7	42	7.9					
35F1906	10	10	51	7.9					
35F1907	15	15	45	2.5					
35F1908	22	22	42	2.5					
35F1909	33	33	46	2.5					

PRICE LOCATOR

µH Range	1-24	25-49	50-99	100-249
.1-.82	2.70	1.80	1.28	.99
1.0-12	3.08	2.05	1.46	1.12
15-1000	3.64	2.31	1.73	1.33

DECI-DUCTOR

Subminiature inductor. Designed to meet all the environmental specifications of MIL-C-15305C, Grade 1, Class B. Tolerance: ±10%. Dielectric strength: 700 volts RMS. Operating temp.: —55°C to +125°C. Shock: 50G, 11MS. Weight 0.35 grams. Dimensions: 0.100" diameter by 0.250" length. One hundred fit in one-square inch space. Epoxy-molded reliability and uniformity.

Stk. No.	Type DD-	µH	QMin @ MHz		Stk. No.	Type DD-	µH	QMin @ MHz	
35F1845	0.10	.10	40	25	35F1872	18.0	18.0	50	2.5
35F1847	0.15	.15	38	25	35F1873	22.0	22.0	50	2.5
35F1848	0.18	.18	38	25	35F1874	27.0	27.0	50	2.5
35F1849	0.22	.22	35	25	35F1875	33.0	33.0	50	2.5
35F1850	0.27	.27	35	25	35F1876	39.0	39.0	50	2.5
35F1851	0.33	.33	32	25	35F1877	47.0	47.0	50	2.5
35F1853	0.47	.47	32	25	35F1878	56.0	56.0	50	2.5
35F1855	0.68	.68	33	25	35F1879	68.0	68.0	52	2.5
35F1856	0.82	.82	30	25	35F1880	82.0	82.0	52	2.5
35F1857	1.00	1.00	30	25	35F1881	100	100	50	2.5
35F1859	1.50	1.50	32	7.9	35F1882	120	120	28	0.79
35F1860	1.80	1.80	35	7.9	35F1885	220	220	26	0.79
35F1861	2.20	2.20	35	7.9	35F1887	330	330	26	0.79
35F1862	2.70	2.70	37	7.9	35F1889	470	470	27	0.79
35F1863	3.30	3.30	45	7.9	35F1891	680	680	28	0.79
35F1864	3.90	3.90	45	7.9	35F1893	1000	1000	28	0.79
35F1865	4.70	4.70	45	7.9					
35F1866	5.60	5.60	52	7.9					
35F1867	6.80	6.80	52	7.9					
35F1868	8.20	8.20	60	7.9					
35F1869	10.0	10.0	60	7.9					
35F1870	12.0	12.0	45	2.5					
35F1871	15.0	15.0	47	2.5					

PRICE LOCATOR

µH Range	1-24	25-49	50-99	100-249
.10-1.0	1.22	.82	.58	.45
1.2-27	1.32	.89	.63	.49
33-100	2.02	1.34	.97	.74
120-1000	2.44	1.63	1.17	.90

SUPER WEE-DUCTOR SWD—INDUSTRIAL TYPES

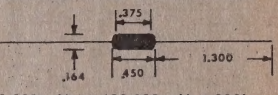
Meets the requirements of MIL-C-15305C, Grade 1, Class B. Tolerance: ±10%. Dielectric strength: 700 volts. Operating temperature: —55°C to +125°C. Weight, 0.75 grams maximum; Shielding: at 1000 Hz, less than 3% coupling. Size: 0.157" dia. x 0.395"L.

Stk. No.	Type SWD-	µH	QMin @ MHz		Stk. No.	Type SWD-	µH	QMin @ MHz	
35F1925	0.10	.10	50	25	35F1965	220	220	58	.79
35F1929	0.22	.22	49	25	35F1966	270	270	60	.79
35F1930	0.27	.27	47	25	35F1967	330	330	54	.79
35F1933	0.47	.47	44	25	35F1969	470	470	60	.79
					35F1970	560	560	60	.79
35F1937	1.0	1.0	47	25	35F1971	680	680	60	.79
35F1939	1.5	1.5	45	7.9	35F1972	820	820	57	.79
35F1940	1.8	1.8	43	7.9	35F1973	1000	1000	65	.79
35F1941	2.2	2.2	45	7.9	35F1974	1200	1200	45	.25
35F1942	2.7	2.7	46	7.9	35F1975	1500	1500	49	.25
35F1943	3.3	3.3	44	7.9	35F1976	1800	1800	47	.25
35F1945	4.7	4.7	44	7.9	35F1977	2200	2200	50	.25
35F1946	5.6	5.6	47	7.9	35F1979	3300	3300	43	.25
35F1947	6.8	6.8	50	7.9	35F1981	4700	4700	44	.25
35F1948	8.2	8.2	50	7.9	35F1984	8200	8200	42	.25
35F1949	10	10	49	7.9	35F1985	10000	10000	39	.25
35F1950	12	12	55	2.5	35F1989	22000	22000	27	.079
35F1951	15	15	44	2.5	35F1993	47000	47000	23	.079
35F1952	18	18	45	2.5	35F1995	68000	68000	23	.079
35F1953	22	22	46	2.5	35F1997	100000	100000	18	.079
35F1954	27	27	49	2.5					
35F1955	33	33	45	2.5					
35F1956	39	39	53	2.5					
35F1957	47	47	52	2.5					
35F1958	56	56	49	2.5					
35F1959	68	68	51	2.5					
35F1960	82	82	45	2.5					
35F1961	100	100	52	2.5					
35F1964	180	180	60	.79					

PRICE LOCATOR

µH Range	1-24	25-49	50-99	100-249
.1-.82	1.87	1.25	.89	.69
1-12	1.96	1.31	.94	.72
15-8200	2.48	1.65	1.18	.91
10,000-100,000	3.78	2.52	1.81	1.39

WEE-DUCTORS



Meets environmental requirements of MIL-C-15305C. Grade 1, Class B. Tolerance: 0.1 to 22 µH ±10@; 27 µH to 1000 ±5%; 1200 µH to 56,000 µH ±10%; 68,000 µH to 180,000 µH ±20%. Dielectric strength; 700 volts RMS. Operating temp; 55°C to +125°C. Weight: 0.75 gram maximum. Shielding; less than 3% coupling at 1000 cycles.

Stk. No.	Type WEE-	µH	Q Min @ MHz		Stk. No.	Type WEE	µH	Q Min @ MHz	
35F2175	0.10	.10	63	25	35F2197	470	470	66	.790
35F2176	0.15	.15	59	25	35F2198	680	680	71	.790
35F2177	0.22	.22	56	25	35F2199	1000	1000	62	.790
35F2178	0.33	.33	48	25	35F2200	1500	1500	51	.250
35F2179	0.47	.47	48	25	35F2201	2200	2200	50	.250
35F2180	0.68	.68	45	25	35F2203	4700	4700	48	.250
35F2181	1.0	1.0	42	7.9	35F2205	10,000	10,000	36	.079
35F2182	1.5	1.5	41	7.9	35F2207	22,000	22,000	32	.079
35F2183	2.2	2.2	42	7.9	33F2209	47,000	47,000	25	.079
35F2184	3.3	3.3	40	7.9	35F2211	100,000	100,000	20	.079
35F2185	4.7	4.7	40	7.9	35F2212	150,000	150,000	20	.060
35F2186	6.8	6.8	40	7.9					
35F2187	10	10	46	2.5					
35F2188	15	15	47	2.5					
35F2188	15	15	47	2.5					
35F2189	22	22	47	2.5					
35F2190	33	33	43	2.5					
35F2191	47	47	46	2.5					
35F2192	68	68	40	2.5					
35F2193	100	100	63	.79					
35F2194	150	150	63	.79					
35F2195	220	220	57	.79					
35F2196	330	330	50	.79					

PRICE LOCATOR

µH Range	1-24	25-49	50-99	100-249
.10-0.82	1.87	1.25	.89	.69
1.0-22	1.96	1.31	.94	.72
27-1000	2.72	1.82	1.30	1.00
1200-4700	3.09	2.06	1.47	1.13
5600—56000	3.56	2.37	1.69	1.30
68000-180,000	5.37	3.58	2.55	1.96

WEE V-L SUBMINIATURE VARIABLE SHIELDED INDUCTORS

Stk. No.	WEE V-L	µH	MHz	Q Norm	Stk. No.	WEE V-L	µH	MHz	Q Ncm
35F3081	2.7	2.7	7.9	110	35F2106	330	330	0.790	100
35F2084	4.7	4.7	7.9	95	35F2107	390	390	0.790	100
35F2085	5.6	5.6	7.9	95	35F2108	470	470	0.790	100
35F2086	6.8	6.8	7.9	85	35F2110	680	680	0.790	100
35F2087	8.2	8.2	7.9	95	35F2111	820	820	0.790	90
35F2088	10	10	7.9	90	35F2112	1000	1000	0.790	90
35F2089	12	12	2.5	120	35F2114	1500	1500	0.250	90
35F2093	27	27	2.5	115	35F2115	1800	1800	0.250	100
35F2094	33	33	2.5	120	35F2116	2200	2200	0.250	100
35F2095	39	39	2.5	120	35F2117	2700	2700	0.250	95
35F2097	56	56	2.5	115	35F2120	4700	4700	0.250	85
35F2100	100	100	2.5	95	35F2121	5600	5600	0.250	85
35F2101	120	120	0.790	95	35F2122	6800	6800	0.250	75
35F2102	150	150	0.790	90	35F2123	8200	8200	0.250	80
35F2104	220	220	0.790	95	35F2124	10000	10000	0.250	70

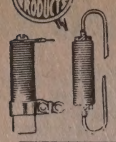
Designed for close inductance adjustments in high density circuits. Magnetically shielded. Adjustable range; ±10% for all values shown except 0.10 µH and 0.12 µH which are ±5%. Designed to MIL-C-15305C, Grade 1, class B. Epoxy milded 0.300" dia. x 0.400" length. Oper. temp. —55°C to +105°C. P.C. board mfg. is facilitated by 0.200 grid spacing.

PRICE LOCATOR

µH Range	1-24	25-49	50-99	100-249
.10-.12	14.66	9.77	6.98	5.37
.15-.82	14.34	9.57	6.84	5.25
1.00-820	12.32	8.21	5.86	4.52
1000-22000	16.07	10.71	7.65	5.88
27000-100,000	17.58	11.72	8.37	6.44

14

J.W. Miller Chokes



FREQUENCY SELECTIVE R.F. CHOKES

Maximum efficiency and highest impedance at specific operating frequencies. Designed to cover the major amateur, industrial and citizens bands and will also operate efficiently at frequencies approximating the recommended frequencies.

Stk. No.	Type	uh	Freq. Mhz	1-99	100-249	Bulk Packed 250-499	Bulk Packed 500-Up
59F255	RFC-14	84	7-20	3.00	2.20	1.65	1.45
59F256	RFC-21	38.5	15-30	2.10	1.54	1.16	1.02
59F258	RFC-50	8.2	30-90	3.00	2.20	1.65	1.45
59F259	RFC-144	1.72	75-180	1.50	1.10	.83	.73

SUB-MINIATURE RF CHOKES

- **Moisture Resistance**
- **Fungus Proof Varnish Coating**

Iron core R.F. chokes designed to meet demand for high reliability, ultra-miniature components. Ideally suited to network and filter design, delay lines, and computer applications. Coils are impregnated with a moisture resistant lacquer; can be fungus-proofed per JAN-T-152 using varnish per MIL-V-173A. Can be encapsulated in epoxy resin to conform to Grade 1, Class B of MIL-C-15305. Wt.: 2 oz.

Stock No.	Type	Induct *	Min. Q@F	1-99	100-249	250-499	500-Up
59F212	70F106A1	1.0 uH	41 @ 25 MHz	1.17	.86	.64	.57
59F213	70F126A1	1.2 uH	45 @ 7.9 MHz	1.44	1.06	.79	.70
59F214	70F156A1	1.5 uH	42 @ 7.9 MHz	1.17	.86	.64	.57
59F217	70F276A1	2.7 uH	34 @ 7.9 MHz				
59F218	70F336A1	3.3 uH	40 @ 7.9 MHz				
59F219	70F396A1	3.9 uH	35 @ 7.9 MHz	**1.23**	**.90**	**.68**	**.59**
59F220	70F476A1	4.7 uH	43 @ 7.9 MHz				
59F221	70F566A1	5.6 uH	41 @ 7.9 MHz				
59F222	70F686A1	6.8 uH	40 @ 7.9 MHz				
59F224	70F105A1	10 uH	36 @ 7.9 MHz				
59F226	70F155A1	15 uH	52 @ 2.5 MHz				
59F228	70F225A1	22 uH	51 @ 2.5 MHz				
59F230	70F335A1	33 uH	50 @ 2.5 MHz				
59F231	70F395A1	39 uH	48 @ 2.5 MHz				
59F232	70F475A1	47 uH	44 @ 2.5 MHz				
59F233	70F565A1	56 uH	45 @ 2.5 MHz	**1.26**	**.92**	**.69**	**.61**
59F234	70F685A1	68 uH	42 @ 2.5 MHz				
59F235	70F825A1	82 uH	41 @ 2.5 MHz				
59F236	70F104A1	100 uH	25 @ 2.5 MHz				
59F237	70F154A1	150 uH	47 @ 790 KHz				
59F238	70F224A1	220 uH	46 @ 790 KHz				
59F239	70F334A1	330 uH	41 @ 790 KHz				
59F240	70F474A1	470 uH	35 @ 790 KHz				
59F241	70F684A1	680 uH	37 @ 790 KHz				
59F242	70F824A1	820 uH	33 @ 790 KHz	**1.32**	**.97**	**.73**	**.64**
59F243	70F103A1	1.0 mh	30 @ 790 KHz				
59F244	70F153A1	1.5 mh	40 @ 250 KHz				
59F245	70F223A1	2.2 mh	40 @ 250 KHz	1.38	1.01	.76	.67
59F246	70F333A1	3.3 mh	52 @ 250 KHz	1.41	1.03	.78	.68
59F247	70F473A1	4.7 mh	49 @ 250 KHz	1.41	1.03	.78	.68
59F248	70F683A1	6.8 mh	51 @ 250 KHz	1.50	1.10	.83	.73
59F249	70F823A1	8.2 mh	48 @ 250 KHz	1.65	1.21	.91	.80
59F250	70F102A1	10.0 mh	41 @ 250 KHz	1.74	1.28	.96	.84
59F058	70F252AF	25 mh	59 @ 79 KHz	1.95	1.43	1.07	.94
59F060	70F332AF	33 mh	61 @ 79 KHz	2.04	1.50	1.12	.99

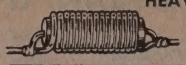
(*) 0.1 to 1.0 μH $\pm$20%, 1.1 to 15 μH $\pm$10%, over 15 μH $\pm$5%.

SHIELDED SUBMINIATURE ADJUSTABLE RF COILS

Small Q changes. Tuning adj. from top or bottom. Magnetic and electrostatic shielding. PC terminals, base and shield, ½" sq.x⅝"H. 2 oz.

Stock No.	Type No.	Inductance uh (*mh)	Res. Max.	Max. Ma.	1-99	100-249	250-499	500-Up
15F2311	9050	1.5-3.0	.66	80	**3.84**	**2.82**	**2.11**	**1.86**
15F2313	9052	7.0-14.0	1.38	80				
15F2315	9054	28.0-60.0	3.00	100				
15F2316	9055	60.0-120.0	4.00	100	**3.84**	**2.82**	**2.11**	**1.86**
12F2317	9056	120.0-280.0	5.75	80				
12F2318	9057	280.0-650.0	12.00	80	**4.68**	**3.43**	**2.57**	**2.26**
15F2319	9058	650.0-1.3*	15.0	100				
12F2322	9060	*3.0-10.0*	76.0	30				
15F2324	9062	*15.0-40.0*	150.0	30	**5.40**	**3.96**	**2.97**	**2.61**
15F2325	9063	*20.0-60.0*	175.0	25				

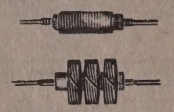
HEAVY DUTY HASH CHOKES



A series of relatively high inductance, high current hash filter chokes. Molded powdered iron form. Av. ship. wt. 2 oz.

Stock No.	Type	Uh 20%	Ohms Max.	Amps	Dimensions	1-99	100-249	250-499	500-Up
15F2250	5218	3.35	.010	20	1/32 X 1 5/16	2.64	1.94	1.45	1.28
15F2251	5219	4.9	.016	15	½ X 1¼	2.64	1.94	1.45	1.28
15F2252	5220	8.8	.021	10	½ X 1¼	2.55	1.87	1.40	1.23
15F2253	5230	4.0	.012	8	5/16 X 2 3/32	2.16	1.58	1.19	1.04
15F2254	5240	40.	.082	3	5/16 X 1¼	2.16	1.58	1.19	1.04
15F2255	5248	68.	.054	5	1 7/32 X 1¼	2.22	1.63	1.22	1.07
15F2256	5250	100.	.216	2	5/16 X 1¼	2.22	1.63	1.22	1.07
15F2257	5252	125.	.08	3.5	½ X 1¼	2.64	1.94	1.45	1.28
15F2258	5254	250.	.17	2.5	7/16 X 1¼	2.64	1.94	1.45	1.28
15F2259	5256	500.	.26	2	5/16 X 1¼	2.64	1.94	1.45	1.28

RF CHOKES WITH AXIAL LEADS



Solenoid or 3-pi universal windings. Impregnated with moisture, fungus-resistant varnish. Operation up to UHF. Tol. ±5% exc. Sgl. Layer Phen. .1- 1uH-20%, 1.1-10uH-10%. Dimensions: Phenolic form—3/16" dia. ¾" L. Iron core form ⅞" long; Ferrite core chokes ¼" dia. ⅞" long. Avg. Ship. wt.: 2 oz.

Iron Core Form - Single Layer Solenoid

Stock No.	Type	Induct.	Ohms Max.	mA	1-99	100-249	250-499	500-Up
59F282	4622	10 uH	.11	1500				
59F283	4624	15 uH	.17	1000				
59F284	4626	24 uH	.34	800	**1.08**	**.79**	**.59**	**.52**
59F285	4628	39 uH	.65	600				
59F286	4629	55 uH	1.0	500				
59F288	4631	82 uH	1.9	450				
59F289	4632	100 uH	3.0	400	**1.20**	**.88**	**.66**	**.58**

Phenolic Form—3 Section Pi Winding

59F296	4649	0.55 mH	13.0	160	1.92	1.41	1.06	.93
59F298	4651	0.75 mH	16.0	160	1.92	1.41	1.06	.93
59F299	4652	1.00 mH	19.0	160	1.95	1.43	1.07	.94

Iron Core Form—3 Section Pi Windings

59F302	4662	1.0 mH	8.6	160	1.95	1.43	1.07	.94
59F303	4664	1.5 mH	11	160	1.95	1.43	1.07	.94
59F304	4666	2.4 mH	15	160	1.95	1.43	1.07	.94
59F305	4668	3.9 mH	20	160	1.95	1.43	1.07	.94
59F309	4672	10.0 mH	50	100	2.46	1.80	1.35	1.19

Phenolic Form—Single Layer Solenoid

Stock No.	Type	Induct. uH	Ohms Max.	mA	1-99	100-249	250-499	500-Up
59F266	4584	0.22	.020	2800	1.56	1.14	.86	.75
59F272	4602	1.0	.050	2000				
59F273	4604	1.5	.093	1800				
59F274	4606	2.4	.190	1500	**.99**	**.73**	**.54**	**.48**
59F275	4608	3.9	.450	1000				
59F276	4609	5.5	.670	850				
59F277	4610	6.2	.830	700				
59F278	4611	8.2	1.20	600	**.99**	**.73**	**.54**	**.48**
59F279	4612	10.0	1.50	500				

Ferrite Core RF Chokes - 3 Section Pi Windings

59F312	6302	2.5 mH	9.0	160	1.98	1.45	1.09	.96
59F313	6304	5.0 mH	14	160	2.10	1.54	1.16	1.02
59F314	6306	10.0 mH	31	100	2.34	1.72	1.29	1.13
59F315	6308	25.0 mH	82	65	2.34	1.72	1.29	1.13
59F316	6310	50.0 mH	127	65	2.58	1.89	1.42	1.25

ADJUSTABLE WIDE RANGE TAPPED INDUCTORS

Large inductance change. Excellent Q. Tap at one third the total turns. Size: ⅞" max. dia x 2¼" long. Mounting hole: 5/16". Weight: 3 oz.

Stock No.	Type No.	Inductance mh (*uh)	Res. Max.	Max. Ma.	1-99	100-249	250-499	500-Up
15F2326	9011	40.*-.240	2.04	250	5.70	4.18	3.14	2.76
12F2327	9012	.180-.800	4.08	250	4.74	3.48	2.61	2.29
15F2328	9013	.570-2.80	8.52	250	4.80	3.52	2.64	2.32
15F2329	9014	2.10-8.00	15.4	250	5.10	3.74	2.81	2.47
15F2330	9015	6.00-16.0	33.6	200	5.40	3.96	2.97	2.61
15F2331	9016	12.0-40.0	91.2	125	5.88	4.31	3.23	2.84
15F2332	9017	30.0-105.0	148.0	75	5.88	4.31	3.23	2.84
15F2333	9018	78.0-240.0	264.0	75	5.88	4.31	3.23	2.84
15F2334	9019	180.0-750.0	620.0	50	6.00	4.40	3.30	2.90

SERIES 48A—ADJUSTABLE COILS

Freq. Range: 30 MHz. -250 MHz. Min. Q: 100. DC Current: 2 A #20 AWG. Coil OD: .310". Lgth: .75"

Stock No.	Type	Inductance Range #H	No. of Turns	1-99	100-249	250-499	500-Up
15F2292	48A518mpc	.046-.055	1½				
15F2293	48A778mpc	.071-.082	2½	**1.62**	**1.19**	**.89**	**.78**
15F2294	48A117mpc	.099-.122	3½				
15F2295	48A147mpc	.118-.157	4½				

Lamp Index

Manufacturer's Type	Page
ALCOLITE	
BFK	610
BIM	610
BND	610
BNE	610
BNF	610
MC	610
MCM	610
ME	610
NE-1H	610
NE-211	610
T-1	610
T-1¾	610
CHICAGO MINIATURE	
General Service:	
PR	604
10-1816	604
1819-8805	605
A1B	605
A1C	605
CM7	605
CM8	605
CM20	608
CM21-3	606
CM44	609
CML	606
G-3½	604
G-4½	604, 605
G-6	604
GTL-1¾	604, 605
GTL-3	604
NE	605
PSB	605
RP11	604
S-8	604
T-1	604, 605
T-1¼	604, 605
T-1¾	604, 605
T-3¾	604, 605
3S6/5	605
6S6	605
6T	605
7C7	605
10C7	605
10S6C	605
24C	605
24E	605
24X	605
25P	608
30B	605
48D	605
55C	605
121A	608
900	607
5100	607, 608
6300, 6400	606, 609
LED	
CM4	110
DIALIGHT	
21	599
31	602
32	602
33	601
37	601
51	602
52	599, 601
70	601
80	602
81	599, 601, 602
95	599, 601
101	600
103	603
125	603
135	599, 601

Manufacturer's Type	Page
DIALIGHT (cont'd.)	
137-C7A	600
140	600
162	600
177	600
181	600
249	598
250	596
252	600
270	600
361	600
502	602
506	599, 603
507	596, 597
508	596
514	602
515	596
558	598
559	598
800	601
801 (MS-25041)	601
803	601
804	601
806	601
812	601
820	601
DIALIGHT LED'S and Displays	
501	108, 109
515	107
521	109
549	109
550	109
555	109
730	108
733	108
734	108
740	108
743	108
745	108, 109
749	108
9000	109
GTE SYLVANIA	
AS	611
ASB	611
CS	611
CSB	611
E	611
ES	611
ESB	611
PSB	612
MB	612
PS	612
RB	612
RC	612
SM-1, SM-2	611
6C	611
21	611
24E	611
24X	611
31	611
41	611
48C	611
51	611
53B	611
55C	611
61	611
71	611
81	611
900	611
1900	613
TP	613
B	613
C	613
D	613
E	613
F	613
30000	611, 612
31000	611
32000	611
34000	611
35000	611
38000	611

Manufacturer's Type	Page
HERZOG	
T-4½	609
IEE	
LED Display Hardware	
22463	120
22464	120
23441	120
24036	120
24038	120
25002	120
IMLEC	
100, 101	614
105, 106	614
CLF14	614
CLF28	614
LED'S:	
150, 151	614
406	614
407	614
440	614
LEECRAFT	
11-200	615
12-200	615
16-00	615
21-00	615
22-25	615
22-27A	615
23-00	615
26-07	615
31	616
31D	615
32	616
32R	616
35	616
36EN	616
36N	616
39	617
41EN	616
41N	616
44	617
45	617
46	617
47	615
48	617
49	617
51	617
53-00	615
53-07	615
56	617
200	615
300	615
400	615
500	615
600	615
700	615
2200	615
2500	615
2600	615
L45	617
L46	617
L58	617
L59	617
LUXO	
AL	645
BL	645
CS-4/M	645
DFL	645
FL1A	645
L-1A	645
LB-1A	645
LC-1A	645
LFM-1	645
LIL	645

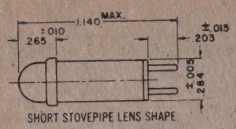


Fig. 7 STOVEPIPE

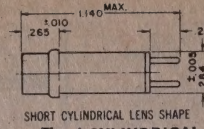


Fig. 1 CYLINDRICAL

SOLID-STATE CARTRIDGES

Light source is a solid state lamp that provides the advantages of low power with extremely long life and is compatible with integrated circuits (can be driven directly by RTL, DTL, and TTL logic). May be used as direct replacements for existing cartridges using an incandescent lamp operating from a DC power source. An internal fresnel ring pattern in its lens design assures maximum distribution of the light output. Cartridge is supplied in a black anodized finish which produces a high contrast ratio. To facilitate proper installation of the cartridge, the polarity is marked (+) on the cartridge housing and the terminal base is keyed.

SHORT CYLINDRICAL 3.6V DC (FIG. 1)

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1429	507-4756-3331-500	Red	2.38	2.03	1.77
25F1461	507-4856-3332-500	Green	2.63	2.24	1.94
25F1462	507-4956-3333-500	Yellow	2.63	2.24	1.94

SHORT STOVEPIPE 3.6V (FIG. 7)

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1423	507-4756-3731-500	Red	2.38	2.03	1.77
25F1473	507-4856-3732-500	Green	2.63	2.24	1.94
25F1474	507-4956-3733-500	Yellow	2.63	2.24	1.94

SHORT CYLINDRICAL 5V DC (FIG. 1)

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1430	507-4757-3331-500	Red	2.38	2.03	1.77
25F1463	507-4857-3332-500	Green	2.63	2.24	1.94
25F1464	507-4957-3333-500	Yellow	2.63	2.24	1.94

SHORT STOVEPIPE 5V (FIG. 7)

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1424	507-4757-3731-500	Red	2.38	2.03	1.77
25F1475	507-4857-3732-500	Green	2.63	2.24	1.94
25F1476	507-4957-3733-500	Yellow	2.63	2.24	1.94

SHORT CYLINDRICAL 6V DC (FIG. 1)

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1431	507-4758-3331-500	Red	2.38	2.03	1.77
25F1465	507-4858-3332-500	Green	2.63	2.24	1.94
25F1466	507-4958-3333-500	Yellow	2.63	2.24	1.94

SHORT STOVEPIPE 6V DC (FIG. 7)

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1425	507-4758-3731-500	Red	2.38	2.03	1.77
25F1477	507-4858-3732-500	Green	2.63	2.24	1.94
25F1478	507-4958-3733-500	Yellow	2.63	2.24	1.94

SHORT CYLINDRICAL 10V DC (FIG. 1)

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1432	507-4759-3331-500	Red	2.38	2.03	1.77
25F1467	507-4859-3332-500	Green	2.63	2.24	1.94
25F1468	507-4959-3333-500	Yellow	2.63	2.24	1.94

SHORT STOVEPIPE 10V DC (FIG. 7)

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1426	507-4759-3731-500	Red	2.38	2.03	1.77
25F1479	507-4859-3732-500	Green	2.63	2.24	1.94
25F1480	507-4959-3733-500	Yellow	2.63	2.24	1.94

SHORT CYLINDRICAL 14V DC (FIG. 1)

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1433	507-4760-3331-500	Red	2.38	2.03	1.77
25F1469	507-4860-3332-500	Green	2.63	2.24	1.94
25F1470	507-4960-3333-500	Yellow	2.63	2.24	1.94

SHORT STOVEPIPE 14V DC (FIG. 7)

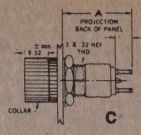
Stk. No.	Type	Lens	1-9	10-24	25-99
25F1427	507-4760-3731-500	Red	2.38	2.03	1.77
25F1481	507-4860-3732-500	Green	2.63	2.24	1.94
25F1482	507-4960-3733-500	Yellow	2.63	2.24	1.94

SHORT CYLINDRICAL 28V DC (FIG. 1)

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1434	507-4761-3331-500	Red	2.63	2.24	1.95
25F1471	507-4861-3332-500	Green	2.88	2.46	2.17
25F1472	507-4961-3333-500	Yellow	2.88	2.46	2.17

SHORT STOVEPIPE 28V DC (FIG. 7)

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1428	507-4761-3731-500	Red	2.63	2.24	1.95
25F1483	507-4861-3732-500	Green	2.88	2.46	2.17
25F1484	507-4961-3733-500	Yellow	2.88	2.46	2.17



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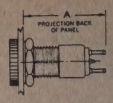


G

DATALAMP HOLDERS

Datalamp Holder is available with or without screw-on collar. The use of either is dependent on the desired front-of-panel appearance. The standard black anodized flange nut and collar produce the desired maximum contrast. In addition, the terminals of the holder are marked "A" and "B." The "A" terminal would denote positive (+) polarity. This feature insures proper installation and wiring.

CHART

DATA-LAMP HOLDER	Accommodate Cartridge Figure Numbers	Turret Terminals	Solder Cup Terminals	Dim. A Max.
C	1, 2, 3, 7	508-8738-504	508-7538-504	57/64
G	1, 2, 3, 7	250-8738-14-504	250-7538-14-504	1 1/32
C	4, 5	508-8745-504	508-7545-504	63/64
G	4, 5	250-8745-14-504	250-7545-14-504	1 1/8
G	6	250-8758-33-504	250-7558-33-504	1 21/32

TURRET TERMINALS

Stk. No.	Type	Description	1-9	10-24	25-99
25F1291	508-8738-504	With Collar	2.31	1.87	1.60
25F1485	250-8738-14-504	Without Collar	2.09	1.68	1.45
25F1292	508-8745-504	With Collar	2.31	1.87	1.60
25F1486	250-8745-14-504	Without Collar	2.09	1.68	1.45
28F1801	250-8758-33-504	Without Collar	2.39	1.92	1.67

SOLDER CUP TERMINALS

Stk. No.	Type	Description	1-9	10-24	25-99
25F1167	508-7538-504	With Collar	2.31	1.87	1.60
25F1487	250-7538-14-504	Without Collar	2.09	1.68	1.45
25F1209	508-7545-504	With Collar	2.31	1.87	1.60
25F1489	250-7545-14-504	Without Collar	2.09	1.68	1.45
28F1802	250-7558-33-504	Without Collar	2.39	1.92	1.67

CAPS FOR ABOVE HOLDERS (WITHOUT COLLARS)

Stock No.	Type	Color	1-9	10-24	25-99	100-249
		TRANSLUCENT				
67F5901	250-1471-500	Red	.80	.64	.56	.49
67F5902	250-1472-500	Green				
28F1804	250-1473-500	Amber				
67F5904	250-1475-500	White				
		TRANSPARENT				
25F1523	250-3331-500	Red	.80	.64	.56	.49
28F1805	250-3332-500	Green				
28F1806	250-3333-500	Amber				
28F1807	250-3335-500	White				

515-0050

CARTRIDGE CONNECTORS

Type 515-0050. Molded phenolic; solder lug terminals are of beryllium copper, cadmium plated, with elongated slots.

Stk. No.	Type	1-9	10-24	25-99	100-249
28F1803	515-0074	.35	.29	.27	.24
25F1251	515-0050	.35	.29	.27	.24

515-0012

Type 515-0012. Sleeve of aluminum with black anodized finish. Insulation of black molded phenolic. Solder cup terminals of phosphor bronze, gold plated.

Stk. No.	Type	1-9	10-24	25-99	100-249
25F1252	515-0012	1.17	.92	.75	.62

SPRING CLIP

Effective when conventional mounting is not practical. For all Dialight Plug-in Neon, incandescent and solid-state lamps. Cartridges. Self-retaining. Of tubular heat treated spring steel.

Stk. No.	Type	1-9	10-24	25-99	100-249
25F1253	515-0051	.20	.16	.14	.08

Note: CARTRIDGES ON THIS PAGE ONLY AVAILABLE IN MULTIPLES OF 5.

Datalamp Cartridges

DIALIGHT

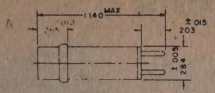


Fig. 1 SHORT CYLINDRICAL LENS

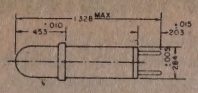


Fig. 2 STOVEPIPE LENS

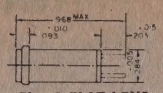


Fig. 3 FLAT LENS

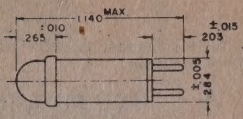


Fig. 7 SHORT STOVEPIPE LENS

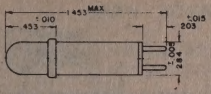


Fig. 4 STOVEPIPE LENS

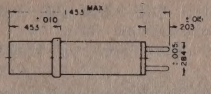


Fig. 5 LONG CYLINDRICAL LENS

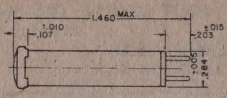


Fig. 6 PLANO CONVEX LENS

NEON CARTRIDGES

Neons offered with the lower resistor value gives the best indication, with a minimum life of 5000 hours, while the higher value results in long life, where 25000 hours or more is required. The high brightness types offer relatively constant light output through life, and five times the brightness of the standard neon, they should be used in all cases where the circuit voltage is adequate.

STANDARD BRIGHTNESS 105-125V AC OR DC (FIG. 4)

Stock No.	Type	Lamp	Built-In Res.	Lens Color	1-9	10-24
25F1180	507-4537-0931-640	A1B	56K	Red	2.27	1.81
25F1181	507-4537-0933-640	A1B	56K	Amber		
25F1182	507-4537-0935-640	A1B	56K	White		
25F1184	507-4537-0937-640	A1B	56K	Clear		

HIGH BRIGHTNESS 110-125V AC (FIG. 4)

25F1190	507-4538-0931-610	A1C	22K	Red	2.27	1.81
25F1191	507-4538-0933-610	A1C	22K	Amber		
25F1192	507-4538-0935-610	A1C	22K	White		
25F1194	507-4538-0937-610	A1C	22K	Clear		

STANDARD BRIGHTNESS 105-125V AC OR DC (FIG. 5)

Stock No.	Type	Lamp	Built-In Res.	Lens Color	1-9	10-24
25F1185	507-4537-1531-640	A1B	56K	Red	2.27	1.81
25F1186	507-4537-1533-640	A1B	56K	Amber		
25F1187	507-4537-1535-640	A1B	56K	White		
25F1189	507-4537-1537-640	A1B	56K	Clear		

HIGH BRIGHTNESS 110-125V AC (FIG. 5)

25F1195	507-4538-1531-610	A1C	22K	Red	2.27	1.81
25F1196	507-4538-1533-610	A1C	22K	Amber		
25F1197	507-4538-1535-610	A1C	22K	White		
25F1199	507-4538-1537-610	A1C	22K	Clear		

INCANDESCENT LAMP CARTRIDGES

Ratings of incandescent lamps in amperes are purely nominal and the values shown are subject to ±7% to ±10% tolerances. Quality control in lamp manufacture aims at producing lamps that will deliver rated hours at rated volts. Operation of lamps at nominal amperes will produce unsatisfactory life performance. It is undesireable to operate lamps from circuit voltages much higher than ratings by means of dropping resistors. Maximum power that may be put in is 2 to 3 watts.

TRANSLUCENT 6V, 0.2 Amp. (FIG. 1)

Stock No.	Type	C.P.	Hours	Lens Color	1-9	10-24
25F1128	507-3906-1471-600	.60	1,000	Red	1.66	1.51
25F1129	507-3906-1472-600	.60	1,000	Green		
25F1130	507-3906-1473-600	.60	1,000	Amber		
25F1132	507-3906-1475-600	.60	1,000	White		

TRANSLUCENT 6.3V, 0.2 Amp. (FIG. 2)

25F1239	507-3909-0971-600	.40	20,000	Red	1.82	1.62
25F1240	507-3909-0972-600	.40	20,000	Green		
25F1241	507-3909-0973-600	.40	20,000	Amber		
25F1243	507-3909-0975-600	.40	20,000	White		

TRANSPARENT 10V, .014 Amp. (FIG. 1)

45F500	507-3910-1431-600	.004	50,000	Red	1.82	1.62
45F501	507-3910-1432-600	.004	50,000	Green		
45F502	507-3910-1433-600	.004	50,000	Amber		

TRANSPARENT 10V, .040 Amp. (FIG. 1)

25F1172	507-3911-1431-600	.08	10,000	Red	1.62	1.47
25F1173	507-3911-1432-600	.08	10,000	Green		
25F1174	507-3911-1433-600	.08	10,000	Amber		
25F1175	507-3911-1435-600	.08	10,000	White		

TRANSLUCENT 14V, 0.08 Amp. (FIG. 1)

25F1134	507-3913-1471-600	.50	1,500	Red	1.66	1.51
25F1135	507-3913-1472-600	.50	1,500	Green		
25F1136	507-3913-1473-600	.50	1,500	Amber		
25F1138	507-3913-1475-600	.50	1,500	White		

TRANSLUCENT 14V, 0.08 Amp. (FIG. 2)

25F1245	507-3914-0971-600	.30	15,000	Red	1.62	1.47
25F1246	507-3914-0972-600	.30	15,000	Green		
25F1247	507-3914-0973-600	.30	15,000	Amber		
25F1249	507-3914-0975-600	.30	15,000	White		

TRANSLUCENT 14V, .080 Amp. (FIG. 1)

25F1168	507-3914-1471-600	.30	15,000	Red	1.62	1.47
25F1169	507-3914-1472-600	.30	15,000	Green		
25F1170	507-3914-1473-600	.30	15,000	Amber		
25F1171	507-3914-1475-600	.30	15,000	White		

TRANSLUCENT 28V, 0.04 Amp. (FIG. 3)

Stock No.	Type	C.P.	Hours	Lens Color	1-9	10-24
25F1093	507-3917-0371-600	.34	4,000	Red	1.62	1.47
25F1094	507-3917-0372-600	.34	4,000	Green		
25F1095	507-3917-0373-600	.34	4,000	Amber		
25F1096	507-3917-0375-600	.34	4,000	White		

TRANSLUCENT 28V, 0.04 Amp. (FIG. 2)

25F1122	507-3917-0971-600	.34	4,000	Red	1.62	1.47
25F1123	507-3917-0972-600	.34	4,000	Green		
25F1124	507-3917-0973-600	.34	4,000	Amber		
25F1126	507-3917-0975-600	.34	4,000	White		

TRANSLUCENT 28V, 0.04 Amp. (FIG. 1)

25F1140	507-3917-1471-600	.34	4,000	Red	1.62	1.47
25F1141	507-3917-1472-600	.34	4,000	Green		
25F1142	507-3917-1473-600	.34	4,000	Amber		
25F1144	507-3917-1475-600	.34	4,000	White		

TRANSLUCENT 28V, 0.04 Amp. (FIG. 1)

28F1808	507-3917-1431-600	.34	4,000	Red	1.62	1.47
28F1809	507-3917-1432-600	.34	4,000	Green		
28F1810	507-3917-1433-600	.34	4,000	Amber		
28F1811	507-3917-1435-600	.34	4,000	White		

TRANSPARENT 28V, 0.04 Amp. (FIG. 1)

28F1812	507-3918-1431-600	.30	7,000	Red	1.62	1.47
28F1813	507-3918-1432-600	.30	7,000	Green		
28F1814	507-3918-1433-600	.30	7,000	Amber		
28F1815	507-3918-1435-600	.30	7,000	White		

TRANSLUCENT 28V, .040 Amp. (FIG. 1)

25F1176	507-3918-1471-600	.30	7,000	Red	1.62	1.47
25F1177	507-3918-1472-600	.30	7,000	Green		
25F1178	507-3918-1473-600	.30	7,000	Amber		
25F1179	507-3918-1475-600	.30	7,000	White		

INCANDESCENT CARTRIDGES 6V to 120V (FIG. 6)

Stock No.	Type Clear	Volts	CP	Hours	1-9	10-24	25-99	100-249
60F1228	507-5819-0747-600	6	0.7	5000	2.61	2.13	1.84	1.56
60F1229	507-5820-0747-600	12	2.1	5000	2.61	2.13	1.84	1.56
60F1230	507-5821-0747-600	28	1.2	5000	2.61	2.13	1.84	1.56
60F1231	507-5822-0747-600	48	1.5	5000	2.61	2.13	1.84	1.56
60F1232	507-5823-0747-600	60	2.2	5000	2.73	2.52	2.32	2.14
60F1233	507-5824-0747-600	120	1.5	5000	2.61	2.13	1.84	1.62

Note: DATALAMPS Sold Only In Multiples Of 5

DIALIGHT Ultra-Miniature Lights

DATALITES WITH PERMANENT NEON LAMPS
Lamps are built-in—not replaceable. Units mount in ⅜″ clearance hole.

Built-in; a rugged, long-life T-2 Neon Glow Lamp. Resistors to Mil-R-11 spec.

Lightweight construction of aluminum, black anodized finish. Plastic lens gives wide angle visibility. 2 insulated terminals of low carbon steel, solder plated. With mounting hardware.

HIGH BRIGHTNESS UNIT W/C2A (NE-2H) LAMP 110-125V AC 5000 APPROX. HRS.

Conform to military specifications (Mil-L-3661)

Stovepipe: With Built-in 22K Resistor.
(1²⁵⁄₆₄x½″ Overall: 2 Oz. Shpg. Wt.)

Stock No.	Type	Lens Color	1-9	10-24	25-99
20F887	249-7866-0931-514	Red	2.81	2.43	2.16
20F888	249-7866-0933-514	Amber			
20F889	249-7866-0935-514	White			
20F890	249-7866-0937-514	Clear			

Short Cylindrical; With Built-in 22K Resistor.
(1²⁵⁄₆₄x½″ Overall; 2 Oz. Shpg. Wt.)

Stock No.	Type	Lens Color	1-9	10-24	25-99
20F891	249-7866-1431-514	Red	2.81	2.43	2.16
20F892	249-7866-1433-514	Amber			
20F893	249-7866-1435-514	White			
20F894	249-7866-1437-574	Clear			

STANDARD BRIGHTNESS UNIT W/A9A (NE-2E) LAMP 105-125V DC 25000 APPROX. HRS.

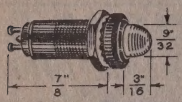
With Built-in 100-K Resistor
(1²⁵⁄₆₄x½″ Overall; 2 oz. Shpg. Wt.)

25F1151	249-7841-0931-574	Red	2.81	2.43	2.16
25F1152	249-7841-0933-574	Amber			
25F1153	249-7841-0935-574	White			
25F1155	249-7841-0937-574	Clear			

With Built-in 100-K Resistor
(1²⁵⁄₆₄x½″ Overall; 2 oz. Shpg. Wt.)

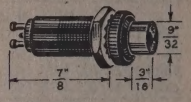
25F1161	249-7841-1431-574	Red	2.81	2.43	2.16
25F1162	249-7841-1433-574	Amber			
25F1163	249-7841-1435-574	White			
25F1165	249-7841-1437-574	Clear			

GREEN or BLUE LENSES are not recommended for use with Neon lamps.



SOLID STATE DIODE-LITES

Complete package-light source, housing, and lens. Ready for permanent panel mounting. Light source is a solid state lamp that provides the advantages of low power with extremely long life and is compatible with integrated circuits.



Stovepipe SHORT CYLINDRICAL 3.6V DC

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1459	249-7867-3331-504	Red	3.43	2.93	2.57
25F1543	249-7967-3332-504	Green	3.76	3.21	2.82
25F1545	249-8067-3333-504	Yellow	3.76	3.21	2.82

SHORT STOVEPIPE 3.6V DC

25F1456	249-7867-3731-504	Red	3.43	2.93	2.57
25F1537	249-7967-3732-504	Green	3.76	3.21	2.82
25F1538	249-8067-3733-504	Yellow	3.76	3.21	2.82

SHORT CYLINDRICAL 5V DC

25F1435	249-7868-3331-504	Red	3.43	2.93	2.57
25F1546	249-7968-3332-504	Green	3.76	3.21	2.82
25F1547	249-8068-3333-504	Yellow	3.76	3.21	2.82

SHORT STOVEPIPE 5V DC

25F1437	249-7868-3731-504	Red	3.43	2.93	2.57
25F1539	249-7968-3732-504	Green	3.76	3.21	2.82
25F1540	249-8068-3733-504	Yellow	3.76	3.21	2.82

SHORT CYLINDRICAL 6V DC

25F1458	249-7869-3331-504	Red	3.43	2.93	2.57
25F1548	249-7969-3332-504	Green	3.76	3.21	2.82
25F1549	249-8069-3333-504	Yellow	3.76	3.21	2.82

SHORT STOVEPIPE 6V DC

25F1448	249-7869-3731-504	Red	3.43	2.93	2.57
25F1541	249-7969-3732-504	Green	3.76	3.21	2.82
25F1542	249-8069-3733-504	Yellow	3.76	3.21	2.82

SHORT CYLINDRICAL 10V DC Cylindrical

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1454	249-7870-3331-504	Red	3.43	2.93	2.57
25F1531	249-7970-3332-504	Green	3.76	3.21	2.82
25F1532	249-8070-3333-504	Yellow	3.76	3.21	2.82

SHORT STOVEPIPE 10V DC

25F1449	249-7870-3731-504	Red	3.43	2.93	2.57
25F1525	249-7970-3732-504	Green	3.76	3.21	2.82
25F1526	249-8070-3733-504	Yellow	3.76	3.21	2.82

SHORT CYLINDRICAL 14V DC

25F1455	249-7871-3331-504	Red	3.43	2.93	2.57
25F1533	249-7971-3332-504	Green	3.76	3.21	2.82
25F1534	249-8071-3333-504	Yellow	3.76	3.21	2.82

SHORT STOVEPIPE 14V DC

25F1450	249-7871-3731-504	Red	3.43	2.93	2.57
25F1527	249-7971-3732-504	Green	3.76	3.21	2.82
25F1528	249-8071-3733-504	Yellow	3.76	3.21	2.82

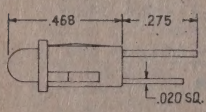
SHORT CYLINDRICAL 28V DC

25F1436	249-7872-3331-504	Red	3.72	3.18	2.79
25F1535	249-7972-3332-504	Green	4.08	3.49	3.06
25F1536	249-8072-3333-504	Yellow	4.08	3.49	3.06

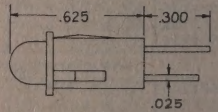
SHORT STOVEPIPE 28V DC

25F1438	249-7872-3731-504	Red	3.72	3.18	2.79
25F1529	249-7972-3732-504	Green	4.08	3.49	3.06
25F1530	249-8072-3733-504	Yellow	4.08	3.49	3.06

558 & 559 SERIES SNAP-IN LED INDICATORS



Snap-in mounting requires no additional hardware, 558 Series mounts in .156″ hole. 559 Series mounts in .250″ hole. Compact design allows high density packaging. Straight terminals suitable for wire-wrapping and/or soldering, or 6″ wire leads. Black housing enhances contrast ratio. Polarity identified. High brightness LEDs. Wide angle visibility. Low power requirements: 15-20 mA. IC compatible. Vibration and shock resistant.



558 SERIES
REQUIRES EXTERNAL RESISTOR

Stk. No.	Type	LED Color	Description	1-9	10-99	100-499
25F1490	558-0101-001	Red	Straight Terminals	.75	.60	.40
25F1491	558-0201-001	Green	Straight Terminals	1.10	.95	.75
25F1492	558-0301-001	Yellow	Straight Terminals	1.10	.95	.75
25F1493	558-0101-003	Red	Wire Leads	1.13	.98	.84
25F1494	558-0201-003	Green	Wire Leads	1.49	1.29	1.11
25F1495	558-0301-003	Yellow	Wire Leads	1.49	1.29	1.11
WITH INTEGRAL RESISTOR (5V, 15mA TYPICAL)						
25F1496	558-0102-001	Red	Straight Terminals	1.00	.85	.65
25F1497	558-0202-001	Green	Straight Terminals	1.40	1.25	.95
25F1498	558-0302-001	Yellow	Straight Terminals	1.40	1.25	.95
25F1499	558-0102-003	Red	Wire Leads	1.47	1.27	1.09
25F1500	558-0202-003	Green	Wire Leads	1.83	1.58	1.36
25F1501	558-0302-003	Yellow	Wire Leads	1.83	1.58	1.36

559 SERIES
REQUIRES EXTERNAL RESISTOR

Stk. No.	Type	LED Color	Description	1-9	10-99	100-499
25F1502	559-0101-001	Red	Straight Terminals	.75	.60	.40
25F1503	559-0201-001	Green	Straight Terminals	1.10	.95	.75
25F1505	559-0301-001	Yellow	Straight Terminals	1.10	.95	.75
25F1506	559-0101-003	Red	Wire Leads	1.13	.98	.84
25F1508	559-0201-003	Green	Wire Leads	1.49	1.29	1.11
25F1516	559-0301-003	Yellow	Wire Leads	1.49	1.29	1.11
WITH INTEGRAL RESISTOR (5V, 15mA TYPICAL)						
25F1517	559-0102-001	Red	Straight Terminals	1.00	.85	.65
25F1518	559-0202-001	Green	Straight Terminals	1.40	1.25	.95
25F1519	559-0302-001	Yellow	Straight Terminals	1.40	1.25	.95
25F1520	559-0102-003	Red	Wire Leads	1.47	1.27	1.09
25F1521	559-0202-003	Green	Wire Leads	1.83	1.58	1.36
25F1522	559-0302-003	Yellow	Wire Leads	1.83	1.58	1.36

15

Miniature Indicator Lights

DIALIGHT

Screw Lug

Solder Lug

1 1/16" MOUNTING HOLE SERIES-95 HOLDERS 1 1/16" MTG. CLEARANCE HOLE T3¼ Neon Lamps

STANDARD BRIGHTNESS

Meet MIL-L-3661. Use B1A (NE-51) neon lamp. Has built-in 56-K resistor. For use on 105-125 VAC or VDC. 2 1/16" long, mounts in 1 1/16" clearance hole. Less lamp.

Stk. No.	Type	Finish	Term.	1-9	10-24	25-99	100-249
45F549	95-0408-09-241	Black Nickel	Solder	2.02	1.66	1.48	1.29
45F547	95-1308-09-241	Black Nickel	Screw	2.18	1.79	1.56	1.37
45F488	95-0408-09-341	Polished Chrome	Solder	2.02	1.66	1.48	1.29
57F3727	95-1308-09-341	Polished Chrome	Screw	2.18	1.79	1.56	1.37

HI-BRIGHTNESS

Meet MIL-L-3661. Use B2A(NE-51H) neon lamp. Has built-in 22-K resistor. For use on 110-125 VAC. 2 1/16" long, mounts in 1 1/16" clearance hole. Less lamp.

Stk. No.	Type	Finish	Term.	1-9	10-24	25-99	100-249
45F548	95-0463-09-211	Black Nickel	Solder	2.02	1.66	1.48	1.29
45F550	95-1363-09-211	Black Nickel	Screw	2.18	1.79	1.56	1.37
45F489	95-0463-09-311	Polished Chrome	Solder	2.02	1.66	1.48	1.29
57F3731	95-1363-09-311	Polished Chrome	Screw	2.18	1.79	1.56	1.37

Meet MIL-L-3661. Use B2A(NE51H) neon lamp. Has built-in 68-K resistor. For use on 210-250 VAC or VDC.

Stk. No.	Type	Finish	Term.	1-9	10-24	25-99	100-249
45F551	95-9463-09-361	Polished Chrome	Solder	2.02	1.66	1.48	1.29
45F552	95-9363-09-361	Polished Chrome	Screw	2.18	1.79	1.56	1.37

COMMERCIAL TYPE NEONS

Not MIL. Use B2A(NE-51H) neon lamp. Phenolic body, 2 1/16" long, mounts in 1 1/16" clearance hole. *Has built-in 56-K resistor, for use on 105-125 VAC or VDC ACC. B1A (NE-51) lamp. (†) Has built-in 22-K resistor, for use on 110-120 VAC. ACCOM. B2A (NE-51H) lamp.

Stk. No.	Type	Finish	Term.	1-9	10-24	25-99	100-249
45F555	95-9108-09-142*	White Nickel	Solder	1.49	1.33	1.18	1.08
45F556	95-9163-09-112†	White Nickel	Solder	1.53	1.37	1.21	1.11

T-3¼ INCANDESCENT LAMPS

1 1/16" MTG. CLEARANCE HOLE ENCLOSED INDICATOR

Meet MIL-L-3661. Use T-3¼ incandescent lamp with miniature bayonet base. 2-55 volts. 2 1/16" long, mounts in 1 1/16" clearance hole. Less lamp.

Stk. No.	Type	Finish	Term.	1-9	10-24	25-99	100-249
45F553	95-0410-09-201	Black Nickel	Solder	1.68	1.40	1.21	1.10
45F554	95-1310-09-201	Black Nickel	Screw	1.82	1.50	1.30	1.16
57F3723	95-0410-09-301	Polished Chrome	Solder	1.68	1.40	1.21	1.10
57F3729	95-1310-09-301	Polished Chrome	Screw	1.82	1.50	1.30	1.16

COMMERCIAL TYPE INCANDESCENT

Not MIL. No resistor, for use on 2-55 VAC. Use T-3¼ incandescent lamp. Phenolic body, 2 1/16" long, mounts in 1 1/16" clearance hole. Less lamp.

Stk. No.	Type	Finish	Term.	1-9	10-24	25-99	100-249
45F557	95-9110-09-102	White Nickel	Solder	1.29	1.16	1.02	.92

LENS FOR ABOVE HOLDERS
TRANSPARENT

Stove Pipe (Internally Fluted)

Stove Pipe (Smooth Face)

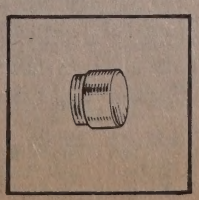
(*) Not Recommended for Use with Neon Lamps

Short Stovepipe Fluted		Lens Color	Short Stovepipe Plain	
Stock No.	Type No.		Stock No.	Type No.
25F334	52-0991	Red	25F466	95-0931
25F335	52-0992	Green*	25F465	95-0932
25F336	52-0993	Amber	25F467	95-0933
25F337	52-0994	Blue*	25F474	95-0934
25F338	52-0997	Clear	25F468	95-0937
25F339	52-0995	White	25F469	95-0935

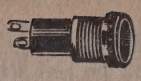
1-9	10-24	25-99	100-249
.35	.29	.27	.23

Cylindrical		Lens Color
Stock No.	Type No.	
45F560	135-1431	Red
45F561	135-1432	Green*
45F562	135-1433	Amber
45F563	135-1434	Blue*
45F564	135-1437	Clear
45F565	135-1435	White

1-9	10-24	25-99	100-249
.35	.28	.25	.22



Screw Lug


Solder Lug

Type 81 Convex

Type 81 Faceted

SERIES 81-HOLDERS

1 1/16" MTG. CLEARANCE HOLE ENCLOSED INDICATOR

Uses T-3¼ incandescent lamp. Has no resistor. Rated: from 2 to 120 VAC or VDC. Meets Mil. specs., mounts in 1 1/16" hole in panels up to ⅜" thick. Does not include lamp or lens.

Stk. No.	Base Type No.	Terminal	Finish	1-9	10-24	25-99
45F528	81-0410-01-201	Solder	Blk. Nickel	1.68	1.46	1.28
37F3712	81-0410-01-102	Solder	Wht. Nickel	1.35	1.19	1.06
57F3713	81-0410-01-301	Solder	Chrome	1.68	1.46	1.28
57F3719	81-1310-01-301	Screw	Chrome	1.83	1.51	1.33
45F530	81-9110-01-102*	Solder	Wht. Nickel	1.35	1.22	1.09

*Commercial Type

SERIES 81—LENS ASSEMBLIES

Screw in lenses. Convex lenses back frosted except (*) Unfrosted Faceted lenses are unfrosted.

POLISHED CHROME FINISH

CONVEX LENS		FACETED LENS		Lens Color
Stk. No.	Type No.	Stk. No.	Type No.	
25F1029	81-0111-300	25F1036	81-0431-300	Red
25F1030	81-0112-300	25F1037	81-0432-300	Green
25F1031	81-0113-300	25F1038	81-0433-300	Amber
25F1033	81-0135-300*	25F1040	81-0435-300	White
25F1035	81-0117-300	25F1042	81-0437-300	Clear

	1-9	10-24	25-99	100-249
Prices	.73	.65	.56	.51

WHITE NICKEL FINISH†

CONVEX LENS		FACETED LENS		Lens Color
Stk. No.	Type No.	Stk. No.	Type No.	
25F1555	81-0111-100	25F1562	81-2131-100	Red
25F1556	81-0112-100	25F1563	81-2132-100	Green
25F1557	81-0113-100	25F1564	81-2133-100	Amber
25F1559	81-0135-100*	25F1566	81-2135-100	White
		25F1568	81-2137-100	Clear

	1-9	10-24	25-99	100-249
Convex				
Faceted	.61	.55	.49	.45

†For Black Nickel Lens Holder Change Suffix to 200

LIGHT SHIELD INDICATOR

Screw lug

Solder lug

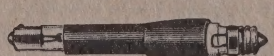
Cap

Uses T-3¼ incandescent lamp with miniature Bayonet Base. Rated 2 to 53 VAC or VDC. Mounts in 1 1/16" hole. Light shield cap has ½" x ½" opening. Polished Chrome finish.

Stk. No.	Base Assembly Type	Terminal	1-9	10-24	25-99	100-249
65F1070	21-0410-29-301	Solder	1.61	1.39	1.25	1.12
65F1071	21-0310-29-301	Screw	1.61	1.39	1.25	1.12

LIGHT SHIELD CAP

Stk. No.	Type				
65F1072	21-2900-300	1.43	1.29	1.14	1.05


PILOT BULB REMOVER

Type 506-0045. Molded of rubber. Has two hollow ends which stretch over and engage lamps tightly. One end for T-3¼ type bulbs; the other for T-4½ type bulbs. Core of solid rubber provides needed rigidity for sure grip. Wt., 4 oz.

Stock No.	Type No.	1-9	10-24	25-99	100-249
25F1544	506-0045	.59	.53	.48	.42

Type 506-0073. Molded rubber. One end for T-3¼ types. Other for S6 candelabra screw base bulbs.

Stock No.	Type No.	1-9	10-24	25-99	100-249
25F480	506-0073	.55	.41	.34	.29

15

DIALIGHT Sub-Miniature Indicator Lights

15/32" THRU 17/32" MOUNTING HOLE

INCANDESCENT

INDICATOR LIGHTS—TWO TERMINAL—FULLY INSULATED

Stovepipe Lens | Front Mounting | Front or Back Mounting | Cylindrical Lens

Meet MIL requirements. Phenolic insulated. Lens cap assembly unscrews from front of panel for easy replacement of lamp. Two terminals (soldering) provided for electrical connections. Anti-rotation (locked) construction provides secure locking of socket terminal assembly and center terminal. Stovepipe and cylindrical lenses molded of high heat plastic. Light source T-1¾ midget flange base lamp; voltage range: 1.35 to 28. Order holder and lens separately to obtain necessary parts for self-assembly of complete unit. Less lamp.

HOLDERS

Front mounting.

Stk. No.	Type	Clear. Hole	1-9	10-24	25-99	100-249
25F1615	101-5030-09-20	17/32"	1.93	1.54	1.30	1.13
65F1074	101-8430-09-201	15/32"	2.28	1.81	1.56	1.35

Front or back mounting in 15/32" clearance hole.

Stk. No.	Type	1-9	10-24	25-99	100-249
25SF1228	101-3830-09-201	1.93	1.54	1.30	1.13

STOVEPIPE LENS CAP

Color	TRANSLUCENT Stk. No.	TRANSLUCENT Mfg. No.	TRANSPARENT Stk. No.	TRANSPARENT Mfg. No.
Red	25F1269	101-0971	25F1588	101-0931
Green	25F1270	101-0972	25F1589	101-0932
Amber	25F1271	101-0973	25F1590	101-0933
White	25F1273	101-0975	25F1592	101-0935
Prices	1-9	10-24	25-99	100-249
	.50	.40	.33	.28

FLAT CYLINDRICAL LENS CAPS

Red	26F1616	140-1471	25F1622	140-1431
Green	25F1617	140-1472	25F1623	140-1432
Amber	25F1618	140-1473	25F1624	140-1433
White	25F1620	140-1475	25F1626	140-1435
Prices	1-9	10-24	25-99	100-249
	.50	.40	.33	.28

TWO TERMINAL-MS 25226

Uses T-1¾ incandescent lamps of 1.35 to 28 v. Front panel mounting in 15/32" clearance hole. Shipping weight, 1½ oz. less lamp.

Stock No.	Color	Type No.	Mil. Std. Dwg. No.	1-9	10-24	25-99
25F1203	Yel.	162-8430-0933-502	MS25256-2	2.30	1.87	1.60
25F1204	Green	162-8430-0932-502	MS25256-4			
25F1205	Red	162-8430-0931-502	MS25256-6			
25F1206	Clear	162-8430-0937-502	MS25256-8			
25F1207	White	162-8430-0975-502	MS25256-10			
25F1208	Blue	162-8430-0934-502	MS25256-12			

NEON

C7A (NE-2D) NEON SUB-MINIATURES MS25257

Uses T-2 Neon Glow Lamp. 62K Resistor is built in for use on 105-125 volts AC or DC. Stovepipe lens is plastic with 180° lens spread. Mounting bushing is aluminum with black anodize finish. Steel internal tooth lock-washer and hex mounting nut are cadmium plated and coated with iridite. Terminals are brass, hot-tinned, with elongated slots. Less lamp. Size 1½x⅝". Shpg. wt. 2 oz. Front mounting in 15/32" clearance hole.

Stock No.	Type No.	Mil. Std. Dwg. No.	Color	1-9	10-24	25-99
25F1200	137-8836-0933-552	MS25257-2	Yel.	3.86	3.09	2.64
25F1201	137-8836-0931-552	MS25257-4	Red			
25F1202	137-8836-0937-552	MS25257-6	Clear			

Series 137-8864 Holders. For bright light when used with (9A-NE-2J) lamp, built-in 22K Res. on 110-125 VAC (†) 33K Res. for long life. Black anodize finish, aluminum bushing, steel hardware. Less lamp. Base assembly.

Stk. No.	Type No.	1-9	10-24	25-99	100-249
45F504	137-8864-09-512	3.36	2.69	2.31	1.98
45F505	137-8864-09-532†	3.36	2.69	2.31	1.98

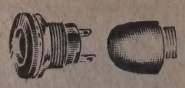
LENSES TO BE USED WITH SERIES 137-8864 HOLDERS

45F506	137-0931	Red	.50	.40	.33	.28
45F507	137-0933	Amber				
45F509	137-0937	Clear				

INCANDESCENT

WATER-TIGHT 2-TERMINAL SUB-MINIATURE LIGHTS

With retained "O" ring seal. Front mounting in 15/32" clearance hole. Takes T-1¾ midget flange base incandescents. From 1.35 to 28 volts. Lugs of brass and hot-tinned. Lockwasher, hex-nut supplied. Less lamp. Wt. 2 oz.



Holder | Lens Cap

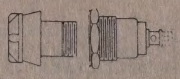
HOLDERS

Stk. No.	Type	1-9	10-24	25-99	100-249
25F1637	177-8430-09-503	2.08	1.70	1.47	1.30

LENS CAPS FOR ABOVE HOLDERS

Color	Stk. No.	Transparent	Stk. No.	Translucent	1-9	10-24
Red	25F1638	177-0931-003	45F694	177-0971-003	.89	.72
Green	25F1639	177-0932-003	45F695	177-0972-003		
Amber	25F1640	177-0933-003	45F696	177-0973-003		
Blue	25F1641	177-0934-003	45F697	177-0974-003		
White	25F1642	177-0935-003	45F698	177-0975-003		
Yellow	25F1643	177-0936-003	45F698	177-0976-003		
Clear	25F1644	177-0937-033	.....	.....		

SERIES 270 TRANSLUCENT PANEL EDGE



Lens Cap Base

For Mil-P-7788 plastic plate panels. Mounts in 15/32" clearance hole. Less T-1¾ amp. Overall size 1 7/16". Shpg. wt. 1½ oz. Order separate base and cap.

BASE ASSEMBLIES

Stk. No.	Type	Terminals	1-9	10-24	25-99	100-249
57F3706	270-1830-702	Screw	1.03	.83	.73	.66
57F3707	270-1930-702	Solder	.76	.67	.58	.51

LENS CAP ASSEMBLIES

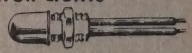
Stk. No.	Type	Filter Color	1-9	10-24	25-99	100-249
57F3705	270-0111	Red	.76	.57	.48	.42
65F1073	270-0171	Clear	.76	.57	.48	.42

1 TERMINAL LIGHT SHIELD ASSEMBLY

Mtg. hole 15/32" d. Opening is ¼" x 3/16". Meets MIL-SPEC. MIL-L-7806A. Uses T-1¾ lamp. Overall size, approx. 1¼". With lockwasher and nut. Less lamp. Shpg. wt., 1½ ozs. 201 suffix indicates black nickel. 301, chrome.

Stk. No.	Mfg. No.	Terminal	1-9	10-24	25-99	100-249
25F910A	4-1930-2900-201	Solder	3.06	2.60	2.29	2.01
25F911A	4-1830-2900-201	Screw	3.57	3.03	2.64	2.33
25F911B	4-1830-2900-301	Screw	3.57	3.03	2.64	2.33
25F910B	4-1930-2900-301	Solder	3.06	2.60	2.29	2.01

SUB-SUB MINIATURE INDICATOR LIGHTS



MS25446. T-1 filament lamp in plastic cap. Flexible 6" Type E wire leads. .193" panel mounting hole clearance. Lens cap dia.: 7/32" long. Lamp rating: 5.0 volt at .06 amps 60,000 hr. of life. 6.3 volts .07 amps, 6000 hrs. Sealed unit, non-replaceable lamp.

Stock No.	Color	Type No.	Mil. Spec.*
25F1295	Red	252-9951-0971	MS25446-4
25F1294	Green	252-9951-0972	MS25446-3
25F1297	Amber	252-9951-0973	MS25446-6
25F1293	Blue	252-9951-0974	MS25446-2
25F1296	White	252-9951-0975	MS25446-5
25F1298	Clear	252-9951-0937	MS25446-7

	1-9	10-24	25-99
Prices	4.64	3.99	3.52

NEON

WATER-TIGHT TWO TERMINAL INDICATORS

Series 181-8864, 181-8836 Holders. For use on 105-125VAC or DC with built-in 62K Res., except (*) 110-125VAC only with built-in 22K Res. Same as 137-8836 series except with retained "O" ring seal, water-tight construction. Less lamp.

Stk. No.	Type No.	1-9	10-24	25-99	100-249
45F510	181-8836-09-553	3.84	3.10	2.73	2.35
45F511	181-8864-09-513*				

LENSES TO BE USED WITH SERIES 181-8864,181-8836 HOLDERS

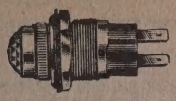
Stk. No.	Type No.	Color	1-9	10-24	25-99	100-249
45F512	181-0931-003	Red	.86	.73	.63	.54
45F514	181-0935-003	White				
45F515	181-0937-003	Clear				

15

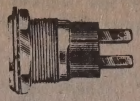
Indicator Lights

DIALIGHT

Miniature Indicator For PSB Bulb 11/16" Mounting Hole



Complete Assembly



Base Assembly

Type 81 Faceted

Type 135 Cylindrical (Translucent)

Type 52 Stove Pipe (Internally Fluted Transparent)

Type 95 Stove Pipe (Smooth Face Translucent)

ASSEMBLIES FOR PSB BULBS—BASE HOUSING

Accommodates T-2 incandescent bulb with telephone slide base (PSB Type) in a range of voltages from 6 to 120 volts. Uses any of 4 styles of high temperature Lexan caps in various colors. Phenolic housing, white nickel finish. Rated 75 watts, 125 volts. Solder terminals. Electrical contact can be made with AMP connector 42198-2. Mounting in 11/16 clearance hole. 1 27/32 overall size.

Stock No.	Type No.	1-9	10-24	25-99	100-249
60F1550	81-1059-01-102	1.76	1.51	1.34	1.24

LENSES FOR HOUSING ABOVE

Transluc. Cyl.		Transpar. Fluted		Transluc. Smooth		
Stock No.	Type	Stock No.	Type	Stock No.	Type	Color
60F1551	135-3271	60F1558	52-3191	60F1565	95-3171	Red
60F1552	135-3272	60F1559	52-3192	60F1566	95-3172	Green
60F1553	135-3273	60F1560	52-3193	60F1567	95-3173	Amber
60F1554	135-3274	60F1561	52-3194	60F1568	95-3174	Blue
60F1555	135-3275	60F1562	52-3195	60F1569	95-3175	White
60F1556	135-3276	60F1563	52-3196	60F1570	95-3176	Yellow
...	...	60F1564	52-3197	...	...	Clear

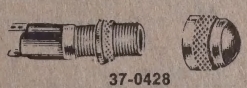
Prices	1-9	10-24	25-99	100-249
	.46	.41	.35	.32

SERIES 81—TRANSPARENT FACETED LENSES

Stock No.	Type	Color	1-9	10-24	25-99	100-249
60F1572	81-0431-100	Red	.61	.55	.49	.45
60F1573	81-0432-100	Green				
60F1574	81-0433-100	Amber				
60F1575	81-0434-100	Blue				
60F1576	81-0435-100	White				
60F1577	81-0436-100	Yellow				
60F1578	81-0437-100	Clear				

TELEPHONE SLIDE BASE INDICATOR LIGHTS 9/16" MTG. HOLE

Back of panel mount in 9/16" clearance hole. Takes T-2 incandescent bulb with telephone slide base. Front panel lamp replacement. With knurled ring, lockwasher, and hex mounting nut. Chrome finish. Solder term. Overall size: 2 15/16". Less lamp. Wt. 3 oz.



37-0428

70-0428

Stk. No.	Type	1-9	10-24	25-99	100-249
45F682	70-0428-11-306	2.30	1.98	1.76	1.49
45F683	33-0428-01-306				

LENS CAPS FOR ABOVE HOLDERS

Stk. No.	Stovepipe Type	Color	Stk. No.	Convex Type
45F684	70-1131-300	Red	45F689	37-0111-300
45F685	70-1132-300	Green	45F690	37-0112-300
45F686	70-1133-300	Amber	45F691	37-0113-300
...	...	Blue	45F692	37-0114-300
45F688	70-1135-300	White	45F693	37-0115-300

Prices	1-9	10-24	25-99	100-249
	1.35	1.11	1.00	.83

PRESS-TO-TEST ASSEMBLY FOR 1" MOUNTING HOLE

Mounts in 1" clearance hole. Overall size approx. 1¼x3¼". Three, rugged binding screw terminals: 2 for "normal" circuit; 1 for "test" circuit. Uses S6 bulbs with candelabra screw base. Supplied less lamp. Transparent, back frosted lens.

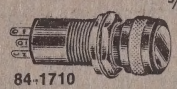
Conforms to MIL Specs.

Stock No.	Type No.	1-9	10-24	25-99	100-249
45F620	820-2701-01-502	9.71	7.85	6.79	5.85

LENS CAPS FOR ABOVE HOLDERS

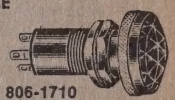
Stock No.	Type No.	Color	1-9	10-24	25-99	100-249
45F621	820-0111-500	Red	2.39	2.04	1.82	1.47
45F622	820-0112-500	Green				
45F623	820-0113-500	Amber				
45F627	820-0117-500	Clear				

PRESS-TO-TEST ASSEMBLY FOR 5/8" MOUNTING HOLE



84-1710

803-1710



806-1710

Built-in bulb-testing device. Units light when pressed if lamp is satisfactory. 3 solder lugs. 180° visible light beam for daylight, indirect "halo" light for night. Less lamps. Accommodates T-3¼ lamp.

WITH MECHANICAL SHUTTER DIMMER—5/8" LENS

Stk. No.	Type	Mil. Type No.	Lens Color
25F991	804-1710-0331-504	MS25331-2	Red
25F992	804-1710-0332-504	MS25331-3	Green
25F993	804-1710-0333-504	MS25331-4	Amber

WITHOUT DIMMER-1/2" LENS

25F995	803-1710-0331-504	MS25331-6	Red
25F996	803-1710-0332-504	MS25331-7	Green
25F997	803-1710-0333-504	MS25331-8	Amber

WITHOUT DIMMER-1" LENS

25F1510	806-1710-0431-504	.....	Red
25F1511	806-1710-0432-504	.....	Green
25F1512	806-1710-0433-504	.....	Amber

Lens	1-9	10-24	25-99	100-249
804 Series	5.57	4.67	4.04	3.56
803 Series	4.83	3.95	3.36	2.92
806 Series	5.58	4.50	3.87	3.37

PRESS-TO-TEST ASSEMBLIES FOR 15/32" MOUNTING HOLE

Accommodates T-1¾ lamp. QPL listed. Mounts from back of panel. Marking is die-stamped and filled on all lens caps.

FOR T-1¾ LAMP

Dimming Stk. No.	MS No.	Type 801-1030	Non-Dimming Stk. No.	MS No.	Type 800-1030	Lens Color
25F983	25041-1	0337-504	25F987	25041-5	0337-504	Clear
25F984	25041-2	0331-504	25F988	25041-6	0331-504	Red
25F985	25041-3	0332-504	25F989	25041-7	0332-504	Green
25F986	25041-4	0333-504	25F990	25041-8	0333-504	Amber
25F1514	25041-10	0334-504	25F1515	25041-11	0334-504	Blue

	1-9	10-24	25-99	100-249
801 Series	4.57	3.89	3.41	3.01
800 Series	3.83	3.15	2.76	2.39

SERIES 812

Meet or exceed requirements of MIL-L-7961B and MIL-L-3661. 3 terminals. "Press-To-Test" marking is die-stamped and filled on the flange nut. Accommodates T-1¾ lamp. Mounts from back of panel in 15/32" hole.

BASE ASSEMBLY

Stk. No.	Type	1-24	25-49	50-99	100-249
25F1600	812-1030-09-506	2.87	2.33	2.01	1.74

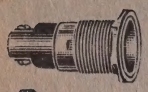
NON-DIMMER TRANSLUCENT 1/2" STOVEPIPE LENS CAPS

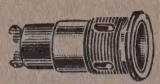
25F1609	812-0975	White	1.23	1.04	.90	.80
25F1610	812-0971	Red				
25F1611	812-0972	Green				
25F1612	812-0973	Amber				

15

DIALIGHT Indicator Lights and Sockets

LARGE INDICATOR LIGHTS
1" MOUNTING HOLE
Friction Fit Cap Series


Base 31-0914


Base 31-3101

Lens 32-0111

Base 31-4001

Faceted Lens 32-0431

U.L. APPROVED INDICATOR LIGHT ASSEMBLIES

Candelabra socket; lamp removable from front. Requires 1" clearance hole for mounting. Less lamp. Series 31-0914-01 for use with B7A (NE-45) neon glow lamps in 115 volt circuit. 2⅝" long. 4 oz. Series 31-3101, 31-4001 Indicator light is for use with S6 bulb on 115 volt circuit. 5 oz. Less lamp. Order holder and lens separately to obtain necessary parts for self-assembly of complete unit. For example: 32-0111-300 lens plus 31-0914-01-102 holder becomes a 32-0914-0111-302 assembly.

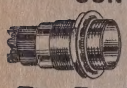
Stk. No.	Convex Type	Terminal	1-9	10-24	25-99	100-249
45F605	31-0914-01-102	side screw	2.42	2.19	1.93	1.79
45F606	31-3101-01-102	screw	2.19	1.98	1.75	1.59
65F1075	31-4001-01-102	solder	2.07	1.87	1.64	1.50

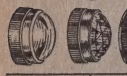
LENS CAPS FOR ABOVE HOLDERS

Stk. No.	Convex Type No.	Color	Stk. No.	Faceted Type No.
25F1576	32-0111-300	Red	25F1582	32-0431-300
25F1577	32-0112-300	Green	25F1583	32-0432-300
25F1578	32-0113-300	Amber	25F1584	32-0433-300
45F681	32-0135-300	White	45F680	32-0435-300
65F1076	32-0137-300	Clear	25F1587	32-4037-300

1-9	10-24	25-99	100-249
1.03	.93	.83	.76

SCREW-ON CAP SERIES
CONVEX AND FACETED LENS SHAPES


Base


Cap

Candelabra socket, lamp is removable from front. Requires 1" clearance hole for mounting. Less lamp. Accommodates an S6 lamp. Order cap and base separately. Polished chrome finish.

Stk. No.	Type	Terminal	1-9	10-24	25-99	100-249
65F1077	51-0901-01-301	side screw	3.18	2.87	2.54	2.30
65F1078	51-3101-01-301	screw	2.61	2.35	2.07	1.90
65F1079	51-4001-01-301	solder	2.49	2.22	1.97	1.80

LENS CAPS FOR ABOVE HOLDERS

Stk. No.	Convex Type No.	Color	Stk. No.	Faceted Type No.
65F1080	51-0111-300	Red	65F1085	51-0431-300
65F1081	51-0112-300	Green	65F1086	51-0432-300
65F1082	51-0113-300	Amber	65F1087	51-0433-300
65F1083	51-0135-300	White	65F1088	51-0435-300
65F1084	51-0137-300	Clear	65F1089	51-0437-300

Quantity	1-9	10-24	25-99	100-249
Prices	1.78	1.60	1.42	1.30

SCREW-ON CAPS—TORPEDO LENS SHAPE

Stk. No.	Type	Terminal	1-9	10-24	25-99	100-249
58F1350	80-0901-05-301	side screw	3.03	2.74	2.42	2.23
58F1353	80-3101-05-301	screw	2.56	2.33	2.06	1.90
65F1090	80-4001-05-301	solder	2.44	2.19	1.94	1.77

LENS CAPS FOR ABOVE HOLDERS

Stk. No.	Unfrosted Type No.	Color	Stk. No.	Back Frosted Type No.
58F1357	80-0531-300	Red	58F1358	80-0511-300
65F1091	80-0532-300	Green	58F1354	80-0512-300
65F1092	80-0533-300	Amber	58F1351	80-0513-300
.....	.....	White	65F1094	80-0535-300
65F1093	80-0537-300	Clear	.....	.....

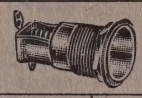
Quantity	1-9	10-24	25-99	100-249
Prices	1.33	1.22	1.08	1.00

OPEN TYPE INDICATOR
Large open type 1" mtg. hole

1-INCH OPEN PLATED TYPE ASSEMBLY

Polished chrome-plated brass jewel holders. *Uses T-3¼" bay, base lamp. #Uses S6 cand. screw lamp. Reg. 1" mtg. holes. Less lamps. 3 oz. Use Series 32 Lens Caps listed on this page.

Stk. No.	Type	1-9	10-24	25-99	100-249
45F677	502-3241-102*	1.30	1.13	1.01	.92
45F679	502-3214-102#	1.48	1.35	1.24	1.13


HOLDER

Accommodates faceted jewels in holder. Candelabra socket for S6 lamp. Require 1" hole. Less lamp. Wt. 5 oz. Use Series 32 Lens Caps listed on this page.

Stk. No.	Type	1-9	10-24	25-99	100-249
45F700	502-3228-102	1.58	1.39	1.23	1.12

MINIATURE OPEN TYPE 11/16" MTG. HOLE

HOLDER

CAP

Miniature screw and (*) bayonet socket assemblies. Uses faceted jewels. Mounts in 11/16" hole. Bulb removable from front. With tinned solder lugs. Uses T-3¼ Bulb. Less bulbs. Wt. 3 oz.

HOLDER

Stk. No.	Type	1-9	10-24	25-99	100-249
45F670	502-8136-102*	1.06	.89	.77	.65
45F671	502-8137-102				

Uses faceted jewel. Requires 11/16" mtg. hole. Designed for panels up to ¼" thick. With mtg. washers. Uses T-3¼ lamp. Less lamp. Tinned lugs. 4 oz.

HOLDER

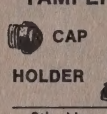
Stk. No.	Type	1-9	10-24	25-99	100-249
45F672	502-8140-100	1.25	1.07	.94	.85

HALF INCH DIA. LENS CAPS FOR ABOVE HOLDERS

Faceted Stk. No.	Faceted Type	Lens Color	Convex-frosted Except* Back Stk. No.	Convex-frosted Except* Back Type
25F1562	81-2131-100	Red	25F1555	81-0111-100
25F1563	81-2132-100	Green	25F1556	81-0112-100
25F1564	81-2133-100	Amber	25F1557	81-0113-100
25F1566	81-2135-100	White	25F1559	81-0135-100*
25F1568	81-2137-100	Clear	25F1561	81-0117-100

	Type	1-9	10-24	25-99	100-249
Prices	Faceted Convex	.61	.55	.49	.45

TAMPER PROOF OPEN TYPE 11/16" MTG. HOLE


CAP HOLDER

115 volt pilot light assemblies, uses faceted jewels, chrome-plated brass holder. Candelabra socket for S6 lamp requires 11/16" hole for mounting. Less lamp. 4 oz.

HOLDER

Stk. No.	Type	1-9	10-24	25-99	100-249
45F673	502-2511	.86	.77	.67	.60

FACETED LENS CAP FOR ABOVE HOLDER

Stk. No.	Type	Lens Color	1-9	10-24	25-99	100-249
25F430	514-2512-0431-302	Red	1.53	1.37	1.23	1.12
25F431	514-2512-0432-302	Green				
25F432	514-2512-0433-302	Amber				

OPEN TYPE 7/16" MTG. HOLE

CAP HOLDER

Complete with (*) candelabra, (†) bayonet or (#) miniature screw base sockets for standard pilot bulbs. Uses faceted jewels in nickel plated brass holders. Lug terminals. Requires 7/16" hole for mtg. Less bulbs. Wt. 2 oz.

HOLDER

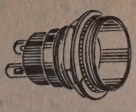
Stk. No.	Type	Lamp	1-9	10-24	25-99	100-249
45F674	502-1010*	S6	.75	.68	.59	.54
45F675	502-1024†	T3¼	.55	.46	.40	.37
45F676	502-1015#	T3¼	.55	.46	.40	.37

FACETED LENS FOR ABOVE HOLDERS

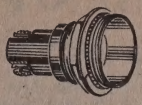
Stk. No.	Type	Lens	1-9	10-24	25-99	100-249
25F435	514-1012-2131-102	Red	.58	.53	.46	.43
25F436	514-1012-2132-102	Green				
25F437	514-1012-2133-102	Amber				
25F439	514-1012-2135-102	White				

15

LARGE OIL-TIGHT INDICATOR
FOR 1" MOUNTING HOLE



Solder Terminal Base



Screw Terminal Base

Smooth Lens

Faceted Lens

Torpedo Lens

INCANDESCENT BASE

Enclosed assemblies for heavy-duty industrial applications. Gasketed lens. Lens gives 180° light spread. Takes 6S6 incandescent (bayonet or screw mount) lamp. Supplied without lamp 1 3/16" x 1 7/8". Mounting weight: 3 oz.

ACCOMMODATES 6S6 SCREW BASE LAMPS

Stk. No.	Type 103-	Terminal	1-9	10-24	25-99	100-249
57F3733	0901-05-103	side screw	4.50	4.06	3.58	3.28
45F590	3101-05-103	fixed screw	3.76	3.39	2.99	2.72

ACCOMMODATES 6S6/DC BAYONET BASE LAMPS

65F1095	3202-05-103	fixed screw	4.26	3.83	3.39	3.09
45F589	3502-05-103	moveable screw	4.30	3.88	3.41	3.12

ACCOMMODATES 10C7/DC BAYONET BASE LAMPS

65F1096	3227-05-103	fixed screw	4.47	4.02	3.55	3.24
65F1097	3527-05-103	moveable screw	4.50	4.06	3.58	3.28

NEON BASE

For use with the B7A (NE-45) candelabra screw base lamp. Resistor built-in the lamp base. Overall size approx. 1 3/16 x 2 7/32". Comes with split lockwasher and hex nut. Less lamp. Shpg. wt. 3 ozs. Order holder and lens separately to obtain necessary parts for self-assembly of complete unit.

Stock No.	Type No.	1-9	10-24	25-99	100-249
45F607	103-3114-05-103	3.59	3.24	2.86	2.65

LENS CAPS FOR ABOVE HOLDERS DOME SHAPED LENSES

Stk. No.	Unfrosted Type	Color	Stk. No.	Back Frosted Type
45F608	103-1231-403	Red	45F598	103-1211-403
65F1098	103-1232-403	Green	45F599	103-1212-403
45F609	103-1233-403	Amber	45F600	103-1213-403
.....	.....	White	45F602	103-1235-403
45F611	103-1237-403	Clear	.....	.....

1-9	10-24	25-99	100-249
1.71	1.44	1.27	1.10

LENS FOR ABOVE BASES FACETED AND TORPEDO SHAPED LENSES

Stock No.	Faceted Type No.	Color	Stock No.	Torpedo Type No.
45F591	103-1331-403	Red	65F1099	103-0531-403
45F592	103-1332-403	Green	65F1100	103-0532-403
45F593	103-1333-403	Amber	65F1101	103-0533-403
45F595	103-1335-403	White	65F1102	103-0535-403
45F597	103-1337-403	Clear	65F1103	103-0537-403

1-9	10-24	25-99	100-249
1.71	1.44	1.27	1.10

Note: Green Not Recommended With Neon.

MINIATURE OIL-TIGHT INDICATOR
FOR 11/16" MOUNTING HOLE

Base-Screw Terminal | Base-Solder Terminal | Plain | Fluted

INCANDESCENT BASE

Meets MIL-L-3661. Use T-3¼ incandescent lamp with miniature bayonet base, 2-55 volts. Mounts in 11/16" clearance hole. Less lamp.

Stk. No.	Type	Term.	1-9	10-24	25-99	100-249
45F566	125-0410-11-103	Solder	2.29	2.06	1.83	1.69
25F906	125-1310-11-103	Screw	2.42	2.19	1.93	1.79

NEON BASE

Use BIA (NE-51) neon lamp. Has built-in 56K resistor for use on 105-125V AC-DC service. Mounts in 11/16" clearance hole. Less lamp.

Stk. No.	Type	Term.	1-9	10-24	25-99	100-249
45F567	125-0408-11-143	Solder	2.67	2.42	2.14	1.96
25F907	125-1308-11-143	Screw	2.87	2.60	2.30	2.12

HIGH BRIGHTNESS NEON BASE

Use B2A (NE-51H) neon lamp. Has built-in 22-K resistor. For use on 110-125 VAC, bright light. Mounts in 11/16" clearance hole. Less lamp.

Stk. No.	Type	Term.	1-9	10-24	25-99	100-249
45F618	125-0463-11-113	Screw	2.67	2.42	2.14	1.96
65F1106	125-1362-11-113	Solder	2.87	2.60	2.30	2.12

HIGH BRIGHTNESS NEON BASE

Use B2A (NE-51H) neon lamp. Has built-in 68K resistor. For use on 210-250 AC/DC service.

65F1104	125-9363-11-163	Screw	2.87	2.60	2.30	2.12
65F1105	125-9463-11-163	Solder	2.67	2.42	2.14	1.96

STOVEPIPE LENS CAPS FOR ABOVE HOLDER

Stock No.	Unfrosted Type	Color	Stock No.	Back Frosted Type
45F582	125-1131-403	Red	45F575	125-1111-403
45F583	125-1132-403	Green	45F576	125-1112-403
45F584	125-1133-403	Amber	45F577	125-1113-403
.....	.....	White	45F586	125-1135-403
45F588	125-1137-403	Clear	.....	.....

1-9	10-24	25-99	100-249
1.24	1.06	.95	.86

STOVEPIPE LENS Internally Fluted

Stock No.	Type	Color	1-9	10-24	25-99	100-249
45F568	125-1191-403	Red				
45F569	125-1192-403	Green				
45F570	125-1193-403	Amber	1.24	1.06	.95	.86
45F572	125-1195-403	White				
45F574	125-1197-403	Clear				

PILOT BULB REMOVER

Type 506-0045. Molded of rubber. Has two hollow ends which stretch over and engage lamps tightly. One end for T-3¼ type bulbs; the other for T-4½ type bulbs. Core of solid rubber provides needed rigidity for sure grip. Wt. 4 oz.

Stock No.	Type No.	1-9	10-24	25-99	100-249
25F1544	506-0045	.59	.53	.48	.42

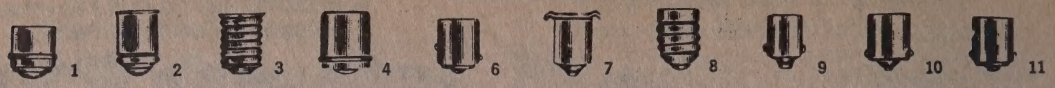
Type 506-0073. Molded rubber. One end for T-3¼ types. Other for S6 candelabra screw base bulbs.

Stock No.	Type No.	1-9	10-24	25-99	100-249
25F480	506-0073	.55	.41	.34	.29

CHICAGO MINIATURE LAMP WORKS
GENERAL INSTRUMENT CORPORATION

Chicago Miniature Lamps

BASE STYLES



1	2	3	4	6	7	8	9	10	11
Submidget Flanged	Midget Grooved	Miniature Screw	Midget Flanged	Index Bayonet	Miniature Flanged	Candelabra Screw	Miniature Bayonet	S.C. Bayonet	D.C. Bayonet

Lamps listed in this catalog are the more popular types available from Chicago Miniature. If your application requires special lamp or a lamp not shown, send Newark a description of your needs. We will submit our recommendations. "AS" types are aged & selected for critical application. W—wire terminals. (*)—Not illustrated. (+)—Wedge base. L—Long life.
(**) Bulbs are described by a letter indicating shape, and a number which is an approximation of diameter expressed in eighths of an inch. For example S-8 is "S" shape, 8 eighths or one inch in diameter. **Sold in multiples of 10 only.**

GENERAL SERVICE LAMPS

Stock No.	Type	Design V.	Design Amp	Life Hours	Base	** Bulb	10 Each	100 Each
27F100	PR-2	2.38	.50	15	7	B-3½	**.72**	**.63**
27F101	PR-3	3.57	.50	15	7	B-3½	**.26**	**.23**
27F102	PR-4	2.33	.27	10	7	B-3½	**.29**	**.25**
27F103	PR-6	2.47	.30	30	7	B-3½	**.26**	**.23**
27F105	PR-12	5.95	.50	15	7	B-3½	**.32**	**.28**
27F106	PR-13	4.75	.50	15	7	B-3½	**1.32**	**1.15**
27F107	6	6.4	3.0	500	11	S-8	**.31**	**.27**
27F108	6IF	6.4	3.0	500	11	S-8	**.62**	**.48**
27F109	8	8.0	2.2	500	11	S-8	**.62**	**.48**
27F110	8IF	8.0	2.2	500	11	S-8	**.62**	**.48**
25F091	10	2.5	.5	3000	*	G-3½	**.34**	**.30**
25F092	12	6.3	.15	L	*	G-3½	**1.49**	**1.30**
27F111	13	3.7	.30	15	8	G-3½	**.39**	**.34**
27F112	14	2.47	.30	15	8	G-3½	**.47**	**.41**
25F006	19	14.4	.10	1000	*	G-3½	**.49**	**.43**
27F113	27	4.9	.30	30	8	G-4½	**.36**	**.32**
25F1645	37	14.0	.09	1500	+	T-1¾	**2.69**	**2.35**
27F115	40	6.3	.15	3000	8	T-3¼	**.32**	**.28**
27F117	43	2.5	.50	3000	9	T-3¼	**.26**	**.23**
27F118	44	6.3	.25	3000	9	T-3¼	**.29**	**.25**
27F119	45	3.2	.35	3000	9	T-3¼	**.32**	**.28**
27F120	46	6.3	.25	3000	8	T-3¼	**.41**	**.36**
27F121	47	6.3	.15	3000	9	T-3¼	**.17**	**.15**
27F122	48	2.0	.06	1000	8	T-3¼	**.17**	**.15**
27F123	49	2.0	.06	1000	9	T-3¼	**.17**	**.15**
27F124	50	7.5	.22	1000	8	G-3½	**.32**	**.28**
27F125	51	7.5	.22	1000	9	G-3½	**.17**	**.15**
27F126	53	14.4	.12	1000	9	G-3½	**.33**	**.29**
27F127	55	7.0	.41	500	9	G-4½	**.53**	**.47**
27F128	57	14.0	.24	500	9	G-4½	**.33**	**.29**
25F832	63	7	.63	1000	10	G-6	**.80**	**.70**
25F1646	73	14.0	.08	15000	+	T-1¾	**.40**	**.35**
25F1647	74	14.0	.10	500	+	T-1¾	**.46**	**.41**
27F133	82	6.5	1.05	500	11	G-6	**.44**	**.38**
25F1648	85	28.0	.04	7000	+	T-1¾	**1.76**	**1.54**
25F1649	86	6.3	.20	20000	+	T-1¾	**.88**	**.77**
27F135	88	6.8	1.9	300	11	S-8	**1.20**	**1.05**
27F138	93	12.8	1.04	500	10	S-8	**.22**	**.20**
25F094	112	1.2	.22	5	8	GTL-3	**.23**	**.20**
25F834	130	6.3	.15	3000	9	G-3½	**.24**	**.21**
25F143	131	1.3	.10	50	8	G-3½	**.42**	**.37**
25F1652	158	14.0	.24	500	+	T-3¼	**.40**	**.35**
25F090	159	6.3	.15	10000	+	T-3¼	**.24**	**.21**
25F1717	161	14.0	.19	4000	+	T-3¼	**.46**	**.40**
25F1718	168	14.0	.35	1500	+	T-3¼	**.41**	**.36**
25F835	219	6.3	.25	L	10	G-3½	**.98**	**.86**
27F147	222	2.25	.25	5	8	GTL-3	**.30**	**.27**
27F149	233	2.33	.27	10	8	G-3½	**.57**	**.50**
25F095	239	6.3	.36	5000	9	T-3¼	**.90**	**.79**
25F150	240	6.3	.36	5000	9	T-3¼	**.96**	**.84**
27F152	252	2.5	.35	10000	4	GTL-1¾	**3.13**	**2.74**
27F153	253X	2.5	.35	10000	2	GTL-1¾	**3.77**	**3.30**
25F096	259	6.3	.25	10000	+	T-3¼	**.30**	**.26**
27F154	261	2.5	.35	10000	2	GTL-1¾	**6.08**	**5.32**
27F1012	268	2.5	.35	10000	4	T-1¾	**2.10**	**1.84**
27F162	334LSV	28.0	.06	25000	2	T-1¾	**2.02**	**1.77**
25F1719	305	28.0	.56	480	10	S-8	**1.29**	**1.13**
25F1835	305IF	28.0	.56	480	10	S-8	**1.34**	**1.17**
27F158	307	28.0	.66	300	10	S-8	**1.29**	**1.13**
25F836	307IF	28.0	.66	300	10	S-8	**1.41**	**1.23**
25F1836	308	28.0	.67	300	11	S-8	**1.40**	**1.23**
27F160	313	28.0	.17	500	9	T-3¼	**.57**	**.50**
26F500	323	3.0	.19	350	*	T-1¼	**1.77**	**1.55**
26F537	324	3.0	.19	350	W	T-1¼	**.66**	**.58**
26F501	327	28.0	.04	7000	4	T-1¾	**.49**	**.43**
26F502	32715	28.0	.04	7000	4	T-1¾	**1.82**	**1.60**
26F503	32725	28.0	.04	7000	4	T-1¾	**1.23**	**1.08**
26F504	328	6.0	.20	1000	4	T-1¾	**.44**	**.39**
26F541	330	14.0	.08	750	4	T-1¾	**.66**	**.58**
26F542	331	1.35	.06	500	4	T-1¾	**.95**	**.83**
26F544	334	28.0	.04	7000	2	T-1¾	**.82**	**.72**
26F508	335	28.0	.04	7000	3	T-1¾	**.90**	**.79**
26F547	336	14.0	.08	750	2	T-1¾	**.87**	**.76**
26F548	337	6.0	.20	1000	2	T-1¾	**.91**	**.80**
26F552	338	2.7	.06	6000	4	T-1¾	**.82**	**.72**

GENERAL SERVICE LAMPS

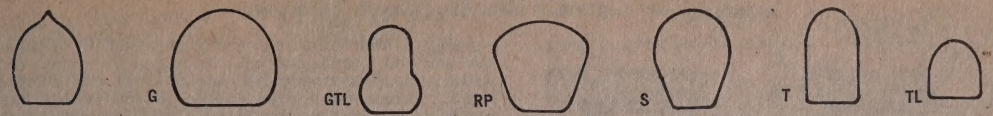
Stock No.	Type	Design V.	Design Amp.	Life Hours	Base	** Bulb	10 Each	100 Each
26F511	342	6.0	.04	10000	3	T-1¾	**1.36**	**1.19**
26F554	344	10.0	.014	10000	4	T-1¾	**1.05**	**.92**
26F555	345	6.0	.04	10000	4	T-1¾	**.95**	**.83**
26F914	346	18.0	.04	10000	2	T-1¾	**1.02**	**.90**
25F008	349	6.3	.20	3000	4	T-1¾	**.75**	**.66**
26F915	367	10.0	.04	5000	4	T-1¾	**1.19**	**1.05**
27F166	370	18.0	.04	10000	4	T-1¾	**1.14**	**1.00**
27F1017	373	14.0	.08	750	3	T-1¾	**.98**	**.86**
27F167	375	3.0	.015	10000	4	T-1¾	**1.24**	**1.08**
27F1018	376	28.0	.06	25000	4	T-1¾	**1.08**	**.94**
26F916	380	6.3	.04	50000	4	T-1¾	**.77**	**.67**
26F917	381	6.3	.20	50000	4	T-1¾	**.92**	**.81**
26F918	382	14.0	.08	50000	4	T-1¾	**.80**	**.70**
27F1021	385	28.0	.04	50000	4	T-1¾	**1.32**	**1.16**
27F168	386	14.0	.08	50000	2	T-1¾	**1.07**	**.93**
26F919	387	28.0	.04	25000	4	T-1¾	**.47**	**.42**
27F169	388	28.0	.04	25000	2	T-1¾	**.94**	**.82**
27F1022	397	10.0	.04	5000	2	T-1¾	**1.15**	**1.01**
25F837	398	6.3	.20	3000	2	T-1¾	**.97**	**.85**
25F009	399	28.0	.04	25000	3	T-1¾	**1.18**	**1.03**
25F838	425	5.0	.50	15	8	G-4½	**.62**	**.54**
27F178	502	5.1	.15	100	8	G-4½	**.24**	**.21**
25F839	515D	5.0	.115	40000	W	T-1¼	**1.02**	**.90**
25F841	583D	5.0	.06	100000	W	T-1¾	**.97**	**.85**
25F1837	656	28.0	.06	5000	+	T-3¼	**.95**	**.83**
26F521	680	5.0	.06	100000	W	T-1	**.90**	**.79**
25F842	68015	5.0	.06	100000	W	T-1	**1.32**	**1.16**
26F523	682	5.0	.06	100000	1	T-1	**1.55**	**1.36**
25F843	68215	5.0	.06	100000	1	T-1	**2.13**	**1.87**
26F525	683	5.0	.06	100000	W	T-1	**.99**	**.87**
25F844	68315	5.0	.06	100000	W	T-1	**1.17**	**1.02**
26F527	685	5.0	.06	100000	1	T-1	**1.87**	**1.64**
25F845	68515	5.0	.06	100000	1	T-1	**1.94**	**1.70**
26F533	715	5.0	.115	40000	W	T-1	**1.09**	**.96**
26F534	71515	5.0	.115	40000	W	T-1	**1.28**	**1.12**
26F535	718	5.0	.115	40000	1	T-1	**1.48**	**1.29**
26F536	71815	5.0	.115	40000	1	T-1	**1.70**	**1.49**
25F846	755	6.3	.15	50000	9	T-3¼	**.38**	**.33**
25F847	756	14.0	.08	50000	9	T-3¼	**.72**	**.63**
25F010	757	28.0	.08	7000	9	T-3¼	**.64**	**.56**
27F187	1034	12.8	1.80	200	6	S-8	**.06**	**.05**
27F189	1073	12.8	1.80	200	10	S-8	**.46**	**.40**
25F848	1130	6.4	2.6	200	11	S-8	**.79**	**.69**
27F192	1133	6.2	3.91	200	10	RP-11	**1.09**	**.95**
27F193	1141	12.8	1.44	500	10	S-8	**.45**	**.39**
27F195	1143	12.5	2.00	400	10	RP-11	**1.39**	**1.21**
27F198	1184	5.5	6.25	100	11	RP-11	**1.60**	**1.40**
27F202	1251	28.0	.23	L	10	G-6	**.94**	**.83**
25F849	1445	18.0	.15	250	10	G-3½	**.26**	**.23**
27F214	1487	14.0	.20	3000	8	T-3¼	**.38**	**.34**
27F215	1488	14.0	.15	200	9	T-3¼	**.40**	**.35**
27F217	1490	3.2	.16	3000	9	T-3¼	**.66**	**.58**
27F220	1493	6.5	2.80	100	11	S-8	**2.09**	**1.83**
27F221	1503	5.9	6.53	200	*	RP-11	**3.49**	**3.05**
25F1838	1618	6.4	2.8	200	11	S-8	**.97**	**.85**
25F1839	1619	6.7	1.90	500	10	S-8	**2.68**	**2.34**
27F223	1630	6.5	2.75	100	*	S-8	**2.75**	**2.40**
25F862	1648	8.0	2.0	1500	11	S-8	**2.42**	**2.12**
25F1857	1683	28.0	1.02	500	10	S-8	**2.10**	**1.84**
25F1858	1691	28.0	.61	1000	10	S-8	**2.96**	**2.59**
26F556	1705D	14.0	.08	750	W	T-1¾	**.75**	**.66**
26F557	1728D	1.35	.06	500	W	T-1¾	**.49**	**.43**
26F558	1730D	6.0	.04	10000	W	T-1¾	**.48**	**.42**
26F559	1738D	2.7	.06	6000	W	T-1¾	**.55**	**.49**
27F1025	1762D	28.0	.04	7000	W	T-1¾	**.49**	**.43**
26F561	1764D	28.0	.04	7000	W	T-1¾	**.57**	**.50**
26F562	1764/LSV	28.0	.06	25000	W	T-1¾	**1.05**	**.92**
26F512	1767	2.5	.20	500	3	T-1¾	**.75**	**.66**
26F513	1768	6	.20	1000	3	T-1¾	**.98**	**.86**
26F564	1775	6.3	.075	500	3	T-1¾	**1.28**	**1.12**
27F226	1783D	2.5	.20	500	W	T-1¾	**.61**	**.53**
27F1026	1784D	6.0	.20	1000	W	T-1¾	**.78**	**.69**
27F227	1813	14.4	.10	1000	9	T-3¼	**.41**	**.36**
27F228	1815	14	.20	3000	9	T-3¼	**.41**	**.36**
27F229	1816	13	.33	1000	9	T-3¼	**.29**	**.26**

15

Chicago Miniature Lamps

CHICAGO MINIATURE LAMP WORKS
GENERAL INSTRUMENT CORPORATION

BULB STYLES



** Bulbs are described by a letter indicating shape and a number which is an approximation of diameter expressed in eighths of an inch. For example S-8 is "S" shape, 8 eighths or one inch in dia.

(†) W-Wire terminals. (*) knurled screw (†) **Sold in multiples of 10 only.**

GENERAL SERVICE LAMPS (CONT'D)

Stock No.	Type	Design V.	Amps	Life Hours	† Base Style	** Bulb	Each 10-90	100-490	500-Up
27F230	1819	28	.04	1000	9	T-3¼	.63	.55	.47
27F231	1820	28	.10	1000	9	T-3¼	.63	.55	.47
27F232	1821	28	.17	500	5	T-3¼	1.53	1.34	1.15
27F233	1822	36	.10	1000	9	T-3¼	.98	.86	.73
27F234	1828	37.5	.05	3000	9	T-3¼	.79	.69	.59
27F235	1829	28	.07	1000	9	T-3¼	.50	.44	.38
25F085	1835	55.0	.05	5000	9	T-3¼	1.03	.90	.77
27F236	1847	6.3	.15	20000	9	T-3¼	.25	.22	.19
27F237	1850	5	.09	1500	9	T-3¼	.63	.55	.47
25F1900	1864	28.0	.17	1500	9	T-3¼	.63	.55	.47
27F239	1866	6.3	.25	20000	9	T-3¼	.32	.28	.24
27F240	1869D	10.0	.014	10000	W	T-1¾	1.23	1.08	.93
27F241	1891	14.0	.24	500	9	T-3¼	.26	.23	.19
27F242	1892	14.4	.12	1000	9	T-3¼	.26	.23	.19
27F243	1893	14.0	.33	3000	9	T-3¼	.26	.23	.20
25F1901	1895	14.0	.27	1500	9	G-4½	.26	.23	.20
27F244	2102D	18.0	.04	10000	W	T-1¾	.98	.86	.73
27F245	2107D	10.0	.04	5000	W	T-1¾	.68	.59	.51
25F099	2114D	6.0	.06	3000	W	T-1¼	.94	.82	.71
27F247	2124D	2.5	.35	10000	W	GTL-1¾	2.34	2.05	1.76
25F185	2128	3.0	.0125	16000	W	T-1	1.20	1.05	.90
25F1902	2136D	2.5	.350	10000	W	GTL-1¾	4.48	3.92	3.36
25F086	2158D	3.0	.015	10000	W	T-1¾	1.55	1.36	1.17
27F250	2162D	14.0	.100	10000	W	T-1¾	.76	.67	.57
25F186	2169D	2.5	.350	10000	W	T-1¾	1.49	1.30	1.12
25F1903	2180D	6.3	.04	50000	W	T-1¾	.64	.56	.48
25F087	2181D	6.3	.20	50000	W	T-1¾	.64	.56	.48
25F187	2182D	14.0	.08	50000	W	T-1¾	.74	.65	.55
27F1028	2187D	28.0	.04	25000	W	T-1¾	.56	.49	.42
27F096	6803	5.0	.060	100000	W	T-¾	1.70	1.49	1.28
25F189	6833	5.0	.060	100000	W	T-¾	1.70	1.49	1.28
25F1904	6838	28.0	.024	16000	W	T-1	2.26	1.98	1.69
25F191	6839	28.0	.024	16000	1	T-1	3.06	2.68	2.30
25F193	7153	5.0	.115	40000	W	T-¾	1.65	1.45	1.24
27F294	7216	5	.125	5000	W	T-1	2.86	2.50	2.14
25F1907	8362	14.0	.08	50000	*	T-1¾	1.74	1.53	1.31
25F1908	8369	28.0	.065	5000	*	T-1¾	1.31	1.14	.98
25F1913	8610	6.3	.20	5000	W	T-1¼	1.10	.96	.83
25F1909	8623	28.0	.04	1000	*	T-1¼	2.32	2.03	1.74
25F195	8627	28.0	.04	1000	W	T-1¼	1.37	1.20	1.03
25F1910	8632	28.0	.04	1000	*	T-1¼	2.32	2.03	1.74
25F1911	8635	28.0	.04	1000	*	T-1¼	2.52	2.21	1.89
26F592	8640	14	.08	1000	W	T-1¼	1.11	.98	.84
25F199	8666	5.0	.08	15000	W	T-¾	3.16	2.76	2.37
27F297	8805D	5	.06	100000	W	T-1¾	.67	.59	.50

STANDARD VOLTAGE LAMPS

Stock No.	Type	Design V.	Watts	Life Hours	Base Style	** Bulb	EACH
27F259	3S6/5	120	3	3000	8	S-6	1.51
27F260	6S6	115	6	1500	8	S-6	.56
27F261	6S6	145	6	1500	8	S-6	1.51
27F262	6S6/DC	120V	6	1500	11	S-6	.92
27F263	6T4½/1	120V	6	1500	8	T-4½	1.71
27F264	7C7	115-125	7	3000	8	C-7	.48
27F265	10C7	115-125	10	....	8	C-7	.82
27F266	10C7DC	115-125	10	3000	11	C-7	1.10
27F267	10S6C	230	10	1500	8	S-6	1.71

SOLD IN MULTIPLES OF 10 ONLY

NEON GLOW LAMPS

Stock No.	Type	Design V	W	Life Hours	Base	** Bulb	10-Up EACH
25F810	A1B	105-125	1/25	25000	W	T-2	.20
25F811	A1C	105-125	1/10	25000	W	T-2	.22
27F251	NE2(A1A)	105-125	1/17	25000+	W	T-2	.19
27F252	NE2D(C7A)	105-125	1/12	25000	4	T-2	1.59
25F812	NE2E(A9A)	105-125	1/12	25000	W	T-2	.17
27F253	NE2H(C2A)	105-125	1/4	25000	W	T-2	.17
25F813	NE2J(C9A)	105-125	1/4	25000	4	T-2	1.48
25F814	NE21(B6A)	110-125	1/4	7500	10	T-4½	2.16
25F815	NE30(J5A)	110-125	1	10000	*	S-11	3.62
25F816	NE32(L5A)	110-125	1	10000	11	G-10	2.43
27F254	NE45(B7A)	110-125	1/4	7500	8	T-4½	2.76
27F255	NE48(B9A)	110-125	1/4	7500	11	T-4½	2.41
27F256	NE51(B1A)	105-125	1/25	15000+	9	T-3¼	.54
27F257	NE51H(B2A)	105-125	1/7	25000	9	T-3¼	.54
25F817	NE56(J9A)	210-250	1	10000	*	S-11	2.92
25F818	NE57(F3A)	110-125	1/4	7500	8	T-4½	2.64
25F819	NE58(F4A)	210-250	1/2	100000	8	T-4½	2.64
27F258	NE83(5AH)	60-100	....	....	W	T-2	.68
25F080	NE86(5AJ)	55-90	....	2000	W	T-2	.51

CM7-SERIES BI-PIN LAMPS

Stock No.	Type	Design V.	Amps	Life Hours	** Bulb	Each 10-90	100-490	500-Up
25F820	CM7-7112	5.0	.021	10000	T-¾	2.45	2.15	1.84
25F823	CM7-7118	5.0	.115	40000	T-¾	2.46	2.15	1.85
27F268	CM7-7327	28.0	.04	7000	T-1¾	.59	.52	.45
27F269	CM7-7328	6.0	.20	1000	T-1¾	.63	.55	.47
27F270	CM7-7330	14.0	.08	750	T-1¾	.64	.56	.48
25F854	CM7-7344	10.0	.014	10000	T-1¾	.73	.64	.55
25F853	CM7-7349	6.3	.20	3000	T-1¾	.63	.55	.47
25F855	CM7-7367	10.0	.04	5000	T-1¾	.73	.64	.55
25F856	CM7-7371	12.0	.04	10000	T-1¾	.69	.60	.52
25F858	CM7-7373	14.0	.10	10000	T-1¾	.67	.59	.50
25F859	CM7-7376	28.0	.065	5000	T-1¾	.76	.66	.57
27F1030	CM7-7377	6.3	.075	500	T-1¾	.65	.57	.49
25F852	CM7-7380	6.3	.04	50000	T-1¾	.67	.59	.51
25F857	CM7-7382	14.0	.08	50000	T-1¾	.67	.59	.50
25F825	CM7-7515	5.0	.115	40000	T-1¼	1.03	.91	.78
25F824	CM7-7583	5.0	.06	100000	T-1¼	.99	.87	.75
25F828	CM7-7628	6.0	.20	1000	T-1¼	.99	.87	.75
25F850	CM7-7632	28.0	.04	1000	T-1¼	1.09	.95	.82
25F829	CM7-7646	14.0	.08	1000	T-1¼	1.09	.95	.82
25F826	CM7-7660	6.0	.04	1000	T-1¼	1.01	.88	.76
27F271	CM7-7838	2.7	.06	6000	T-1¾	.70	.62	.53
25F851	CM7-7945	6.0	.04	10000	T-1¾	.68	.60	.51

CM8-SERIES LAMPS

Stock No.	Type	Design V.	Amps	Life Hours	Base	** Bulb	Each 10-90	100-490	500-Up
27F282	CM8-363	28.0	.04	1000	W	TL-1½	1.45	1.27	1.09
27F283	CM8-373	2.5	.35	10000	2	TL-1¾	2.83	2.48	2.12
27F286	CM8-374	2.5	.35	10000	W	TL-1¾	2.53	2.22	1.90
27F288	CM8-503	6.3	.35	250	9	TL-2¾	8.14	7.12	6.11
27F099	CM8-967	120	.02	5000	9	T-2	2.26	1.98	1.70

W: wire terminals

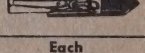
INDICATOR LAMPS

Spec. units for Dialco series 81 indicator lights. T-2 incandescent bulb, slide base: ¼" diam., 5000 hr. life. **PKG. OF 10 ONLY.**

Stock No.	Type	Volts	Amps	End. Foot Candles	Each 10-90	100-990	1000-Up
35F2800	6PSB	6	.140	800	1.06	.93	.80
35F2801	12PSB	12	.170	2400	1.06	.93	.80
35F2802	24PSB	24	.073	2200	1.06	.93	.80
35F2803	28PSB	28	.040	1900	1.06	.93	.80
35F2804	48PSB	48	.053	1500	1.06	.93	.80
35F2805	60PSB	60	.050	2400	1.06	.93	.80
35F2806	120PSB	120	.025	1600	1.15	1.01	.87

TELEPHONE SLIDE BASE LAMPS

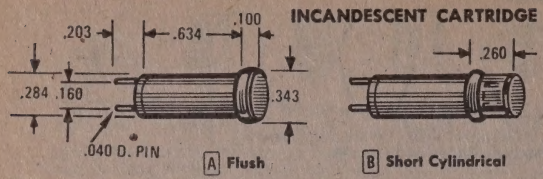
Incandescent lamps specifically designed for use in telephone switchboards. 5000 hour life. ¼" diameter. **PKG. of 10 ONLY.**



Stock No.	Type	Volts	Amps	End. Foot Candles	Each 10-90	100-990	1000-Up
27F084	24C	24	.072	875	.95	.83	.71
27F085	24E	24	.035	600	.99	.86	.74
27F087	24X	24	.035	600	1.20	1.05	.90
27F088	30B	30	.100	1050	1.16	1.02	.87
27F090	48D	48	.021	100	1.20	1.05	.90
27F091	55C	55	.052	1025	1.20	1.05	.90

15

INCANDESCENT CARTRIDGE INDICATOR LAMPS & HOLDERS



[A] Flush [B] Short Cylindrical

Ideal for subminiature applications, data processing equipment, Military and Commercial instrumentation. Mounts in cartridge holder or with mounting clip (not included). High temperature, crack resistant, translucent polycarbonate lenses. Aluminum body, nylon insulation, meets MIL-L-3661, mounts in 9/32" hole.

[A] 6.3 Volts .04 Amp Flush Lens

Stock No.	Type	Color	1-9	10-24	25-99	100-249
28F2608	CML540271	Red	2.59	2.05	1.71	1.42
28F2609	CML540272	Green				
28F2610	CML540273	Amber				
28F2611	CML540274	Blue				
28F2612	CML540275	White				
28F2613	CML540276	Yellow				

[A] 14 Volts .08 Amp Flush Lens

Stock No.	Type	Color	1-9	10-24	25-99	100-249
39F2468	CML540281	Red	2.59	2.05	1.71	1.42
39F2469	CML540282	Green				
39F2470	CML540283	Amber				
39F2471	CML540284	Blue				
39F2472	CML540285	White				
39F2473	CML540286	Yellow				

[A] 28 Volts .04 Amp Flush Lens

Stock No.	Type	Color	1-9	10-24	25-99	100-249
39F2474	CML540111	Red	2.16	1.72	1.43	1.19
39F2475	CML540112	Green				
39F2476	CML540113	Amber				
39F2477	CML540114	Blue				
39F2478	CML540115	White				
39F2479	CML540116	Yellow				

[B] 6.3 Volts .04 Amp Short Cylindrical Lens

Stock No.	Type	Color	1-9	10-24	25-99	100-249
28F2614	CML640271	Red	2.59	2.05	1.71	1.42
28F2615	CML640272	Green				
28F2616	CML640273	Amber				
28F2617	CML640274	Blue				
28F2618	CML640275	White				
28F2619	CML640276	Yellow				

[B] 14 Volts .08 Amp Short Cylindrical Lens

Stock No.	Type	Color	1-9	10-24	25-99	100-249
39F2450	CML640281	Red	2.59	2.05	1.71	1.42
39F2451	CML640282	Green				
39F2452	CML640283	Amber				
39F2453	CML640284	Blue				
39F2454	CML640285	White				
39F2455	CML640286	Yellow				

[B] 28 Volts .04 Amp Short Cylindrical Lens

Stock No.	Type	Color	1-9	10-24	25-99	100-249
39F2456	CML640111	Red	2.16	1.72	1.43	1.19
39F2457	CML640112	Green				
39F2458	CML640113	Amber				
39F2459	CML640114	Blue				
39F2460	CML640115	White				
39F2461	CML640116	Yellow				

CM21-3 SERIES CARTRIDGE INDICATOR CONNECTOR

Convenient, low cost connector for cartridge lamps. Heat resistant phenolic, brass spring terminals with cadmium plating.

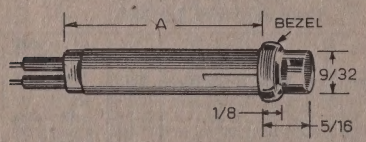
Stock No.	Type	1-9	10-24	25-99	100-249
35F016	CM21-3	.59	.47	.39	.32

CARTRIDGE INDICATOR MOUNTING CLIP

Mounting indicators directly in panels. Squeeze tabs and push over cartridge back. Spring brass terminals; cad. plated.

Stock No.	Type	1-9	10-24	25-99	100-249
39F3509	CML10380	.14	.11	.09	.08

SLENDER "GLO-LITES" INDICATOR LITES



Offered with neon or incandescent lamps. High brightness neon lamps U.L. & CSA approved for 125 VAC, ¼ Watt operation. All types mount in 9/16" hole. **Specify color when ordering:** R-red; Gr-grn; A-amb; W-wht.

INCANDESCENT LAMPS

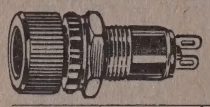
Stock No.	Type	"A" DIM	VAC	Amps	Lamp	1-9	10-24	25-99	100-249
39F2517	6386-001-607	1 3/32"	6.3	.20	2181	2.49	2.13	1.78	1.25
39F2518	6387-001-607	1 3/32"	14	.08	2182	2.52	2.16	1.80	1.26
39F2519	6388-001-607	1 3/32"	28	.04	2187	2.30	1.97	1.64	1.15

NEON LAMPS

26F0014	6483-001-603	1 21/32"	125	...	C2A	2.08	1.78	1.48	1.04

Available in Red, Yellow, Clear, or White

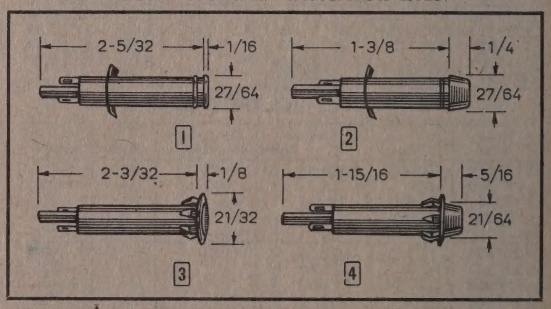
CARTRIDGE HOLDERS



Mounts in 3/8" dia. hole. Black anodized aluminum. Non-ferrous coated alloy terminals.

Stock No.	Type	Terminals	1-9	10-24	25-99	100-249
35F022	CML10203-1	Solder	2.22	1.76	1.47	1.22
35F020	CML10202-1	Turret	2.22	1.76	1.47	1.22
28F2620	CML10204-1	Sld. Lug	1.57	1.25	1.04	.86

NEON "GLO-LITES" INDICATOR LITES



"Glo Lites" feature built in C2A lamp with current limiting series resistor for U.L. and CSA approved 125 VAC operation. Life excess of 5000 hours. Wired units have 10" #22 AWG leads. Figures 1 & 2 mount in 3/8" hole with supplied speed nut, 3 & 4" "Snap Mount" into ½" dia. hole. **Specify color when ordering.**

AMBER, RED OR WHITE LENS

Stk. No.	Type	Fig.	Leads	Lamp	1-9	10-24	25-99	100-249
26F0005	6063-000-534	1	Solder Lugs	C2A	1.71	1.46	1.22	.86
26F0006	6063-000-634	2	Solder Lugs	C2A	1.71	1.46	1.22	.86
26F0007	6063-001-534	1	Wire	C2A	1.60	1.37	1.14	.80
26F0008	6063-001-634	2	Wire	C2A	1.60	1.37	1.14	.80
26F0009	6073-000-534	3	Solder Lugs	C2A	1.82	1.56	1.30	.91
26F0010	6073-000-634	4	Solder Lugs	C2A	1.82	1.56	1.30	.91
26F0011	6073-001-534	3	Wire	C2A	1.71	1.46	1.22	.86
26F0012	6073-001-634	4	Wire	C2A	1.71	1.46	1.22	.86

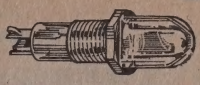
Lighted Devices

"FLUSHLITE" INDICATOR LIGHTS

High brightness, all nylon neon indicator lamp features built-in series limiting resistor and diffused lighting. Operates on 125 VAC @ ⅓ watt. 5000 hours min. life. Mounts front or rear. Available in amber, red or white. **Specify color when ordering.**

Stk. No.	Type	Dimensions	1-9	10-24	25-99	100-249
25F1996	6103-000-924	1⅜"Lx⅜"H	1.71	1.46	1.22	.86

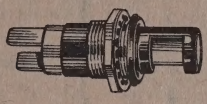
"POSTLITE" INDICATOR LIGHTS



High brightness neon lamp with built-in series limiting resistor. Operates on 105-125 VAC; 25000 hours average life. Front mounting in ½" dia. hole on panels up to 9/16" thick. Available in amber, red and colorless. **Specify color when ordering.**

Stk. No.	Type	Dimensions	1-9	10-24	25-99	100-249
25F1997	6053-000-023	2 1/32"Lx⅝" Dia.	2.08	1.65	1.38	1.14

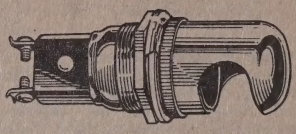
INSTRUMENT LIGHTS



Min. Bayonet

Min. Bayonet. Uses T-3¼ incand. lamp (not incl.). Threaded aluminum hood has black exterior finish. Mounts in 13/16" dia. hole in panels up to 3/32" thk.; incl. mtg. hdwe.

Stock No.	Type No.	EACH			
		1-9	10-24	25-99	100-249
39F3462	900-200	3.88	3.08	2.57	2.13

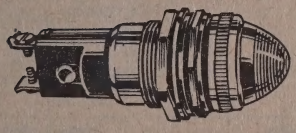


Candelabra Base

Candelabra Base. Front or rear mtg.; nickel pl. friction hood. Uses 120V, 6s6 lamp (not incl.) Mounts in 1" dia. hole on 1⅜" ctrs. in panels up to ½" thk. Screw terminals.

Stk. No.	Type No.	1-9	10-24	25-99	100-249
39F3466	900-006	4.30	3.41	2.85	2.36

"TITELITES" LARGE LENS INDICATOR LITES



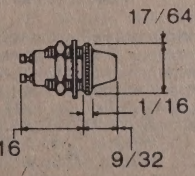
C BEEHIVE LENS

D CONVEX LENS

One inch diameter lens for distant and off angle visability. Mount in one inch diameter hole with two supplied neoprene gaskets sealing out oil and water. Indicators accept "S6" candelabra screw or double contact bayonet lamps. 5796-523 types accept B7A neon lamps. Indicators U.L. & CSA recognized up to 75 W, 125 V operation. Lens colors-Incandescent lamps: Red, Yellow, Green, Blue, White, or Clear. Neon: Red, Yellow, or Clear. **Specifiy color when ordering.** Size: 2 3/32"L x 1⅛" Dia. with 1"-27 Thd. locking nut.

Stock No.	Type	Lamp	Lens	1-9	10-24	25-99	100-249
28F2624	5796-523-106	Cand. Scr.	C	5.96	4.73	3.94	3.26
28F2621	5796-523-435	Cand. Scr.	D	5.96	4.73	3.94	3.26
28F2623	5796-393-106	D. C. Bay	C	6.88	5.46	4.56	3.77
28F2622	5796-393-435	D. C. Bay	D	6.88	5.46	4.56	3.77

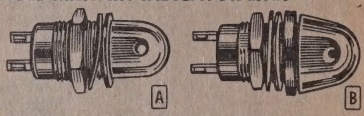
GEMLITE



Reliable indicators used in Military and Commercial application where size and lamp replacement are prime considerations. Accept T-1 "Sub-Midget Flange Based Lamp." Mount in 9/16" diameter hole. **Specify color when ordering:** Red, Green, Amber, White, Yellow, or Blue.

Stock No.	Type	1-9	10-24	25-99	100-249
25F1983	5160-458-604	4.50	3.57	2.98	2.46

MIDGET FLANGED MILITARY INDICATOR LITES



Lampholders and lenses conform to MIL-spec MIL-L-3661B. All units are front mounting w/ hardware. Colors: **B**—blue, **C**—colorless, **G**—green, **R**—red, **W**—white, **Y**—yellow. **Specify color when ordering.** Use with T-1¾ incandescent lamps (not included).

Stk. No.	Type	Fig.	Max. Amps	1-9	10-24	25-99	100-249
39F2500	5131-038-303	A	0.5	3.03	2.41	2.01	1.66
39F2501	5139-038-403	B	0.5	4.50	3.57	2.98	2.46

LAMPHOLDERS ONLY

Stk. No.	Type	Figure	1-9	10-24	25-99	100-249
39F2502	5131-038	A	2.42	1.92	1.60	1.32
39F2329	5139-038	B	2.92	2.32	1.93	1.60

"ASTROLITE" INDICATOR LITES

T-1 indicators built to meet MS25446. Built-in long life T-1 incandescent lamps with light output visible a full 180°. Mounting: .193" diameter "D" hole. Housing and mounting nut: brass, nickel plated. Termination: two #26 AWG. Stranded teflon insulated 6" lead wires. Dust proof, moisture proof, sealed unit with a non-replaceable lamp. MIL units have 5 volt lamps, .06 amp.

MILITARY "ASTROLITES"

Stk. No.	Type	Color	MIL Spec	1-9	10-24	25-99	100-249
39F3493	6026-001-704	Red	MS25446-4				
39F3494	6026-001-704	Green	MS25446-3				
39F3495	6026-001-704	Amber	MS25446-6	5.84	4.64	3.87	3.20
39F3496	6026-001-704	Blue	MS25446-2				
39F3497	6026-001-704	White	MS25446-5				
39F3498	6026-001-703	Clear	MS25446-7				

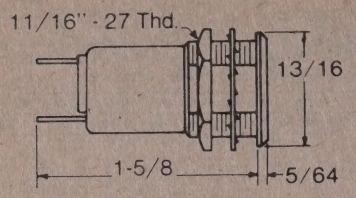
COMMERCIAL "ASTROLITES"

Stk. No.	Type	Color	VDC	Amps	1-9	10-24	25-99	100-249
39F2508	6037-001-704	Red	12	.05				
39F2509	6037-001-704	Green	12	.05				
39F2510	6037-001-704	Amber	12	.05	4.05	3.21	2.68	2.22
39F2511	6037-001-704	Blue	12	.05				
39F2512	6037-001-704	White	12	.05				
39F2513	6037-001-704	Clear	12	.05				

Contact NEWARK For Large Quantity Prices

Lighted Devices

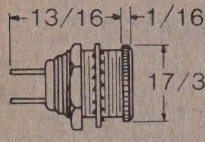
STANDARD INDICATORS



Accept T 3-¼ Miniature bayonet lamps for use in automotive panels, control consoles, electronic equipment, and test gear. Indicators have nickel-plated flanges for attractive appearance. U.L. and CSA recognized. Housing: glass-filled polyester; Solder-lugs: brass; Hardware: zinc-plated steel. Mount in 1⅛" diameter hole in panels up to 3/32" thick. **5100-822** designed for use with incandescent lamps, **5100-832** has 22K built-in resistor for use with B2A neon lamp on 125V, and **5100-842** has 100K built-in resistor for use with B1A neon lamp on 125V or B2A lamp on 250V.

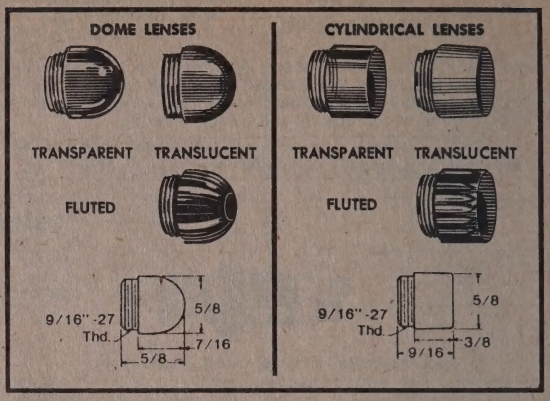
Stock No.	Type	Resistor	1-9	10-24	25-99	100-249
28F2592	5100-822	None	1.63	1.29	1.08	.89
28F2593	5100-832	22K	2.16	1.72	1.43	1.19
28F2594	5100-842	100K	2.16	1.72	1.43	1.19

TINYLITES



Tinylites are small units supplied with any of three low-voltage incandescent lamps installed. Used in a wide range of applications including alarm systems, medical equipment, and control panels. Nickel-plated brass mounting bushing. Zinc-plated steel nut and lockwasher provided. All current carrying parts are non-ferrous metal.

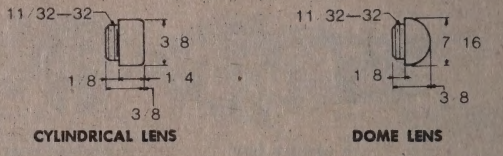
Stock No.	Type	Volts	Amps	1-9	10-24	25-99	100-249
28F2595	5126-022	7	.065	1.80	1.43	1.19	.99
28F2596	5127-022	14	.065	1.80	1.43	1.19	.99
28F2597	5128-022	28	.040	2.36	1.87	1.56	1.29



Polycarbonate lenses for 5100 series. Only transparent or fluted lenses should be used with neon lamps. Specify color. **A, C, D, & F** available in red, amber, clear, green, white. **B & E** available in red, green, white, yellow, amber, blue.

Stock No.	Type	Fig.	1-9	10-24	25-99	100-249
28F2598	25P-306	A				
28F2599	25P-307	B				
28F2600	25P-326	C	.53	.42	.35	.29
28F2601	25P-606	D				
28F2602	25P-607	E				
28F2603	25P-626	F				

LENS CAPS FOR TINYLITE INDICATORS



Companion lenses for Tinylites. Specify color when ordering. Order 604 or 204 for red, white, yellow or amber; 207 or 607 for green.

Stock No.	Type	Shape	1-9	10-24	25-99	100-249
28F2604	121A-604	Cyl.				
28F2605	121A-607	Cyl.	.31	.25	.20	.17
28F2606	121A-204	Dome				
28F2607	121A-207	Dome				

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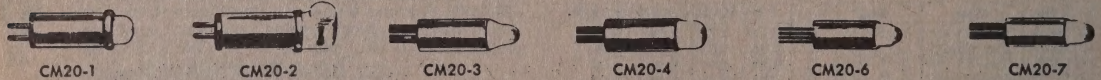
CM20 SERIES SUBMINIATURE LENS-END LITES



Type	Lamp Type	Volts	Amps ±10%	Life (Hours)
CM20-1#	TL-1¾	2.5	.350	10,000
CM20-2††	SL-1¾	3.0	.325	10,000
CM20-3§	TL-1¾	2.5	.350	10,000
CM20-4‡‡	TL-1¾	2.5	.350	10,000
CM20-6**	TL-1¼	6.0	.200	1,000
		5.1	.180	10,000
CM20-7**	TL-1¼	28.0	.040	1,000
		24.0	.036	10,000
CM20-17‡‡	TL-1¾	5.0	.350	10,000

PRICING TABLE

Stock No.	Type	1-99	100-499	500-999
25F1720	CM20-1	3.19	2.79	2.39
25F1721	CM20-2	5.99	5.24	4.49
25F1722	CM20-3	3.28	2.87	2.46
25F1723	CM20-4	3.98	3.48	2.99
25F1725	CM20-6	2.68	2.35	2.01
25F1726	CM20-7	3.06	2.68	2.30
67F4574	CM20-17	5.41	4.74	4.06

- **Choice of lead styles**
- **Intense spot of luminous and infrared energy**
- **Choice of spot shape and orientation**

For close proximity use with photosensors where an intense spot of luminous and infrared energy is required. CM20-1, CM20-2 (right angle lens), and CM20-17 are mounted in bi-pin cartridges. Clear anodized aluminum body; stainless steel terminals; nylon insulation. CM20-3 thru CM-20-17 are packaged in gold anodized aluminum sleeves with 24 AWG stranded wire leads. Type B insulation per MIL-W-16878. Semi-resilient thermosetting resin encapsulation. Wt. ½ oz. Note: (#) Spot covers ⅛" dia. target when projected ⅜" from end of bulb at min. intensity of 750 foot-candles. (††) When projected 1" from end of bulb, spot covers 1" dia. at 350 foot-candles. (§) ⅜" from bulb, spot covers 1/16" dia. at 750 foot-candles. Spot is narrow elliptical. (‡‡) Same as CM20-3 except spot covers ⅛" dia. target. Spot is round elliptical. (**) No specifications for spot, however, lamp is axially aligned.

Solid State Indicators

CHICAGO MINIATURE LAMP WORKS
GENERAL INSTRUMENT CORPORATION

"ULTRALITES" .20", .30" & .40" ROUND INDICATORS

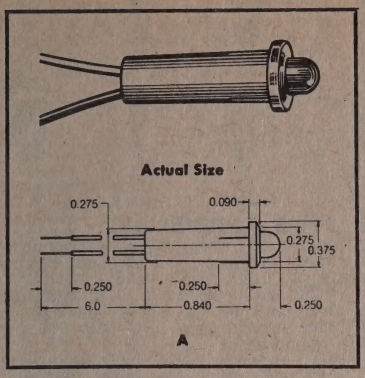


Fig. A. 0.2" Round Indicators are solid-state devices useful in low-power circuits. Has chrome bezel, current-limiting resistor, and up to 160° effective field of indication. Mounts in 9/32" hole; comes with 6 inch insulated leads. Body material is nylon.

Stk. No.	Type	VDC	mA	Color	Code
39F2530	6080-900-304	2	40*	Red	A
39F2531	6080-002-304	2	40*	Red†	B
39F2532	6080-005-304	2	40*	Grn.†	C
39F2533	6080-004-304	2	40*	Yel.†	C
39F2534	6081-900-304	5	16	Red	D
39F2535	6082-002-304	5	40	Red†	E
39F2536	6082-005-304	5	40	Grn.†	F
39F2537	6082-004-304	5	40	Yel.†	F
28F2552	6084-002-304	14	35	Red	E
28F2553	6084-004-304	14	35	Yel.	F
28F2554	6084-005-304	14	35	Grn.	F
28F2555	6086-002-304	28	15	Red	E
28F2556	6086-004-304	28	15	Yel.	F
28F2557	6086-005-304	28	15	Grn.	F

ERRATA CODE

(*) Requires ext. current limiting resistor
(†) Indicates Hi-Efficiency
(‡) Solder lugs on leads. All others have wire terminals.

0.4" ROUND INDICATORS

Fig. B. These miniature solid-state devices feature wide effective field of indication—up to 140°, unequaled brightness and spot size and chrome bezel. Require low power drain. Luminous intensity at 40 mA: Red—13 mcd, Amber—10 mcd, Green—5 mcd. Maximum reverse voltage—5 VDC.

Stk. No.	Type	VDC	mA	Color	Code
39F2550	6340-302-505R	2	40*	Red	G
39F2551	6340-002-505R‡	2	40*	Red	H
39F2552	6340-301-505A	2	40*	Amb.	J
39F2553	6340-001-505A‡	2	40*	Amb.	K
39F2554	6340-305-505G	2	40*	Grn.	J
39F2555	6340-005-505G‡	2	40*	Grn.	K
39F2556	6342-302-505R	5	40	Red	J
39F2557	6342-002-505R‡	5	40	Red	K
39F2558	6342-301-505A	5	40	Amb.	L
39F2559	6342-001-505A‡	5	40	Amb.	M
39F2560	6342-305-505G	5	40	Grn.	L
39F2561	6342-005-505G‡	5	40	Grn.	M
28F2570	6344-302-505R	14	35	Red	J
28F2571	6344-002-505R	14	35	Red	K
28F2572	6344-301-505A	14	35	Amb.	L
28F2573	6344-001-505A	14	35	Amb.	M
28F2574	6344-305-505G	14	35	Grn.	L
28F2575	6344-005-505G	14	35	Grn.	M
28F2576	6346-302-505R	28	15	Red	J
28F2577	6346-002-505R	28	15	Red	K
28F2578	6346-301-505A	28	15	Amb.	L
28F2579	6346-001-505A	28	15	Amb.	M
28F2580	6346-305-505G	28	15	Grn.	L
28F2581	6346-005-505G	28	15	Grn.	M

PRICING CODE

Key	1-9	10-24	25-99	100-249
A	1.11	1.00	.90	.81
B	1.39	1.25	1.13	1.02
C	1.49	1.34	1.20	1.09
D	1.30	1.17	1.05	.95
E	1.54	1.39	1.25	1.13
F	1.63	1.47	1.32	1.19
G	2.13	1.92	1.72	1.56
H	2.22	2.00	1.80	1.63
J	2.31	2.09	1.87	1.70
K	2.40	2.17	1.95	1.77
L	2.50	2.25	2.02	1.84
M	2.59	2.34	2.10	1.90

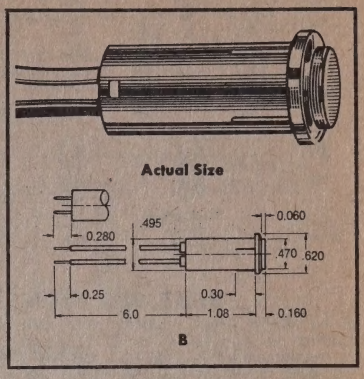
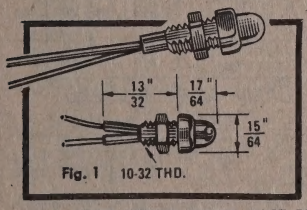
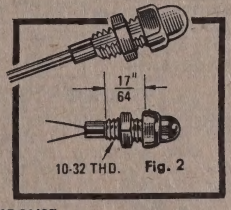


Fig. B. 0.3" Round Indicators. Similar to 0.4" indicators except for following: Mounts in 3/8 inch dia. hole, unit is slightly smaller than shown in figure B.

Stk. No.	Type	VDC	mA	Color	Code
39F2538	6330-302-505R	2	40*	Red	G
39F2539	6330-002-505R‡	2	40*	Red	H
39F2540	6330-301-505A	2	40*	Amb.	J
39F2541	6330-001-505A‡	2	40*	Amb.	K
39F2542	6330-305-505G	2	40*	Grn.	J
39F2543	6330-005-505G‡	2	40*	Grn.	K
39F2544	6332-302-505R	5	40	Red	J
39F2545	6332-002-505R‡	5	40	Red	K
39F2546	6332-301-505A	5	40	Amb.	L
39F2547	6332-001-505A‡	5	40	Amb.	M
39F2548	6332-305-505G	5	40	Grn.	L
39F2549	6332-005-505G‡	5	40	Grn.	M
28F2558	6334-302-505R	14	35	Red	J
28F2559	6334-002-505R	14	35	Red	K
28F2560	6334-301-505A	14	35	Amb.	L
28F2561	6334-001-505A	14	35	Amb.	M
28F2562	6334-305-505G	14	35	Grn.	L
28F2563	6334-005-505G	14	35	Grn.	M
28F2564	6336-302-505R	28	15	Red	J
28F2565	6336-002-505R	28	15	Red	K
28F2566	6336-301-505A	28	15	Amb.	L
28F2567	6336-001-505A	28	15	Amb.	M
28F2568	6336-305-505G	28	15	Grn.	L
28F2569	6336-005-505G	28	15	Grn.	M

"SOLID-STATE ASTROLITE" SUBMINIATURE INDICATOR LITES





- **LOW POWER DRAIN, FAST RESPONSE**
- **60° VIEWING ANGLE**
- **IDEAL FOR COMPUTER AND MEDICAL APPLICATIONS**

Submidget w/built-in bright red LED; 60° viewing. Resistant to shock/vibration. Compatible with low E pwr. supply, or drive directly with solid-state circuitry. Operates on 1.8 to 2.8 VDC. Mounts in .191" dia. "D" hole in 3/16" max. thk. panels on 1 1/32" min. ctrs. 1.—6" wire leads, 105°C PVC ins. 2.—3/8" lg. wire terminals.

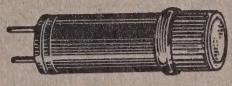
Stk. No.	Fig.	Type No.	1-9	10-24	25-99	100-249
39F3420	1	6039-004-304	1.87	1.74	1.68	1.39
39F3421	2	6039-005-304	1.58	1.47	1.32	1.18

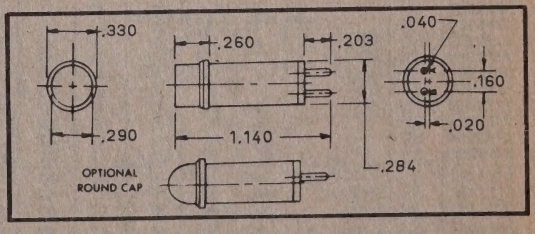
HERZOG

Type T-4½. Pilot lamp with clear bulb. Candelabra screw base. Rated at 4 watts at 120 volts. Dimensions: 7/16" dia. by 1-9/16" max. overall. Wt., 4 oz.

Stock No.	Color	1-24	25-Up
25F174	Clear	.70	.56

SOLID STATE LED CARTRIDGE INDICATOR



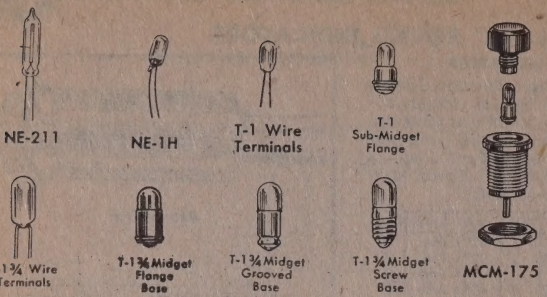


Short cylindrical cap with fresnel rings. Butyrate lens. Black anodized Aluminum housing. Black nylon insulator. Stainless steel pins. 20 mA.

Stk. No.	Type	Oper. VDC	Color	1-9	10-24	25-99	100-249
28F2582	CM44-11-031-1	2.5-5.0V	Red	2.31	1.94	1.63	1.42
28F2583	CM44-11-033-3	2.5-5.0V	Amber	2.31	1.94	1.63	1.42
28F2584	CM44-11-035-2	2.5-5.0V	Green	2.31	1.94	1.63	1.42
39F3423	CM44-11-002-1	2.5-7.0V	Red	2.31	1.94	1.63	1.42
28F2585	CM44-11-012-3	2.5-7.0V	Amber	2.31	1.94	1.63	1.42
28F2586	CM44-11-021-2	2.5-7.0V	Green	2.31	1.94	1.63	1.42
28F2587	CM44-11-006-1	5.0-15.0V	Red	2.31	1.94	1.63	1.42
28F2588	CM44-11-016-3	5.0-15.0V	Amber	2.31	1.94	1.63	1.42
28F2589	CM44-11-023-2	5.0-15.0V	Green	2.31	1.94	1.63	1.42
39F3428	CM44-11-010-1	10.0-30.0V	Red	2.31	1.94	1.63	1.42
28F2590	CM44-11-020-3	10.0-30.0V	Amber	2.31	1.94	1.63	1.42
28F2591	CM44-11-025-2	10.0-30.0V	Green	2.31	1.94	1.63	1.42

15

ALCO Alcolite Lamps and Assemblies



BRITE GLO NEON LAMPS

(T-1.) NE-1H. High intensity neon with lens end magnification. Ignition voltage 60 VAC or 67 VDC and a ballast resistor of 35K is recommended at 115 VAC. **NE-1-H** is same with insul. leads. T-1 #680: 5 VDC 60 mA, 100,000 hrs. For ¼" hole, 10" leads. Sold in Standard Packages of 10.

Stock No.	Type	Description	EACH 1-99	100-499	500-999
57F2235	NE-211	11 mm Glow, Bare Leads	.44	.39	.36

Stock No.	Type	Description	1-19	20-99	100-499	500-999
57F2237	NE-1H	Short Bare Leads	.69	.62	.55	.55

INCANDESCENT T-1 AND T-1¾ LAMPS

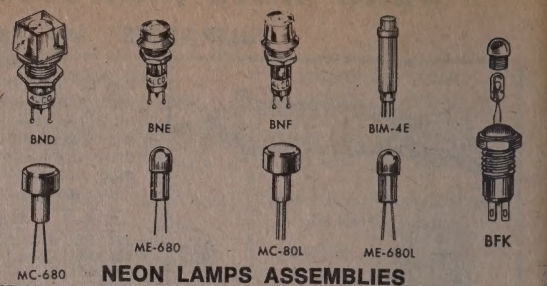
Sold in Standard Packages of 10.

Stock No.		Type	V	Amps	MSCP	1-19	20-99	100-499
23F5680	7207		3	.060	.032	.45	.41	.36
23F5681	8602		5	.015	.032	.55	.50	.44
57F2243	7210		5	.030	.030	.42	.38	.34
57F2239	680		5	.060	.032	.78	.70	.62
57F2240	683	T-1	5	.060	.053	.78	.70	.62
57F2241	713	Wire	5	.075	.088	.78	.70	.62
57F2242	715	Terminals	5	.115	.147	.78	.70	.62
23F5682	7219		12	.060	.15	.42	.38	.34
23F5683	8111		14	.065	.15	.42	.38	.34
23F5684	7220		18	.026	.15	.59	.53	.47
23F5685	6838		28	.024	.15	.59	.53	.47
57F2244	685		5.0	.060	.050	.75	.68	.60
57F2245	718	T-1	5.0	.115	.147	.75	.68	.60
57F2247	1112	Sub-Midget	14.0	.065	.150	.97	.87	.78
57F2246	856	Flange	28.0	.024	.150	1.39	1.25	1.11
57F2248	2181	T-1¾ Wire	6.3	.200	.40	.49	.44	.39
25F187	2182	Terminals	14.0	.080	.30	.49	.44	.39
23F5686	7333		5	.060	.05	.53	.48	.42
57F2255	815		5	.115	.147	.47	.42	.38
23F5687	345		6	.04	.03	.47	.42	.38
23F5688	380		6.3	.04	.02	.47	.42	.38
57F2252	381	T-1¾	6.3	.20	.40	.47	.42	.38
23F5689	344	Midget	10	.014	.002	.53	.48	.42
57F2253	382	Flange	14	.08	.30	.47	.42	.38
57F2251	330	Base	14	.08	.50	.47	.42	.38
2355690	370		18	.04	.15	.47	.42	.38
23F5691	385		28	.04	.20	.47	.42	.38
57F2254	387		28	.04	.30	.45	.41	.36
57F2250	327		28	.04	.34	.47	.42	.38
61F1226	379	T-1¾ Midget	6.3	.200	.40	.45	.41	.26
61F1227	386	Grooved	14.0	.080	.30	.47	.42	.38
6151228	388	Base	28.0	.040	.30	.47	.42	.38
57F2257	378	T-1¾	6.3	.200	.40	.47	.42	.38
57F2256	362	Midget	14.0	.080	.30	.47	.42	.38
57F2258	399	Screw Base	28.0	.040	.30	.47	.42	.38

LAMP HOLDERS

Relampable miniature holders have ⅜" diameter lens and small size. **MCM-100** has 0.7" length, mounts with 5/16-32 nut. **MCM-175** has 1" length, mounts with ⅜-32 nut.

Stock No.	Type	Color	Description	1-24	25-99	100-499	500-999
57F2220	MCM-100T	Red	Holder, for T-1 Sub-Midget Flange Lamp	1.69	1.44	1.23	1.05
57F2221	MCM-100T	Green					
57F2222	MCM-100T	Blue					
57F2223	MCM-100T	Amber					
57F2224	MCM-100T	White					
57F2225	MCM-175T	Red	Holder, for T-1¾ Midget Flange Lamp	1.89	1.61	1.38	1.17
57F2226	MCM-175T	Green					



NEON LAMPS ASSEMBLIES

BND Neon Asmbl., Sq. Lens—space saving. With or without built-in resistor. **BNE** Neon Asmbl., Compact Lens—protrudes slightly above panel. Oper. voltage: 75 VDC without resistor; for 115 VAC, use external resistors (150K, std. intensity; 33K, hi intensity). Temp.: —10° to 70°C. One 5/16-32 nut mt. BNE-4R has built-in 115 VAC resistor. **BNF** Neon Asmbl., Long Lens—like BNE, but extends greater distance beyond panel.

Stock No.	Type	Description	Color	1-24	25-99	100-499	500-999
57F2160	BND-2	Lamp Assembly, Std. Intensity	Red	1.12	.95	.82	.69
57F2161	BND-2		Amber				
57F2162	BND-2R	Lamp Assembly with Resistor	Red	1.20	1.11	.95	.81
57F2163	BND-2R		Amber				
57F2164	BND-2R		White				
57F2165	BND-2R		Clear				
57F2166	BND-3	High Intensity Lamp	Red	1.30	1.11	.95	.81
57F2167	BND-3		Amber				
57F2168	BND-3R	High Intensity Lamp with Resistor	Red	1.40	1.19	1.02	.87
57F2169	BND-3R		Amber				
57F2170	BND-3R		White				
57F2171	BND-3R		Clear				
57F2172	BNE-2	Standard Intensity Lamp	Red	1.25	1.06	.91	.78
57F2173	BNE-2		Amber				
57F2174	BNE-3	High Intensity Lamp	Red	1.35	1.15	.99	.84
57F2175	BNE-3		Amber				
57F2176	BNE-3		White				
57F2177	BNE-3		Clear				
57F2178	BNE-4R	High Intensity Lamp with Internal Resistor	Red	1.45	1.23	1.06	.90
57F2179	BNE-4R		Amber				
57F2180	BNE-4R		White				
57F2181	BNE-4R		Clear				
57F2182	BNF-2	Standard Intensity Neon Lamp	Red	1.25	1.06	.91	.78
57F2183	BNF-2		Amber				
57F2184	BNF-2		White				
57F2185	BNF-2		Clear				
57F2186	BNF-3	High Intensity Lamp	Red	1.35	1.15	.99	.84
57F2187	BNF-3		Amber				
57F2188	BNF-3		White				
57F2189	BNF-3		Clear				
57F2190	BNF-4R	High Intensity Lamp with Internal Resistor	Red	1.45	1.23	1.06	.90
57F2191	BNF-4R		Amber				
57F2192	BNF-4R		White				
57F2193	BIM-4E	Chrome Bezel	Red	.84	.71	.61	.52
57F2194	BIM-4E		Amber				

INCANDESCENT LAMP ASSEMBLIES

Ultraminiature series has cylindrical appearance and fits in 3/16" hole. Has 5 volt, 60 mA rating; life of 100,000 hours. Contains #683 T-1 lamp. Mounting ring supplied. Types ME-680L and MC-680L have solder tin dipped, high temperature leads. 24 AWG wire. Lens unscrews, T-1 lamp is exposed.

Stock No.	Type	Description	Color	1-24	25-99	100-499	500-999
57F2199	MC-680	Assembly with Pin Contacts	Red	1.64	1.39	1.20	1.02
57F2200	MC-680		Green				
57F2201	MC-680		White				
57F2202	MC-680LT	Assembly with 6" Leads	Red	1.79	1.52	1.31	1.11
57F2203	MC-680LT		Green				
57F2204	MC-680LT		Amber				
57F2205	MC-680LT		White				
57F2206	ME-680	Assembly with Pin Contacts	Red	1.44	1.22	1.05	.89
57F2207	ME-680		Green				
57F2208	ME-680		White				
57F2209	ME-680LT	Assembly with 6" Leads	Red	1.59	1.35	1.16	.99
57F2210	ME-680LT		Green				
57F2211	ME-680LT		Yellow				
57F2212	ME-680LT		Blue				
57F2213	ME-680LT		White				
57F2215	BFK-5	Pilot Assembly with 5V Lamp	Red	2.05	1.74	1.50	1.27
57F2216	BFK-5		Green				
57F2217	BFK-5		Blue				
57F2218	BFK-5		Yellow				
57F2219	BFK-5		White				

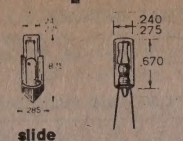
15

Indicator Lamps, Sockets

GTE SYLVANIA

INDICATOR LAMPS

Indicator lamps which offer 5,000 hours of use minimum, are ¼" in diameter. A slide type base has two metal contacts embedded in molded nylon insulator. All unbased lamps have ⅞" lead length. Life ratings range from 5,000 to 15,000 hours. Shpg. wt. 2 oz. **Sold in pkg. of 10 only.**



SLIDE BASE

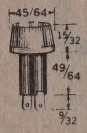
Stk. No.	Type	V	Watts	Amps	10-90	100-490	500-Up
35F2851	4ESB	4	.16	.040	.89	.75	.61
35F2852	5ESB	5	.20	.040	.89	.75	.61
35F2853	6ESB	6	.24	.040	.79	.66	.53
35F2854	10ASB	10	.10	.010	1.00	.84	.68
35F2855	10CSB	10	.18	.017	.89	.75	.61
35F2856	10ESB	10	.40	.040	.81	.68	.56
35F2857	12ESB	12	.48	.040	.81	.68	.56
35F2858	16CSB	16	.28	.017	.89	.75	.61
32F2859	16ESB	16	.64	.040	.81	.68	.56
35F2860	18ESB	18	.72	.040	.81	.68	.56
35F2861	24CSB	24	.42	.017	.85	.71	.58
35F2862	24ESB	24	.96	.040	.81	.68	.56
35F2863	28ESB	28	1.12	.040	.81	.68	.56
35F2864	48ESB	48	1.92	.040	.91	.77	.62

UNBASED

35F2865	4ES	4	.16	.040	.62	.52	.42
35F2866	5ES	5	.20	.040	.62	.52	.42
35F2867	6ES	6	.24	.040	.62	.52	.42
35F2871	10AS	10	.10	.010	.78	.66	.53
35F2872	10CS	10	.18	.017	.67	.57	.46
35F2875	10ES	10	.40	.040	.55	.46	.37
35F2876	10E	10	.40	.040	.51	.42	.34
35F2877	12ES	12	.48	.040	.61	.51	.42
35F2878	16CS	16	.28	.017	.63	.53	.43
35F2879	16ES	16	.64	.040	.61	.51	.42
35F2880	18ES	18	.72	.040	.61	.51	.42
35F2881	24CS	24	.42	.017	.65	.55	.45
35F2882	24ES	24	.96	.040	.61	.51	.42
35F2886	28ES	28	1.12	.040	.55	.46	.37
35F2892	48ES	48	1.92	.040	.74	.62	.50

PANEL LIGHT SOCKET AND LENSES

Nylon, to be used with indicator lamps (ESB Series). Sockets are designed for use with slide base indicator lamps and are rated for 75 watts, 125 volts. Quick mounting with a Tinnerman speed clip. Lenses are made of a high-temperature polycarbon material which eliminates lens warping and signal distortion due to heat. Unique internal design of lens allows for a wider viewing range. 2 oz.



SOCKET

Stk. No.	Type	1-9	10-99	100-499
35F2816	30153	.47	.29	.24

Round Lens		Square Lens		
Stk. No.	Type	Stk. No.	Type	Color
35F2817	30160	35F2823	30170	Red
35F2818	30161	35F2824	30171	Clear
35F2819	30162	35F2825	30172	Amber
35F2820	30163	35F2826	30173	White
35F2821	30164	35F2827	30174	Green
35F2822	30165	35F2828	30175	Blue

LENS	1-9	10-99	100-499
PRICES	.32	.20	.17

SINGLE INDICATOR SOCKETS

Square type socket is made of nylon, the round socket of phenolic. Tinnerman clips for front of panel mounting.

Stk. No.	Type	Description	1-9	10-99	100-499
35F2816	30153	Round Socket	.47	.29	.24
35F2898	30151	Rectangle	.47	.29	.24

END COLOR CAPS

Pyrex caps for lamps exceeding 1.2 watts; profax caps for lesser wattages. Use ESB lamps.

Profax		Pyrex					
Stk. No.	Type	Stk. No.	Type	Color	1-9	10-99	100-499
35F2899	38001	35F2904	38071	Red			
35F2900	38002	35F2905	38072	Yellow	.29	.18	.15
35F2901	38003	35F2906	38073	White			
35F2902	38004	35F2907	38074	Green			
35F2903	38005	.....	.....	Blue	.25	.15	.13
.....	.....	35F2908	38075	Blue	.29	.18	.15

STRIP SOCKETS - U.L. APPROVED

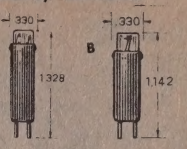
For ESB lamps. 12 sockets. Use in line or separately.

Stk. No.	Type	Between Centers	1-9	10-99	100-499
35F2895	31250	½"	5.45	3.27	2.75
35F2896	31275	¾"	5.45	3.27	2.75

CARTRIDGE LAMPS, SOCKETS, LENSES

FIG. A.—PILOT CARTRIDGE LAMPS

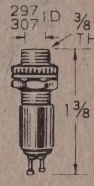
Provide a far sharper signal in all lens colors than neon lights. Black anodized metal sleeves. All cartridge lamps have clear ends. Fig. A.—Pilot. Fig. B.—Indicator. **Sold in pkgs. of 10.**



Stk. No.	Type	Volts	Watts	Amps	10-90	100 490	500-Up
35F2912	21	6	.8	.140			
35F2913	31	12	2.0	.170			
35F2914	41	24	1.7	.073			
35F2915	51	28	1.1	.040	1.17	.99	.80
35F2916	61	48	2.5	.053			
35F2917	71	60	3.0	.050			
35F2918	81	120	3.0	.025			

PILOT CARTRIDGE SOCKETS

Cartridge light housing and facing nut are of black anodized aluminum as per MIL-A-8625. Base insulation is molded phenolic. Mounts in .375" hole. "A" designates solder lugs; other turret lugs.



Stk. No.	Type	1-9	10-99	100-499
352935	SM-2	2.29	1.38	1.16
35F2936	SM-2A			

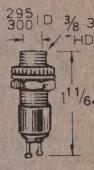
FIG. B—INDICATOR CARTRIDGE LAMPS

Sold in pkg. of 10.

Stk. No.	Type	Volts	Watts	Amps	10-90	100-499	500-Up
35F2919	901	4	.16	.040			
35F2920	905	5	.20	.040			
35F2921	909	6	.24	.040	1.22	1.02	.83
35F2922	913	10	.10	.040			
35F2923	914	10	.18	.040			
35F2924	915	10	.40	.040			
35F2925	918	12	.40	.040			
35F2926	925	16	.28	.040	1.22	1.02	.83
35F2927	926	16	.64	.040			
35F2928	930	18	.72	.040			
35F2929	933	24	.42	.040			

INDICATOR CARTRIDGE SOCKETS

Cartridge light housing and facing nut are black anodized aluminum as per MIL-A-8625. Base insulation is molded phenolic. Mount in .375" hole. "A" designates solder lugs; other turret lugs.



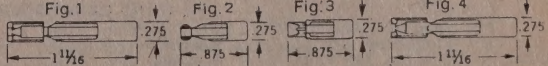
Stk. No.	Type	1-9	10-99	100-499
35F2933	SM-1	2.29	1.38	1.16
35F2934	SM-1A			

CARTRIDGE LENSES

Constructed of polycarbons with high working temperatures that eliminates signal distortion and lens melting. Black anodized aluminum bezels. For housings listed above. Dia., .505".

Transparent		Translucent					
Stk. No.	Type	Stk. No.	Type	Color	1-9	10-99	100-499
35F2937	30140	.....	....	Amber			
35F2938	30141	.....	....	Clear			
35F2939	31042	35F2942	30147	Red	.83	.50	.42
35F2941	30144	35F2944	30149	Green			
.....	....	35F2945	30145	Yellow			
.....	....	35F2946	30146	White			

TELEPHONE AND SWITCHBOARD LAMPS



Sold in pkgs. of 10.

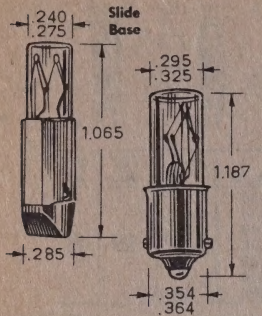
Stock No.	Lamp No.	Type	Volts	Amps	Fig. No.	EACH 10-90	EACH 100-490	EACH 500-Up
25F290	6C	30630	6.0	.040	1	.74	.62	.50
25F291	53B	35299	6.0	.240	2	.81	.68	.56
35F2856	10ESB	31063	10.0	.040	2	.81	.68	.56
25F294	24E	32450	24.0	.035	1	.74	.62	.50
25F295	24X	32495	24.0	.035	4	.74	.62	.50
25F296	48C	34830	48.0	.035	1	.84	.70	.57
25F297	55C	35530	55.0	.050	1	.84	.70	.57

15

GTE SYLVANIA Pilot Lamps, Sockets and Lenses

SLIDE BASE/BAYONET BASE/WIRE TERMINAL/UNBASED T-2 PILOT LAMPS

6-120V. Min. life: 5,000 hrs. Offered with slide (PSB), and miniature bayonet (MB) bases: T-2 lamps are light source for Annunciator lamps with integral reflectors, Pilot Bi-Pin, and Pilot Cartridge lamps. Wt. 2 oz. **SOLD IN PKGS. OF 10 ONLY.**

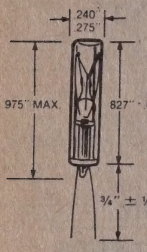


SLIDE BASE PILOT LAMPS

Stock No.	Lamp† Number	Type Number	Avg. Watts	Avg. Amps	Filament	Avg. MSCP	Life (Hrs.)	M.O.L. Inches	Primary Service *Sockets Avail.		10-90	Each 100-490	500-Up
35F2800	6PSB	30672	.8	.140	C2F	.12	20,000	1.115	Pilot	*Panel			
35F2801	12PSB	31272	2.0	.170	C2F	.35	12,000	1.115	Pilot	*Panel			
35F2802	24PSB	32472	1.7	.073	C2F	.50	10,000	1.115	Pilot	*Panel	**.81**	**.68**	**.56**
35F2803	28PSB	32972	1.1	.040	C2F	.29	5,000	1.115	Pilot	*Panel			
35F2804	48PSB	34872	2.5	.053	C7A	.70	10,000	1.115	Pilot	*Panel			
35F2805	60PSB	36072	3.0	.050	C7A	.73	7,500	1.115	Pilot	*Panel	.93	.79	.64
35F2806	120PSB	32072	3.0	.025	CC7A	.36	10,000	1.115	Pilot	*Panel	.91	.77	.62

MINIATURE BAYONET BASE PILOT LAMPS

35F2807	6MB	35100	.8	.140	C2F	.12	20,000	1.187	Pilot	Panel	.93	.79	.64
35F2808	12MB	35101	2.0	.170	C2F	.35	12,000	1.187	Pilot	Panel	.93	.79	.64
35F2809	24MB	35103	1.7	.073	C2F	.50	10,000	1.187	Pilot	Panel	.89	.75	.61
35F2810	28MB	35104	1.1	.040	C2F	.29	5,000	1.187	Pilot	Panel	.93	.79	.64
35F2811	48MB	35106	2.5	.053	C7A	.70	10,000	1.187	Pilot	Panel	.98	.82	.67
35F2812	60MB	35107	3.0	.050	C7A	.73	7,500	1.187	Pilot	Panel	1.00	.84	.68
35F2813	120MB	35108	3.0	.025	CC7A	.32	10,000	1.187	Pilot	Panel	.96	.80	.65
35F2814	120MB/6	35109	6.0	.052	CC7A	1.43	3,000	1.187	Pilot	Panel	.96	.80	.65

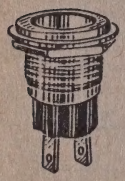


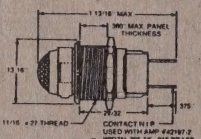
WIRE TERMINAL PILOT LAMPS

35F2781	6PS	30673	.8	.140	C2F	.12	20,000	.975	Pilot	Panel	.62	.52	.42
35F2782	12PS	31273	2.0	.170	C2F	.35	12,000	.975	Pilot	Panel	.61	.51	.42
35F2783	24PS	32473	1.7	.073	C2F	.50	10,000	.975	Pilot	Panel	.61	.51	.42
35F2784	28PS	32973	1.1	.040	C2F	.29	5,000	.975	Pilot	Panel	.61	.51	.42
35F2785	48PS	34873	2.5	.053	C7A	.70	10,000	.975	Pilot	Panel	.61	.51	.42
35F2786	60PS	36073	3.0	.050	C7A	.73	7,500	.975	Pilot	Panel	.76	.64	.52
35F2787	120PS	32073	3.0	.025	C7A	.36	10,000	.975	Pilot	Panel	.67	.57	.46

(†) Digits indicate voltage

UNIVERSAL PILOT LIGHT HOUSING





Flat Top Translucent | **Fluted** | **Jeweled** | **Transparent Translucent**

PILOT SOCKETS

Nickel plating on bezel, threaded sleeve. Mounts in panel up to .360" thick. Solder directly to lugs or use AMP connector 42197-2. Uses PSB lamps. UL listed.

SOCKET

Stk. No.	Type	1-9	10-99	100-499
35F2829	30099	1.84	1.11	.93

LENS PRICES

Prices	1-9	10-99	100-499
Jeweled	.79	.48	.40
Transpar.	.45	.27	.23
Translu.	.45	.27	.23
Flat Top	.83	.50	.42
Fluted	.40	.24	.20

LENSES

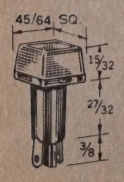
Made of Lexan, a high temperature plastic that performs well up to 290°F. Lexan provides wider visability than glass.

Jeweled		Transparent		Translucent		Flat Top		Fluted		
Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	Color
35F2831	30100	35F2835	30110	35F2841	30130	35F2788	30200	35F2792	30120	Red
35F2832	30106	35F2836	30111	.....	....	.....	....	35F2793	30126	Amber
35F2833	30102	35F2837	30112	35F2842	30132	35F2789	30212	35F2794	30122	Green
35F2834	30103	35F2838	30113	.....	....	35F2790	30213	35F2795	30124	Blue
.....	....	35F2839	30114	35F2843	30131	35F2791	30214	.....	....	Yellow
.....	....	.....	....	35F2844	30133	.....	....	35F2796	30125	White
.....	....	35F2840	30116	.....	....	.....	....	.....	....	Clear

Long Life annunciator lamps designed for use in elevator panels, call boards, etc. Lamps are 5-7/64"Wx1-1/16"L for bayonet base and 5-7/64"Wx 1-3/16"L for candelabra base. Each lamp operates a minimum of 5,000 hours. Their unique light control is made possible by a self-contained reflector. **SOLD IN PACKAGES OF 10 ONLY.**

Candelabra		Bayonet			Each	
Stk. No.	Type	Stk. No.	Type	V.	10-90	100-490
35F2845	12RC	35F2848	12RB	12	1.43	1.20
35F2846	60RC	35F2849	60RB	60	1.43	1.20
35F2847	120RC	35F2850	120RB	120	1.24	1.04

PANEL LIGHT SOCKETS AND LENSES



Made of phenolic for use with pilot lamps (PSB Series). For use with slide base indicator lamps 75 watts, 125 volts. Quick mounting with a Tinnerman speed clip. Lenses are made of a high-temperature polycarbon material which eliminates lens warping and signal distortion due to heat. Unique internal design of lens allows for a wider viewing range. 2 oz. U.L. listed.

Stk. No.	Type	Desc.	1-9	10-99	100-499
35F2815	30152	Socket	.72	.44	.37

LENSES

Round Lens		Square Lens		
Stk. No.	Type	Stk. No.	Type	Color
35F2817	30160	35F2823	30170	Red
35F2819	30162	35F2825	30172	Amber
35F2821	30164	35F2827	30174	Green
35F2818	30161	35F2824	30171	Clear
35F2820	30163	35F2826	30173	White
35F2822	30165	35F2828	30175	Blue

LENS PRICES

	1-9	10-99	100-499
PRICES	.32	.20	.17

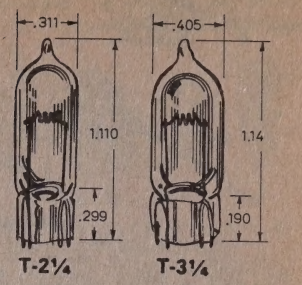
Lamps

GTE SYLVANIA

WEDGE BASE HALOGEN LAMPS

All-glass wedge base halogen lamp offers nearly constant light output over rated life. Precisely located filaments make lamps suited for optical systems. Applications include: Fiber Optics, Optical Devices, Detection Systems, Medical and Dental Instruments, and Aircraft Instruments.

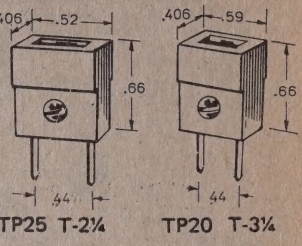
Stock No.	Type	Bulb Size	Base	Design Volts	Watts	MS CP	Rated Av. Life	1-9	10-99	100-499
65F770	1989	T-2¼	Wedge	6	10	24	50	7.22	4.36	3.66
65F771	1990	T-2¼	Wedge	12	12	20	200	7.22	4.36	3.66
65F772	1991	T-3¼	Wedge	14	25	40	200	7.22	4.36	3.66
65F773	1992	T-3¼	Wedge	14	35	64	200	7.22	4.36	3.66
65F774	1993	T-3¼	Wedge	21	45	119	15	7.22	4.36	3.66
65F775	1994	T-3¼	Wedge	14	50	95	200	7.22	4.36	3.66
65F776	1995	T-2¼	Wedge	6	12	20	200	7.22	4.36	3.66
65F777	1996	T-2¼	Wedge	6	7	14	50	7.22	4.36	3.66
65F778	1997	T-2¼	Wedge	6	10	20	50	7.22	4.36	3.66
65F779	1999	T-3¼	Wedge	28	25	40	200	10.88	6.56	5.51



SOCKETS FOR WEDGE BASE LAMPS

Lamp holders specifically designed for T-2¼ and T-3¼ wedge based lamps. Will hold lamp firmly in proper operating position, and ceramic and copper nickel alloy contacts are well suited to lamp temperature under normal conditions.

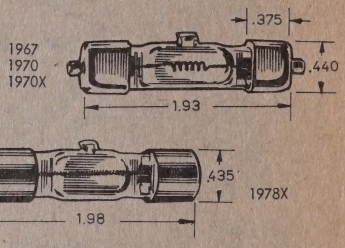
Stock No.	Type	Size	Watts	Amps	Volts	Temp.	1-9	10-99	100-499
65F780	TP20	T-3¼	75	10	40	225°C	1.85	1.12	.93
65F781	TP25	T-2¼	25	6	28	225°C	1.85	1.12	.94



T-3 QUARTZ HALOGEN LAMPS

Designed primarily for aircraft applications. Feature high wattage in small envelope.

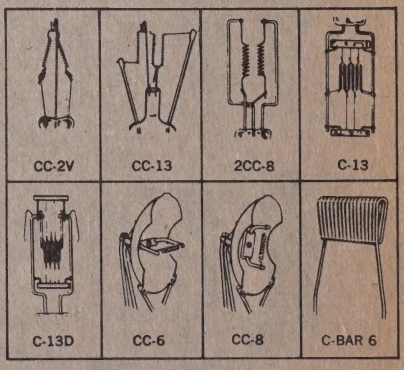
Stock No.	Type	Base	Design Volts	Design Amps	Watts	MS CP	1-9	10-49	100-499
65F782	1967	Special	28.0	5.36	150	210	80.65	48.66	40.87
65F783	1970	Sleeve	28.0	3.57	100	150	86.36	52.10	43.76
65F784	1970X		28.0	3.57	100	150	80.65	48.66	40.87
65F785	1978X		10	10.0	100	130	102.75	61.99	52.07

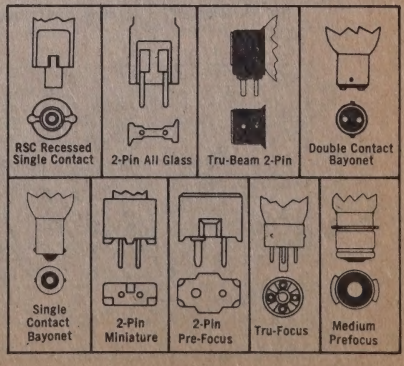


AUDIO VISUAL LAMPS

Every projector lamp is ANSI coded, referring to a specific lamp type. Many are "double branded"—that is, they have two ANSI codes. These lamps will work in projectors calling for either lamp type. Even if the old lamp was a clear top, the double branded blue top projector lamp will work just as efficiently, if not more so, as a replacement.

Stock No.	Type	Watts	Bulb	Base	Description	1-24	25-99	100-Up
65F786	BCK	500	T-6	Tf	Projector Lamp	22.50	14.63	13.50
65F787	BHB	250	T-3½	TB 2P	Projector Lamp	16.35	10.63	9.81
65F788	BHC/DYS/DYV	600	T-6	2 PP	Projector/Studio Lamp	15.00	9.75	9.00
65F789	BLC	30	S-11	DC Bay	Projector Lamp	2.35	1.53	1.41
65F790	BVE	625	T-6	2 PP	Projector Lamp	26.85	17.45	16.11
65F791	CAL/CXP	300	T-10	Tf	Projector Lamp	9.70	6.31	5.82
65F792	CAR	150	T-10	Tf	Projector Lamp	7.60	4.94	4.56
65F793	CAW/CAX	50	T-8	DC Bay	Projector/Studio Lamp	6.50	4.23	3.90
65F794	CBA	500	T-6	Tf	Projector Lamp	23.60	15.34	14.16
65F795	CEM	120	T-8	SC Bay	Projector/Studio Lamp	4.80	3.12	2.88
65F796	CHK	150	T-8	SC Bay	Projector/Studio Lamp	5.05	3.28	3.03
65F797	CTT/DAX	1000	T-12	Tf	Projector Lamp (120V)	16.80	10.92	10.08
65F798	CWA	750	T-12	Tf	Projector Lamp (120V)	14.90	9.69	8.94
65F799	CXK	300	T-10	Med Pf	Projector Lamp	10.85	7.05	6.51
65F800	CZA/CZB	500	T-10	Tf	Projector Lamp	10.85	7.05	6.51
65F801	CZX/DAB	500	T-10	Med Pf	Projector Lamp	11.50	7.48	6.90
65F802	DAK	500	T-10	Tf	Projector Lamp (120V)	9.90	6.44	5.94
65F803	DAY	500	T-10	Tf	Projector Lamp	11.15	7.25	6.69
65F804	DDB/DDW	750	T-12	Med Pf	Projector Lamp	12.00	7.80	7.20
65F805	DEK/DFW	500	T-12	Tf	Projector Lamp	11.10	7.22	6.66
65F806	DJL	150	T-14	Tf	Projector Lalp	11.20	7.28	6.72
65F807	DKM	250	T-14	Tf	Projector Lamp	16.20	10.53	9.72
65F808	DKP	250	T-14	Tf	Projector Lamp	15.95	10.37	9.57
65F809	DRC/DRB	1000	T-20	Med Pf	Projector/Studio Lamp	16.75	10.89	10.05
65F810	DRS	1000	T-20	Med Pf	Projector/Studio Lamp	14.50	9.43	8.70
65F811	DYP	600	G-6	2B	Projector Lamp	19.90	12.94	11.94
65F812	DZE	150	T-4	2 Pin Pf	Projector Lamp	8.30	5.40	4.98
65F813	EHA	500	T-6	2PP	Projector Lamp	25.30	16.45	15.18
65F814	EJL	200	T-3	RM2P	Projector Lamp	15.75	10.24	9.45
65F815	ELE/ELT	80	T-3	TB2P	Projector Lamp	16.90	10.99	10.14
65F816	ELH	300	T-3½	RM2P	Projector Lamp	15.80	10.27	9.48
65F817	ELS	50	T-3	TB2P	Projector Lamp	12.55	8.16	7.53
65F818	EMM/EKS	250	T-3½	TB2P	Projector Lamp	15.45	10.04	9.27
65F819	FAD	650	T-4	RSC	Projector/Studio Lamp	18.11	11.27	10.40
65F820	FAL	400	T-4	RSC	Projector Lamp	15.05	9.78	9.03
65F821	FCB	600	T-4	RSC	Projector/Studio Lamp	16.82	10.47	9.66
65F822	FCR	100	T-3½	2 Pin	Projector Lamp	7.00	4.55	4.20
65F823	FCS	150	T-4	2 Pin	Projector Lamp	6.60	4.29	3.96
65F824	FDT	100	T-3½	2 PP	Projector Studio Lamp	8.30	5.40	4.98
65F825	FFJ	600	T-4	RSC	Projector Lamp	16.60	10.79	9.96
65F826	FGF	150	T-3½	2 PM	Projector Lamp	12.45	8.09	7.47

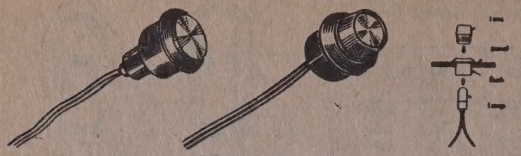




15

Indicator Lights

IMLEC MODULAR INDICATOR LIGHT ASSEMBLIES



Series 100/101 assemblies are a modular concept that provide low cost, great versatility. These pilot lights mount with a rubber bushing snapped into a 9 mm dia. cutout—no nut or retainer required. A variety of light sources—incandescent, neon, green glow neon or LED's—fit into the bushing and colored lens assemblies are slipped in from the top. Lens assembly may be mounted independently from light source and mated in the final assembly. Lens colors/light sources are interchangeable.

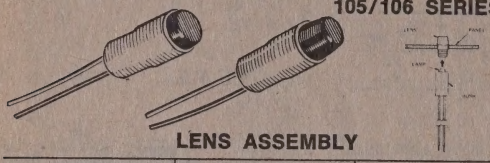
LAMP ASSEMBLY

Stock No.	Type	Light Source	Volts	mA	10-90	100-490	500-990	1000-Up
39F3525	F606	Incandescent	5-6.3	50	.46	.39	.35	.32
39F3526	F614	Incandescent	12-14	80	.47	.40	.35	.33
39F3527	F628	Incandescent	24-28	80	.48	.41	.36	.34
39F3528	N5115	Neon	110-120	1.5	.65	.55	.49	.46
39F3529	G5115	Green Glow	110-120	1.5	.85	.72	.64	.60
39F3530	L617R	Red LED	2.0 Typ	10	.80	.68	.60	.56
39F3543	L617G	Green LED	1.9 Typ	10	.82	.70	.62	.57
35F3759	L617Y	Yellow LED	1.9 Typ	10	.84	.71	.63	.59

LENS BUSHING ASSEMBLY

Flush Style Stock No.	Type	Color	Top Hat Style Stock No.	Type	Color	10-90	100-490	500-990	1000-Up
39F3531	100-R	Red	39F3537	101-R	Red				
39F3532	100-A	Amber	39F3538	101-A	Amber				
39F3533	100-G	Green	39F3539	101-G	Green	.27	.23	.20	.19
39F3534	100-B	Blue	39F3540	101-B	Blue				
39F3535	100-W	White	39F3541	101-W	White				
39F3536	100-C	Clear	39F3542	101-C	Clear				

105/106 SERIES MODULAR INDICATORS



Modular design concept from series 100/101, but smaller. Lens presses into 5 mm hole in the front panel, the rubber bushing with the lamp slips on from the rear to complete the assembly. No nut or retainer required. Lamps can be used with any lens allowing the light to meet design requirements while keeping the same styling.

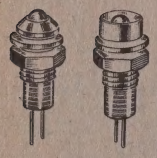
LENS ASSEMBLY

Flush Style Stock No.	Type	Color	Top Hat Style Stock No.	Type	Color	10-90	100-490	500-990	1000-Up
35F3700	105-R	Red	35F3705	106-R	Red				
35F3701	105-A	Amber	35F3706	106-A	Amber				
35F3702	105-G	Green	35F3707	106-G	Green	.23	.20	.17	.16
35F3703	105-B	Blue	35F3708	106-B	Blue				
35F3704	105-W	White	35F3709	106-W	White				

LAMP ASSEMBLY

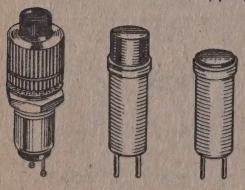
Stock No.	Type	Light Source	Volts	mA	10-90	100-490	500-990	1000-Up
35F3710	F305	Incandescent	4-6	60	.55	.47	.41	.39
35F3711	F314	Incandescent	12-14	40	.63	.54	.47	.44
35F3712	F328	Incandescent	24-48	24	.97	.82	.73	.68
35F3713	N3115	Neon	100-120	1.0	1.30	1.11	.98	.91
35F3714	L317R	Red LED	2.0 Typ	10	.85	.72	.64	.60
35F3715	L317G	Green LED	1.9 Typ	10	.87	.74	.65	.61
35F3716	L317Y	Yellow LED	1.9 Typ	10	.89	.76	.67	.62

LED SERIES INDICATOR LIGHTS



Model 406 is made of bright nickel plated brass and is also available with a black oxide finish (indicated by BO suffix to type number). LED is installed forming a Macrodome lens. Panel hole, .244". **Model 407** is made from chrome plated brass and is supplied with turret type terminations. The LED is in a large dish shaped reflector to produce a much larger illuminated area. Panel hole is .244". **Model 440** is similar to model 407 except the diameter is larger, allowing for a larger reflected illumination, and is supplied with square leads for wire-wrapping. Panel hole is .335".

Stock No.	Type	Color	Volts	mA	10-90	100-490	500-990	1000-Up
35F3717	LED-406R	Red	2.0	20	.88	.75	.66	.62
23F5503	LED-406RB0	Red	2.0	20	.88	.75	.66	.62
35F3718	LED-407R	Red	2.0	20	1.40	1.19	1.05	.98
23F5500	LED-440R	Red	2.0	20	1.00	.85	.75	.70
35F3720	LED-406G	Green	2.0	20	.90	.77	.68	.63
23F5504	LED-406GB0	Green	2.0	20	.90	.77	.68	.63
35F3721	LED-407G	Green	2.0	20	1.71	1.45	1.28	1.20
23F5501	LED-440G	Green	2.0	20	1.03	.88	.77	.72
35F3723	LED-406Y	Yellow	2.0	20	.92	.78	.69	.64
23F5505	LED-406YB0	Yellow	2.0	20	.92	.78	.69	.64
35F3724	LED-407Y	Yellow	2.0	20	2.52	2.14	1.89	1.76
23F5502	LED-440Y	Yellow	2.0	20	1.06	.90	.80	.74



Holder | "Tophat" 191 | Flush 190

190/191 SERIES CARTRIDGE LAMPS AND HOLDERS

- Modular Design Concept
- All Lamps Fit Any Holder
- Five Different Lens Colors
- Two Different Holders

INCANDESCENT CARTRIDGE 12-14V @ 80mA 30,000 HRS

Stock No.	Type	Stock No.	Type	Color	1-99	100-499	500-999
35F3726	CLF14-190R	35F3731	CLF14-191R	Red			
35F3727	CLF14-190Y	35F3732	CLF14-191Y	Yellow			
35F3728	CLF14-190G	35F3733	CLF14-191G	Green	1.17	.99	.88
35F3729	CLF14-190B	35F3734	CLF14-191B	Blue			
35F3730	CLF14-190W	35F3735	CLF14-191W	White			

INCANDESCENT CARTRIDGE 24-28V @ 40mA 15,000 HRS

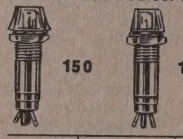
35F3736	CLF28-190R	35F3741	CLF28-191R	Red			
35F3737	CLF28-190Y	35F3742	CLF28-191Y	Yellow			
35F3738	CLF28-190G	35F3743	CLF28-191G	Green	1.20	1.02	.90
35F3739	CLF28-190B	35F3744	CLF28-191B	Blue			
35F3740	CLF28-190W	35F3745	CLF28-191W	White			

CARTRIDGE LAMP HOLDERS

Stock No.	Type	Body Color	10-90	100-490	500-990
35F3757	CLH-B	Black	1.71	1.45	1.28
35F3758	CLH-S	Silver	1.67	1.42	1.25

150/151 UNIVERSAL INDICATOR LIGHTS

Plastic bodies. For use when space is at a minimum.



150 | 151

	Price Code 10-90	100-490	500-990	1000-Up
A	.69	.59	.52	.48
B	.80	.68	.60	.56
C	.88	.75	.66	.62

Stk. No.	Square Type	Stk. No.	Round Type	Description	Price Code
23F5506	F150-06R	23F5515	F151-06R	6V, incan, Red	
23F5507	F150-06A	23F5516	F151-06A	6V, incan, Amber	
23F5508	F150-06G	23F5517	F151-06G	6V, incan, Green	
23F5509	F150-12R	23F5518	F151-12R	12V, incan, Red	
23F5510	F150-12A	23F5519	F151-12A	12V, incan, Amber	
23F5511	F150-12G	23F5520	F151-12G	12V, incan, Green	A
23F5512	F150-24R	23F5521	F151-24R	24V, incan, Red	
23F5513	F150-24A	23F5522	F151-24A	24V, incan, Amber	
23F5514	F150-24G	23F5523	F151-24G	24V, incan, Green	
23F5524	NR150-115R	23F5527	NR150-115R	115V, neon, Red	
23F5525	NR150-115A	23F5528	NR150-115A	115V, neon, Amber	B
23F5526	NR150-115C	23F5529	NR150-115C	115V, neon, Clear	
23F5530	L150-06R	23F5539	L151-06R	6V LED, Red	
23F5531	L150-06G	23F5540	L151-06G	6V, LED. Green	
23F5532	L150-06Y	23F5541	L151-06Y	6V, LED, Yellow	
23F5533	L150-12R	23F5542	L151-12R	12V, LED, Red	
23F5534	L150-12G	23F5543	L151-12G	12V, LED, Green	C
23F5535	L150-12Y	23F5544	L151-12Y	12V, LED, Yellow	
23F5536	L150-24R	23F5545	L151-24R	24V, LED, Red	
23F5537	L150-24G	23F5546	L151-24G	24V, LED, Green	
23F5538	L150-24Y	23F5547	L151-24Y	24V, LED, Yellow	

Lampholders, Sockets & Indicator Lights

LEECRAFT

LAMPS AND ACCESSORIES

A B C D E F G H I J K L M N O

Series 200. Miniature bayonet sockets with insulating sleeves. Brackets made of .025/.032" steel cadmium plated. Wire leads, 22 gauge, 6" long.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
25F1300	02-01	A	1.41	1.04	.66	.48
25F1301	02-04	B	1.41	1.04	.66	.48
25F1302	02-06	D	1.41	.96	.64	.47
25F1303	02-13	G	1.41	.96	.64	.47
25F1304	02-15	J	1.41	1.04	.66	.48

Series 300. Miniature bayonet sockets of molded bakelite. 300 type housing provides insulation where low voltage lamps are to be used. UL listed and CSA approved. Wire leads, 22 gauge, 6" long.

25F1305	03-01	A	1.67	1.22	.84	.64
25F1306	03-02	B	1.67	1.22	.84	.64
25F1307	03-05	C	1.67	1.22	.84	.63
25F1308	03-06	D	1.67	1.22	.84	.63
25F1309	03-13	G	1.67	1.22	.84	.63
25F1310	03-15	J	1.67	1.22	.84	.64
25F1311	03-20	H	1.67	1.22	.84	.63

Series 12-200. Double contact candelabra bayonet, with stranded, tinned copper leads. Contacts are mounted on insulating phenolic disc. Bracket is non-conducting.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
60F1298	12-245	A	1.58	1.22	1.05	.62
60F1299	12-202	B	1.58	1.22	1.05	.62
60F1300	12-271	C	1.58	1.22	1.05	.62
60F1301	12-272	E	1.58	1.22	1.05	.62
60F1302	12-230BN	O	2.12	1.76	1.22	.73
25F1332	12-240	M	1.68	1.30	1.10	.64

Series 2500. Subminiature grooved sockets w/solder terminals. Terminals are tinned and brackets are cadmium plated. (*Wire Leads, Grounded Shell).

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
60F1303	25-06	D	1.65	1.29	.97	.77
60F1304	25-08	E	1.65	1.29	.97	.77
60F1305	25-35	L	1.78	1.53	1.27	1.07
60F1307	25-230N-1	O*	2.93	1.78	1.37	1.03

Series 400. Candelabra screw base in molded bakelite. #18 gauge wire leads in black and white, 6" long, ends stripped ½". UL listed. CSA approved.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
25F1312	04-01	A				
25F1314	04-05	C				
25F1315	04-06	D	1.86	1.26	.96	.79
25F1316	04-08	E				
25F1317	04-15	J				
60F1296	04-40	M				

Series 500. Miniature screw sockets with soldering terminals. Terminals are tinned and brackets are cadmium plated.

25F452	05-01	A	1.41	1.12	.67	.37
25F453	05-04	B	1.41	1.12	.67	.37
25F450	05-05	C	1.41	1.12	.62	.34
25F454	05-06	D	1.41	1.12	.62	.34
25F451	05-07	F	1.10	.94	.57	.28
25F447	05-08	E	1.41	1.12	.62	.34
25F1318	05-13	G	1.41	1.12	.62	.34
25F1319	05-15	J	1.68	1.12	.67	.37

Series 11-200. Single contact candelabra bayonet w/stranded tinned copper lead. Contact mounted on fibre insulator. Brackets are grounded electrically to socket shell.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
60F1308	11-271	C	1.50	1.14	.79	.49
25F1328	11-272	E	1.50	1.14	.79	.49
60F1309	11-275	G	1.79	1.14	.79	.49
60F1310	11-230BN	O	2.35	1.58	1.09	.62

Series 16-00. Subminiature midget screw lampholder. Available w/variety of bracket styles. Solder lugs or wire lead. **For printed circuits.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
60F1311	16-08	E	1.57	1.21	.82	.50
60F1312	16-35	**L	2.46	1.74	1.41	1.16
60F1313	16-07	F	1.57	1.10	.74	.46

Series 600. Candelabra screw sockets with solder terms. Brackets are .025/.032".

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
25F463	06-01	A	1.73	1.41	.82	.45
25F461	06-05	C	1.57	1.25	.73	.42
25F446	06-06	D	1.57	1.25	.76	.42
25F462	06-07	F	1.23	.97	.60	.31
25F448	06-08	E	1.57	1.25	.76	.42
25F1321	06-13	G	1.57	1.25	.76	.42

Series 700. Miniature bayonet sockets with soldering terminals for low voltage incandescent lamps. *For printed circuits.

25F457	07-01	A	1.21	.96	.59	.29
25F458	07-04	B	1.21	.96	.59	.29
25F455	07-05	C	1.21	.96	.56	.28
25F459	07-06	D	1.21	.96	.56	.28
25F456	07-07	F	1.14	.85	.49	.25
25F449	07-08	E	1.21	.96	.56	.28
25F1323	07-11	H	1.21	.96	.59	.29
25F1324	07-13	G	1.21	.96	.56	.28
25F1325	07-15	I	1.21	.96	.59	.29
25F460	07-20	N	1.29	.96	.56	.28
25F1326	07-35	L*	1.45	1.22	.88	.69

Series 23-00. Holder for wedge base T-3¼ lamps. Available in variety of brackets. UL approved for AC-DC receivers. Supplied with solder lugs or wire leads†.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
60F1314	23-23	J	1.28	.91	.62	.38
60F1315	23-224	C†	1.53	1.01	.70	.47

Series 21-00. Designed for use with new QUARTZ HALOGEN T-2¼ Lamps. Particularly suited for emergency lighting or where high efficiency lamps are needed. Ceramic body construction w/stainless steel contacts for high temp. resistance. Available in variety of mounting brackets. Lug (21-07) or wire termination.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
60F1317	21-207	K	1.84	1.08	.99	.78

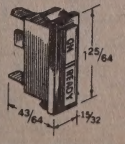
15

SPACE SAVER LAMPHOLDER

Series 53-00. For T-1¾ subminiature wedge base lamps. Solder lugs (53-07) and wire leads (53-207). Available with variety of bracket styles for Panel or PC board mounting. Type 53-35 is for PC mount.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
60F1318	53-07	K	.99	.67	.46	.24
60F1319	53-207	K	1.19	.81	.48	.29
20F979	53-35	K	.94	.64	.43	.23

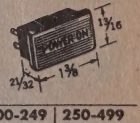
DUAL MESSAGE INDICATOR LIGHTS



Units incorporating two lamps within a standard housing for activating two legends-separately or simultaneously. Has 3 terminals with the center term. common to both lamps. Units have internal barrier for light separation. Choice of 4 lens colors, operates on 125V.

Stock No.	Type	Lens Color	1-24	25-99	100-249	250-499
60F3780	31D-2111T	Red	4.28	2.79	1.80	1.50
20F980	31D-2112T	Green				
60F3781	31D-2113T	Amber				
60F3782	31D-2115T	White				
60F3783	31D-2117T	Clear				

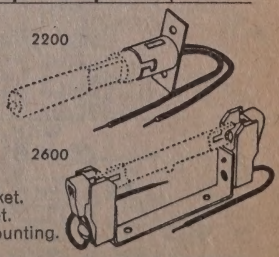
SERIES 47 INDICATOR LIGHT



Fits into 3/16x5/8 panel opening. Built-in lamps, resistor and solder terms. 110-125 volts.

Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
60F1416	47-3	Red	3.30	2.06	1.25	1.16

QUARTZ HALOGEN SOCKETS



2200 Series socket for use with single-ended, double-contact GE or other Quartzline lamps.
2600 Series for use with recessed, single-contact, dual-ended lamps. For GE and other bulbs.
TYPE 22-25—Straight bracket socket.
TYPE 22-27A—Step bracket socket.
TYPE 26-07—Insulated bracket mounting.

Stk. No.	Type	1-24	25-99	100-249	250-499
20F981	26-07	2.72	2.16	1.79	1.59
60F3784	22-25	3.35	2.56	1.98	1.84
60F3785	22-27A	3.35	2.56	1.98	1.84

LEECRAFT

Indicator Lights

PRESS FIT MINIATURE NEON INDICATORS

Fig. A Fig. B Fig. C Fig D.

Fig. E Fig. F

Long-life, high-brightness neon lamps. Press fits into 5/16" diameter hole. Bezel is aluminum anodized. Housing, white nylon. Has transparent plastic lens available in various colors. Wire leads are #18 gauge insulated plastic. Standard length: 6" ½" stripped. Speed nut furnished for maximum security.

Tineon 36EN Series. With built-in resistor for 110-125V.

Lens Color	Flush Lens—Fig. E Stock No.	Type	High-Hat Lens—Fig. F Stock No.	Type
Red	60F1254	36EN2311	60F1250	36EN2111
Amber	60F1255	36EN2313	60F1251	36EN2113
Clear	60F1256	36EN2317	60F1252	36EN2117
White	60F1257	36EN2315	60F1253	36EN2115

Tineon 41EN. Less resistor, external resistor req.

Red	60F1262	41EN2311	60F1258	41EN2111
Amber	60F1263	41EN2313	60F1259	41EN2113
Clear	60F1264	41EN2317	60F1260	41EN2117
White	60F1265	41EN2315	60F1261	41EN2115

Prices	Type	1-24	25-99	100-249	250-499
	36EN	2.58	1.71	1.10	.93
	41EN	2.24	1.71	1.06	.89

WITH BEZEL—INCANDESCENT LAMPS

Similar to 41EN units above, but with incandescent lamps: 14V. .08A. Plastic flush lens.

Lens Color	Stock No.	Type	1-24	25-99	100-249	250-499
Red	25F1405	41EN-G3-2311	3.09	2.10	1.26	1.18
Green	25F1406	41EN-G3-2312	3.09	2.12	1.29	1.20
Amber	25F1407	41EN-G3-2313	3.09	2.10	1.26	1.18
Blue	25F1408	41EN-G3-2314	3.09	2.10	1.26	1.18
White	25F1409	41EN-G3-2315	3.09	2.10	1.26	1.18

FLUSH LENS CAP

36 Series. With built-in resistor for 110-125V.

41 Series. Less resistor; ext. resistance required for 250V. Both types are similar to Fig. E.

Lens Color	With Resistor Stock No.	Type	Less Resistor Stock No.	Type
Red	60F1266	36N2311	60F1270	41N2311
Amber	60F1267	36N2313	60F1271	41N2313
Clear	60F1268	36N2317	60F1272	41N2317
White	60F1269	36N2315	60F1273	41N2315

Prices	Type	1-24	25-99	100-249	250-499
	36N	1.88	1.44	.90	.79
	41N	1.63	1.38	.90	.74

RECTANGULAR 3100 AND 3100T

Rectangular pilot light for maximum message display in compact areas. Have white housings and chrome plated bezels. No replacement of lamp needed. Includes proper dropping resistor for neon lamp. Lens is made of plastic. Mounting hole size, 1.281 x .395". Housing depth 21/32". Lens size: 115/32". Wt., 0.5 oz. 110-125 volts.

3100 SERIES—6" WIRE LEAD

Lens Color	Stock No.	Type	1-24	25-99	100-249	250-499
Red	25F1391	31-2111	2.24	1.63	.96	.83
Amber	25F1392	31-2113				
Clear	25F1393	31-2117				
White	25F1394	31-2115				

3100T SERIES—BRASS TAB TERMINALS

Red	25F1395	31-2111T	2.40	1.63	.96	.83
Amber	25F1396	31-2113T				
Clear	25F1397	31-2117T				
White	25F1398	31-2115T				

WITH INCANDESCENT LAMPS

6V—.2A and 14V—.08A With .250 tab terminals.

Lens Color	6-Volt Types Stock No.	Type	14-Volt Types Stock No.	Type
Red	25F1410	31-G1-2111T	25F1415	31-G3-2111T
Green	25F1411	31-G1-2112T	25F1416	31-G3-2112T
Amber	25F1412	31-G1-2113T	25F1417	31-G3-2113T
Blue	25F1413	31-G1-2114T	25F1418	31-G3-2114T
White	25F1414	31-G1-2115T	25F1419	31-G3-2115T

Prices	Type	1-24	25-99	100-249	250-499
	31-G1	3.27	2.12	1.27	1.16
	31-G3	2.93	2.22	1.30	1.20

SNAPLITE NEON PILOT LIGHTS

Long-life nonreplaceable lamp. One piece nylon housing snaps into standard ½" hole. Body size: 1 1/16" behind panel x .495" dia. Retainer: 1/16" thick x 5/8" O.D. Lens: 27/64" O.D. have #18 gauge. 6" wire leads, except "T" suffix indicates .187" tab terminals. All rated 110-125V except * 210-250V. UL and CSA Listed.

SQUARE LENS—FIG. A

Color	Stk. No.	Type	1-24	25-99	100-249	250-499
Red	60F1290	32R2911	2.24	1.63	.96	.85
Amber	60F1291	32R2913				
White	60F1292	32R2915				
Red	60F1293	32R2911T	2.33	1.68	.98	.87
Amber	60F1294	32R2913T				
White	60F1295	32R2915T				

DOME SHAPED LENS—FIG. B

Red	60F1274	32-2211	1.88	1.51	.90	.79
Amber	60F1275	32-2213				
Clear	60F1276	32-2217				
White	60F1277	32-2215				
Red	60F1278	32-2211T	2.00	1.58	.94	.82
Amber	60F1279	32-2213T				
Clear	60F1280	32-2217T				
White	60F1281	32-2215T				
Red*	60F1426	35-2211				
Red*	60F1427	35-2211T				

FLAT CYLINDRICAL LENS—FIG. C

Red	25F1375	32-2111	1.88	1.51	.90	.79
Amber	25F1376	32-2113				
Clear	25F1377	32-2117				
White	25F1378	32-2115				
Red	25F1379	32-2111T	2.00	1.58	.94	.82
Amber	25F1380	32-2113T				
Clear	25F1381	32-2117T				
White	25F1382	32-2115T				
Red*	60F1428	35-2111				
Red*	60F1429	35-2111T				

FLUSH LENS—FIG. D

Red	60F1282	32-2311	1.88	1.51	.90	.79
Amber	60F1283	32-2313				
Clear	60F1284	32-2317				
White	60F1285	32-2315				
Red	60F1286	32-2311T	2.00	1.58	.94	.82
Amber	60F1287	32-2313T				
Clear	60F1288	32-2317T				
White	60F1289	32-2315T				
Red*	60F1424	35-2311				
Red*	60F1425	35-2311T				

INCANDESCENT SNAPLIGHTS 6V/.2A & 14V/.08A

All have chrome bezel to fit .500-513" hole. 18 AWG, 6" wire leads, except "T" suffix indicates .187 tab terminals.

SQUARE LENS CAP—FIG. A

Lens Color	6-Volt Types Stock No.	Type	14-Volt Types Stock No.	Type
Red	25F1362	32R-G1-2911	25F1367	32R-G3-2911
Green	25F1363	32R-G1-2912	25F1368	32R-G3-2912
Amber	25F1364	32R-G1-2913	25F1369	32R-G3-2913
Blue	25F1365	32R-G1-2914	25F1370	32R-G3-2914
White	25F1366	32R-G1-2915	25F1371	32R-G3-2915

Prices	Type	1-24	25-99	100-249	250-499
	32R-G1	2.84	2.12	1.24	1.14
	32R-G3	2.84	2.22	1.28	1.19

FLAT CYLINDRICAL LENS CAP—FIG. C

Red	60F1470	32R-G1-2111	60F1480	32R-G3-2111
Green	60F1471	32R-G1-2112	60F1481	32R-G3-2112
Amber	60F1472	32R-G1-2113	60F1482	32R-G3-2113
Blue	.....	.....	60F1483	32R-G3-2114
White	60F1474	32R-G1-2115	60F1484	32R-G3-2115
Red	60F1475	32R-G1-2111T	60F1485	32R-G3-2111T
Green	60F1476	32R-G1-2112T	60F1486	32R-G3-2112T
Amber	.....	.....	60F1487	32R-G3-2113T
Blue	.....	.....	60F1488	32R-G3-2114T
White	.....	.....	60F1489	32R-G3-2115T

Prices	Type	1-24	25-99	100-249	250-499
	32R-G1	2.84	2.12	1.24	1.14
	32R-G3	2.84	2.22	1.28	1.19
	32R-G1-T	2.93	2.16	1.28	1.17
	32R-G3-T	3.09	2.26	1.31	1.21

FLUSH LENS CAP—FIG. D.

Lens Color	Stock No.	Type	1-24	25-99	100-249	250-499
Red	60F1430	32R-G1-2311	2.84	2.12	1.24	1.14
Green	60F1431	32R-G1-2312				
Amber	60F1432	32R-G1-2313				
Blue	60F1433	32R-G1-2314				
White	60F1434	32R-G1-2315				
Red	60F1435	32R-G1-2311T	2.93	2.16	1.28	1.17
Green	60F1436	32R-G1-2312T				
Amber	60F1437	32R-G1-2313T				
Blue	60F1438	32R-G1-2314T				
White	60F1439	32R-G1-2315T				

15

Indicator Lights, Switches and LED's

LEECRAFT

Series 45. Brass terminals. 1/8" wide, .020" thick. Has blade terminals. Mount. hole: 5/16" w/chrome ring, speed nut included.

110-125 VOLT NEON

Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
60F3600	45RN2111	Red	2.84	2.15	1.37	1.12
60F3601	45RN2113	Amber				
60F3602	45RN2115	White				

14 VOLT .08 AMP INCANDESCENT

60F3610	45RNG3-2111	Red	3.27	2.30	1.50	1.34
60F3611	45RNG3-2112	Green				
60F3612	45RNG3-2113	Amber				
60F3613	45RNG3-2114	Blue				
60F3614	45RNG3-2115	White				

28 VOLT .04 AMP INCANDESCENT

60F3616	45RNG5-2111	Red	3.09	2.25	1.44	1.27
60F3617	45RNG5-2112	Green				
60F3619	45RNG5-2114	Blue				
60F3620	45RNG5-2115	White				

LED INDICATORS

L58 Series. All metal construction, chrome bezel. Forward: 2.5VDC; Forward current: 35 Ma. max. Luminous intensity: 3.0 MCD (TYP). Mounting: .191" hex nut supplied.

WIRE LEADS

Stk. No.	Type	Color	1-24	25-99	100-249	250-499
60F1325	L58-R2-W	Red	2.39	1.97	1.86	1.62
60F1326	L58-G2-W	Green	2.47	2.04	1.92	1.68
60F1327	L58-Y2-W	Yellow	2.39	1.97	1.86	1.62

BARE LEADS

60F1328	L58-R2-T	Red	1.78	1.47	1.38	1.21
60F1329	L58-G2-T	Green	1.84	1.52	1.43	1.25
60F1330	L58-Y2-T	Yellow	1.78	1.47	1.38	1.21

L59 Series. Low cost, all plastic construction. Black housing and bezel. Same electrical specifications as L58 above. Press fits 1/4" hole. Speed Nut supplied. 6" Leads.

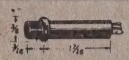
WIRE LEADS

Stk. No.	Type	Color	1-24	25-99	100-249	250-499
60F1353	L59-R2-W	Red	1.10	.95	.81	.78
60F1354	L59-G2-W	Green	1.40	1.20	1.02	1.00
60F1355	L59-Y2-W	Yellow	1.40	1.20	1.04	1.02

BARE LEADS

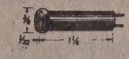
60F1356	L59-R2-T	Red	.70	.54	.40	.38
60F1357	L59-G2-T	Green	1.00	.80	.65	.64
60F1358	L59-Y2-T	Yellow	1.00	.80	.65	.64

L45 Series LED Indicator. Same physical specifications as Series 45 above (5/16" mounting hole). For electrical specs., see L58 above.



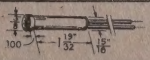
Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
60F1337	L45RN-R6-2111	Red	3.11	2.39	1.61	1.47
60F1338	L45RN-G6-2112	Green	3.25	2.50	1.68	1.53
60F1339	L45RN-Y6-2116	Yellow	3.28	2.52	1.70	1.55

L46 Series LED Indicator. Same physical specifications as Series 46 above (5/16" mounting hole). For electrical specs., see L58 above.



Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
60F1340	L46RN-R6-2111	Red	3.58	2.75	1.84	1.67
60F1341	L46RN-G6-2112	Green	3.60	2.77	1.86	1.69
60F1342	L46RN-Y6-2116	Yellow	3.55	2.73	1.83	1.67

L39 Series LED Indicator. Snap-in mounting ears, 5/16" hole, 6" wire leads. For electrical specifications, see L58 above.



Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
60F1343	39-0181	Red	1.88	1.44	.90	.79
60F1344	39-0182	Green				
60F1345	39-0183	Amber				
60F1346	39-0187	Clear				

Series 46. Has .040" diameter steel pins with 5/32" center to center spacing. Mounting hole: 5/16" w/chrome ring, speed nut included.

110-125 VOLT NEON

Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
60F3622	46RN-2111	Red	3.53	2.11	1.34	1.09
60F3623	46RN-2113	Amber				
60F3624	46RN-2115	White				
60F3625	46RN-2117	Clear				

14 VOLT .08 AMP INCANDESCENT

60F3632	46RNG3-2111	Red	3.64	2.30	1.50	1.34
60F3633	46RNG3-2112	Green				
60F3634	46RNG3-2113	Amber				
60F3635	46RNG3-2114	Blue				
60F3636	46RNG3-2115	White				

28 VOLT .04 AMP INCANDESCENT

60F3638	46RNG5-2111	Red	3.64	2.25	1.44	1.27
60F3639	46RNG5-2112	Green				
60F3640	46RNG5-2113	Amber				
60F3641	46RNG5-2114	Blue				
60F3642	46RNG5-2115	White				

44 Series. High brightness neon lamp with built-in resistor. 125 volts, 1/3 watt. Friction fit mtg. in 5/16" hole w. speed nuts. Bare solid copper leads.

Stk. No.	Type	Color	1-24	25-99	100-249	250-499
67F3750	44N-0111	Red	1.95	1.27	.82	.71
67F3751	44N-0113	Amber				
67F3753	44N-0117	Clear				

Series 56. One piece housing and dome lens construction in heat resistant plastic with six (6) inch wire leads. Friction fit mtg. in 5/16" hole with speed nuts.

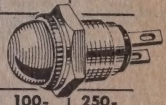
125-VOLT NEON

Stk. No.	Type	Color	1-24	25-99	100-249	250-499
60F1347	56N-0131	Red	1.92	1.47	.92	.80
60F1348	56N-0133	Amber				
60F1349	56N-0137	Clear				

14-VOLT INCANDESCENT

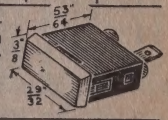
60F1350	56NG3-0131	Red	3.15	2.14	1.29	1.20
60F1351	56NG3-0133	Amber				
60F1352	56NG3-0137	Clear				

49 Series. Operating voltage 12-14 volts. Mtg.: 7/16" dia. hole, 1/4" max. panel thickness. Min. centers 23/32". Incandescent lamp, replaced via front panel insertion.



Stk. No.	Type	Color	1-24	25-99	100-249	250-499
60F1320	49-D-V2-51	Red	2.27	1.81	1.21	1.06
60F1321	49-D-V2-52	Green				
60F1322	49-D-V2-53	Amber				
60F1323	49-D-V2-55	White				
60F1324	49-D-V2-56	Yellow				

4800 Series. Snaps into .325 x .860 panel opening, .031-.100 thick. 125-250V lamps are neon with resistor, 6-28V lamps are subminiature incand. 3/16" Male tab terminals.



110-125 VOLTS

Stk. No.	Type	Current	Color	1-24	25-99	100-249	250-499
60F1331	48-3T	3.0 mA	Red	1.83	1.51	.90	.80
60F1332	48-9T	3.0 mA	Amber				

14 VOLTS

60F1333	48G3-3T	0.8 A	Red	2.48	2.03	1.20	1.14
60F1334	48G3-9T	0.8 A	Amber				

28 VOLTS

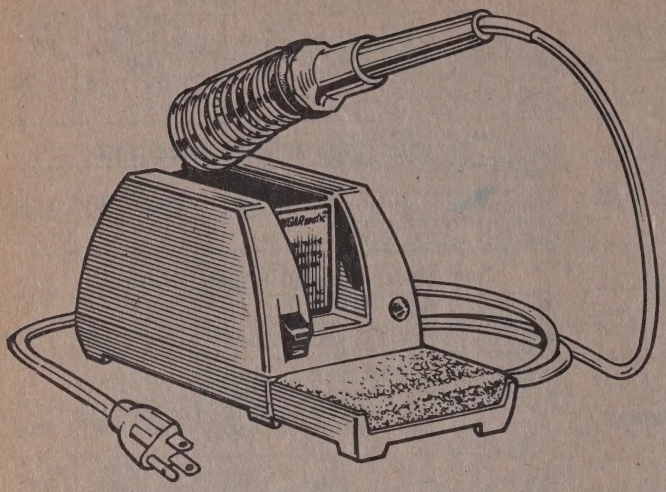
60F1335	48G5-2T	0.4 A	Red	2.36	1.95	1.15	1.10
60F1336	48G5-9T	0.4 A	Amber				

Series 51 Light-Switch Combination. Switch rating 6 amp @ 125V, 3 amps @ 250V. UL listed and CSA approved. 110-125 volts.

Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
60F1400	51-2131T	Red	3.59	2.30	1.88	1.49

15

UNGARmatic Temperature Controlled Soldering Station



FEATURES:

- **Closed loop, non magnetic control.**
- **Low voltage system**
- **Long life interchangeable tips; iron clad, chrome plated, pre-tinned.**
- **Heat resistant cord**
- **Designed for use on sensitive components.**
- **3 wire, grounded tip.**

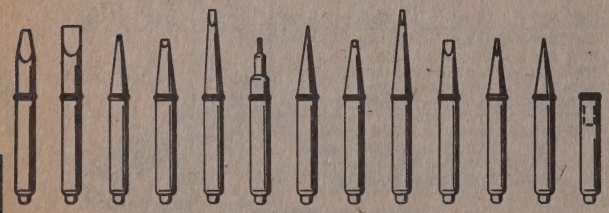
Thread-together modular design for quick, on-line heater or tip change. Non-magnetic control with overheat protection of closed-loop temperature control. Low voltage system reduces spikes to 5V max. Biomechanically designed handle with cool grip for operator comfort. Super flexible 3 wire grounded burn resistant cord. Large capacity snap-on tray and sponge, removable for optional placement. Long life interchangeable iron clad chrome plated, pre-tinned tips. Input: 60 watts, 120 VAC. Low voltage iron (24 VAC); **70B** power supply with on/off switch, indicator light and 3 wire power cord; **71** handle with 3 wire burn resistant secondary cord; **89** tray and sponge; **72** iron holder; controlled heater with **87** 1/16" screwdriver tip.

COMPLETE STATIONS

Stock No.	Type No.	Temperature	1-9	10-24	25-up
33F050	50T6	600°F	57.50	51.75	46.00
33F051	50T7	700°F			
33F052	50T8	800°F			

HEATERS

Stk. No.	Type	Temperature	1-9	10-24	25-up
34F1066	76	600°F	14.95	13.45	11.96
34F1067	77	700°F	14.95	13.45	11.96
34F1068	78	800°F	14.95	13.45	11.96

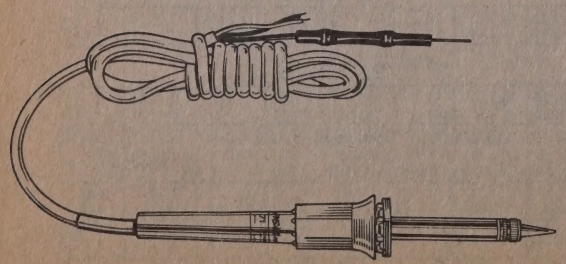


#80 #81 #82 #83 #84 #85 #86 #87 #88 #92 #93 #94 #95

INTERCHANGEABLE TIPS

Stock No.	Type No.	Description	Size (In.)	1-9	10-24	25-up
30F150	80	Long screwdriver	1/8"	2.25	2.02	1.80
30F154	81	Screwdriver	15/64"			
30F159	82	Spade	1/32"			
30F156	83	Screwdriver	3/32"			
30F152	84	Long Screwdriver	5/64"			
30F158	85	Stepped spade	3/64"			
30F155	86	Needle tip	3/64"			
30F153	87	Screwdriver	1/16"			
30F151	88	Long screwdriver	3/64"			
34F1069	92	Screwdriver	1/8"			
34F1070	93	Screwdriver	1/32"			
34F1071	94	Short Conical	1/32"			

UNGARmatic 24-VOLT TEMPERATURE CONTROLLED SOLDERING IRON



- **3 wire grounded**
- **U.L. Listed**
- **Overheat protection, fast recovery**

Designed for use with any 24V power supply which has 2 amp. output minimum. 3-wire grounded with an ungrounded secondary circuit. Features: on-line economical maintenance Long-life iron-clad tips; spring loaded tip retainer; controlled temperature heater; taper lock heat shield; cool grip handle with 3-wire heat resistant flexible cord set.

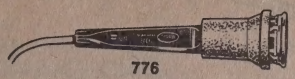
Stock No.	Type	Temperature	1-9	10-24	25-up
34F1063	60T6	600°F	28.75	25.25	23.00
34F1064	60T7	700°F	28.75	25.25	23.00
34F1065	60T8	800°F	28.75	25.25	23.00

Modular Soldering Tools

Ungar®

STANDARD LINE SERIES SOLDERING HANDLES

750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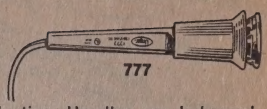
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Ideal for soldering electronic devices, printed circuit boards, and heavy wiring. Custom design the exact soldering iron to meet your particular application by choosing from the variety of handles, heaters, and interchangeable tips. Handles are balanced for comfort and fatigue-free soldering.

No. 750 HANDLE

3 wire type. Completely grounded from tip to plug which eliminates electrostatic tip potential. Spring loaded, heat reflecting ground plate. **Note:** This handle will NOT accept any ceramic style heaters.

Stock No.	Type	1-9	10-24	25-up
32F978	750	7.37	6.63	5.90

776 CORK GRIP HANDLE

Popular red handle with comfortable cork grip and flexible UL listed 2-wire integral cord. Stainless steel heat deflector. Designed for all heating units, tips and tiplets. Grip dia. 1". Handle length: 5". Shpg. wt. 5 oz.

Stk. No.	Type	1-9	10-24	25-up
33F071	776	3.73	3.36	2.98

777 Clean Room Soldering Handle

Comfortable lightweight, fatigue free design of popular 776 handle. Features a heat stabilized polypropylene grip. Convection cooled, stainless steel heat deflector, flexible cord. Designed for all heating units, tips and tiplets.

Stk. No.	Type	1-9	10-24	25-up
33F030	777	3.73	3.36	2.98

INTERCHANGEABLE HEATERS

Large taper chisel. Tellurium Copper tip. **Type 4033-S:** Iron-Clad Silver plated tip, 3.92"L., .350"D. **Type 1233-S:** 3.92"L, .366"D. **Type 533-S:** 3.53"L, .366"D.

Stock No.	Type	Temp.	Watts	Each
33F647	533-S	700°F	23	4.17
33F646	1233-S	800°	33	5.20
33F086	4033-S	1000°F	45	6.92

Short taper chisel. Tellurium Copper tip. **Type 4039-S:** Iron-Clad Silver plated tip, 3.56"L, .350"D. **Type 1239-S:** 3.45"L, .365" D. **Type 539-S:** 16"L, 365"D.

Stock No.	Type	Temp.	Watts	Each
33F076	539-S	900°F	23	4.17
33F079	1239-S	1000°F	33	5.20
33F088	4039-S	1000°F	45	6.92

Types 1235-S & 4035-S: 1/8" unit for thread-in tips. 3.56"L, .365"D. **Type 4045-S:** 3/16" unit for thread-in tips. 3.50"L, .365"D.

Stock No.	Type	Temp.	Watts	Each
33F085	1235-S	750°F	33	5.03
33F089	4035-S	850°F	45	6.75
33F029	4045-S	950°F	45	6.75

1/4" unit for thread-on tips. **Type 537-S:** 3.67"L, .365"D. **Type 1237-S:** .365"L, .375" D. **Type 4037-S:** 3.45"L, .365"D.

Stock No.	Type	Temp.	Watts	Each
32F977	537-S	650°F	23	4.17
33F678	1237-S	750°F	33	5.03
33F677	4037-S	850°F	45	6.75

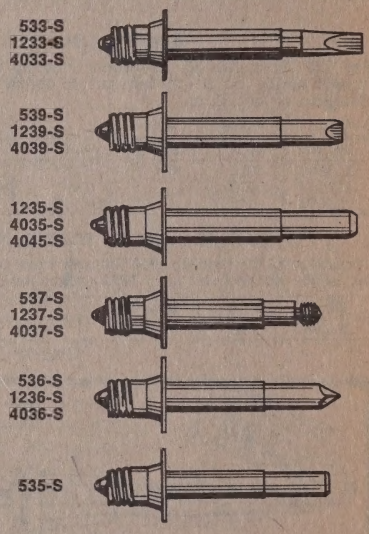
Pyramid tip. **Type 536-S:** Tellurium copper, 3.16"L, .365"D. **Type 1236-S:** Silver plated iron, 3.40"L, .365"D. **Type 4036-S:** Silver plated, Iron-Clad Copper. 3.56"L, .350"D.

Stock No.	Type	Temp.	Watts	Each
33F072	536-S	700°F	23	4.17
33F078	1236-S	800°F	33	5.20
33F087	4036-S	1100°F	45	6.92

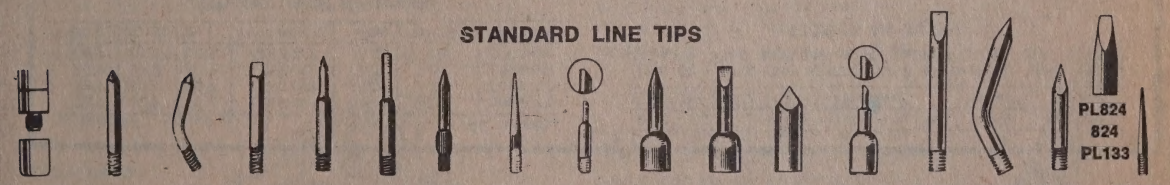
Type 535-S: 1/8" unit for thread-in tips. 3.18"L, .365"D.

Stock No.	Type	Temp.	Watts	Each
33F081	535-S	650°F	23	4.17

Note: All temperatures are approximate. Nos. 100 & 101 adaptors may be used with Nos. 537-S, 1237-S, and 4037-S.



STANDARD LINE TIPS



ADAPTERS 100 101 | PL331 | PL332 332 | PL333 333 | 7154 | 7155 | 7062 | PL338 | PL340 | PL111 111 | PL113 113 | PL116 116 | PL114 | PL833 | PL834 | PL823 823 | PL138

Stk. No.	Type	Description	Lgth. x Dia. x Pt.	1-9	10-24	25-Up
33F686	PL338	Tiplet	.930x.135x.050	1.18	1.06	.94
33F685	PL340	Spade Tiplet	.562x.135x.054	1.18	1.06	.94
33F679	PL111	Pencil	.750x.132x.015	1.47	1.32	1.18
33F680	111	Pencil	.750x.125x.005	.73	.66	.58
33F681	PL113	Chisel	.750x.135x.135	1.47	1.32	1.18
33F682	113	Chisel	.750x.125x.125	.73	.66	.58
33F693	PL116	Pyramid	1.060x.322x.015	1.47	1.32	1.18
33F691	116	Pyramid	1.060x.312x.005	.78	.70	.62
33F692	PL114	Micro Spade	.530x.135x.056	1.47	1.32	1.18
33F641	PL833	Long Chisel	1.750x.195x.195	1.82	1.64	1.46
33F099	PL834	Tip	1.750x.195x.199	1.82	1.64	1.46
33F642	PL823	Pyramid	1.000x.195x.017	1.35	1.22	1.08
33F643	823	Pyramid	1.000x.187x.005	.62	.56	.50
33F644	PL824	Long Chisel	1.000x.195x.199	1.35	1.22	1.08
33F645	824	Long Chisel	1.000x.187x.187	.62	.56	.50
33F672	PL133	Long Chisel	.750x.312x.150	1.47	1.32	1.18
33F673	PL138	Tapered Needle	.750x.125	1.47	1.32	1.18

"PL" tiplets are iron clad tellurium copper, and silver plated. No prefix indicates unplated copper alloy.

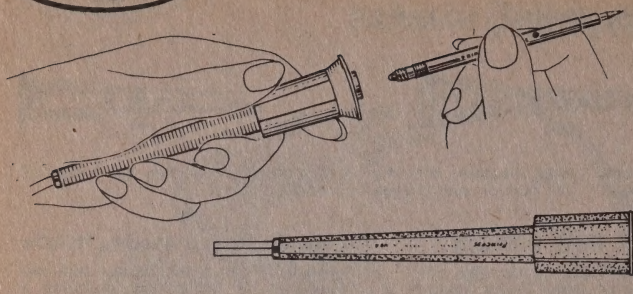
Stk. No.	Type	Description	Lgth.xDia.xPt.	Size	1-9	10-24	25-Up
33F093	PL331	Pencil	.870x.135x.015	1/8"	1.18	1.06	.94
33F094	PL332	Offset Pencil	.970x.135x.015	1/8"	1.18	1.06	.94
33F095	PL333	Chisel	.870x.135x.135	1/8"	1.18	1.06	.94
33F083	332	Offset Pencil	.970x.135x.005	1/8"	.50	.45	.40
33F084	333	Chisel	.870x.125x.125	1/8"	.50	.45	.40
33F689	7154	Pencil	.870x.135x.015	1/8"	1.18	1.06	.94
33F690	7155	Chisel	.870x.135x.068	1/8"	1.18	1.06	.94
33F038	7062	Precision Pt.	.770x.125x.005	1/8"	2.07	1.86	1.66

ADAPTERS

Stk. No.	Type	Size	Description	1-9	10-24	25-Up
35F3080	100	1/8"	Adapts to thread-on bodies	.48	.43	.38
35F3081	101	3/16"	For standard, 3-wire, and D1.	.48	.43	.38

16

Ungar® Modular Soldering Tools

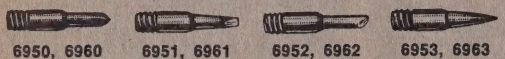


PRINCESS® MICRO LINE

Design enables pinpoint hand control, comfort and accuracy assuring hi-yield soldering of delicate circuitry and components in the tightest spaces. Ideal for micro-precision, micro-miniature soldering. Uses include flat and stack packs, hybrids and discrete devices.

Heat Capsule Nib

SOLDERING NIBS



6950, 6960 6951, 6961 6952, 6962 6953, 6963

HEAT CAPSULES

For 120 Volts AC/DC operation. Heating section threaded to accept series of ⅛" "Princess" soldering nibs. Length: 3¾". Shipping weight: 2 oz.

Length: 3¾". Ship. wt. 2 oz.

Stk. No.	Type	Watts	Temp.	1-9	10-49	50-Up
32F896	6910	10	575-650°F	8.47	7.62	6.78
32F897	6915	15	700-775°F			
32F894	6918	18	775-850°F			

ASSEMBLED PRINCESS SOLDERING IRON KIT

Includes: 6902 handle, 6910 10 watt heat capsules, 6950 pencil nib, 6951 screwdriver nib, 6952 spade nib. Shpg. wt. 14 oz.

Stk. No.	Type	Description	1-9	10-49	50-Up
32F885	6975	Assembled	16.63	14.97	13.30

HANDLES

Model 6902. Polyvinyl chloride insulated cord. 120 V AC/DC. 5" L x ½" dia. Wt. 3 oz.
Model 6903. Same except cord is 22 gauge flexible stranded w/molded NEMA plug. Capsule grounded.

Stk. No.	Type	Handles	1-9	10-24	25-Up
32F899	6902	2-Wire	6.48	5.83	5.18
32F898	6903	3-Wire	9.17	8.25	7.34

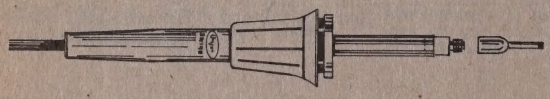
SOLDERING NIBS

Made of copper alloy; also available in iron clad and gold plated (24K). Four types of soldering nibs threaded (⅛") to fit princess Heat Capsules.

Stk. No.	Type	Shape	Size	Plated	1-9	10-24	25-Up
32F893	6950	Pencil	.68x⅛"	Copper	.67	.60	.54
32F892	6951	Screw dr.	.68x⅛"	Copper	.67	.60	.54
32F891	6952	Spade	.61x⅛"	Copper	.67	.60	.54
32F890	6953	Point	.61x⅛"	Copper	1.27	1.14	1.02
32F889	6960	Pencil	.62x⅛"	Gold	1.25	1.13	1.10
32F888	6961	Screw dr.	.62x⅛"	Gold	1.25	1.13	1.00
32F887	6962	Spade	.62x⅛"	Gold	1.25	1.13	1.00
32F886	6963	Point	.61x⅛"	Gold	2.27	2.04	1.82

Also for use with Standard Line Tiplets: PL-331, PL-332, PL-333, PL-338, PL-340, 7154, 7155, and 7062.

DI© SERIES DOUBLE INSULATED SOLDERING IRONS



Lightweight compact design with flexible cord set. Rugged stainless steel thread-in heaters. Double insulated. Meets OHSA requirements. UL listed. Durable plastic handle.

THREAD-IN HANDLE

Handle with two-conductor cord set and plug. Durable plastic with finger-ease grip. Double insulated. 120 volt.

Stock No.	Type No.	Description	1-9	10-24	25-Up
33F1304	555	120V Thread-in handle	4.48	4.03	3.58

THREAD-IN HEAT CAPSULES

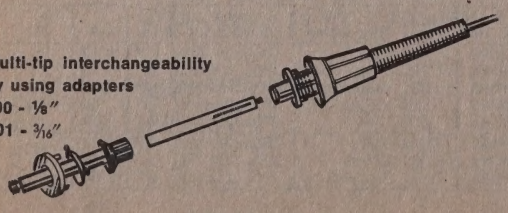
Stock No.	Type No.	Watts	Temperature	1-9	10-24	25-Up
33F1300	360	27W	650-750°F	6.03	5.43	4.82
33F1301	361	35W	750-850°F	6.03	5.43	4.82
33F1302	362	45W	850-950°F	6.03	5.43	4.82
33F1303	363*	45W	850-950°F	7.47	6.72	5.98

*Chisel Tip

16

3-WIRE SOLDERING IRONS

Multi-tip interchangeability by using adapters
100 - ⅛"
101 - 3/16"



- Approved 3-wire cord for soldering irons
- Ideal for MOSFET and IC Components
- Heat-resistant cord

Designed to eliminate static induced currents. Useful for all general purpose and voltage sensitive components. Meets military, NASA, and other government contractor standards. Accepts more than 40 nibs, tips, tiplets, and de-soldering tips from Standard and Princess line. Ideal for MOSFET, IC components. UL listed heat cartridge available in 3 wattages. Protective coating on threads to reduce tip seizure. Lightweight handle. Octagonal grip. 3-wire cord approved for grounding soldering irons. 120V, 50-60Hz.

Stk. No.	Type	Watts	Tip Temp.	1-9	10-24	25-Up
35F3077	127	27	650°-750°F	10.95	9.86	8.76
35F3078	135	35	750°-850°F			
35F3079	145	45	900°-1000°F			

ADAPTERS

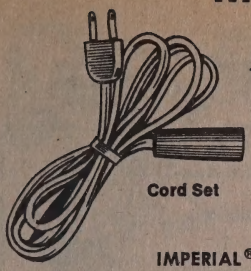
35F3080	100	For ⅛" Thread	.48	.43	.38
35F3081	101	For 3/16" Thread			

Modular Soldering Tools

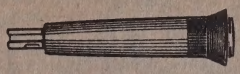
Ungar®

IMPERIAL HEAVY DUTY SERIES

Ideal for reliable, large connection soldering. This dependable tool features fast heat recovery plus patented, heat sink handle for operator comfort . . . even in high-rate, continuous production.



Cord Set



Handle

Heat cartridges

IMPERIAL® CORD SETS

Pastel turquoise flexible vinyl w/molded connector plug. UL listed. 2-wire: wt. 2½ oz. 3-wire: wt. 4 oz., w. NEMA plug.

Stk. No.	Type	1-9	10-24	25-up
32F903	6102 2-wire	4.38	3.94	3.50
32F906	6103 3-wire/grnd.	6.52	5.87	5.22

IMPERIAL® HANDLE

Diameter at grip 0.8". Length 4.7" (including heat sink). Turquoise colored. Rated @ 115V AC/DC. Shipping wt. 1 ounce.

Stk. No.	Type	1-9	10-24	25-up
32F900	6100	3.02	2.72	2.42

IMPERIAL® CARTRIDGE

Made of a temperature resistance stainless steel body and copper alloy heat collector. Threaded end of the collector is designed and engineered to provide maximum heat transfer. All cartridges fit the IMPERIAL PERMA-COOL handle and can be changed at the bench with easy slip-in, twist-lock action. Use on tight, high-density circuitry requiring precision tip temperatures and extreme care in soldering. Ideal for heavy-duty plant service maintenance but light enough for fatigue-free production line use.

Stock No.	Type	Heat Range	Dia.	Width	Weight	1-9	10-24	25-up
32F914	6202	600-800F	0.363"	25	1.1 oz.	8.12	7.31	6.50
32F913	6201	650-850F	0.363"	35	1.1 oz.	8.12	7.31	6.50
32F912	6200	750-950F	0.363"	45	1.1 oz.	8.12	7.31	6.50
32F966	6203	850-1150F	0.363"	55	1.1 oz.	9.58	8.62	7.66

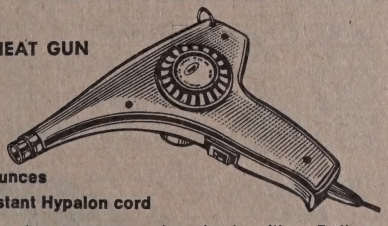
45-WATT ALL-PURPOSE SOLDERING IRON KIT

Model 6010. Features the most popular IMPERIAL components used in production, development and service. Consist of one type 6100 handle, one type 6102 two-wire cord, one type 6200 45-watt heat cartridge. Delivers 750°F. to 950°F. tip temperature. Comes with three multi-purpose MINI-TIP thread-on soldering tips.

Stk. No.	Type	1-9	10-24	25-up
32F971	6010	18.67	16.80	14.94

PRINCESS® HEAT GUN

- 3-way switch
- Versatile
- U.L. Listed
- Weighs only 13 ounces
- Oil and heat resistant Hypalon cord



Feather light for greater accuracy and easier handling. Delivers 750°-800°F air flow temperature at nozzle in seconds. Air stream width ⅜". On/Off switch. Hot or cold air setting. Self-standing on work bench. Oil resistant Hypalon cord. Molded glass polyester housing. UL listed. 250 Watts, 120 Volts, AC only. Shipping weight: 18 oz.

Includes 4 baffles, one reducing baffle to reduce air flow at nozzle to .200" and three reflectors for shrink tubing applications. Handles all polyvinyl, olefins, silicone rubber and TFE materials. One reflector ½" L x ¾" dia. for solder sleeves and small tubing. One reflector 1¼" L x ¾" dia. for larger shrinking applications. One adapter to shrink most solder preforms materials, especially low temperature.

35F3074. Model 6966C. Complete, 3 wire cord, NEMA plug. **NET** **48.00**

35F3075. Model 6965A. Heat Gun Holder. **NET**..... **5.00**

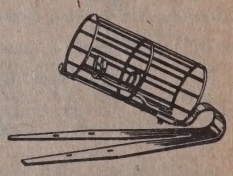
TIPS FOR 25, 35, 45, 55 WATT IMPERIAL CARTRIDGE

6304 6316 6318

Designed for multileads, joints and microminiature connections. Ideal for intricate printed circuit board work and rework. Long-lasting iron-clad, chrome-plated, pre-tinned except (*) copper alloy. Av. shpg. wt. 3 oz.

Stock No.	Type	Shape	Size	1-9	10-24	25-up
32F915	6304	Mic-chisel	3/64 X ½"	1.95	1.76	1.56
32F916	6305	Micro spade	3/64 X ½"	1.95	1.76	1.56
32F917	6312*	Pencil	⅛ X ¾"	.93	.84	.74
32F918	6313	Pencil	⅛ X ¾"	1.95	1.76	1.56
32F920	6316	Pencil Offset	⅛ X ¾"	1.95	1.76	1.56
32F921	6318*	Long Taper Chisel	⅛ X ¾"	.93	.84	.74
32F923	6324*	Long Taper Pyr.	⅛ X ¾"	.93	.84	.74
32F924	6325	Long Taper Pyr.	⅛ X ¾"	1.95	1.76	1.56
32F926	6331	Screwdriver	⅛ X ¾"	1.95	1.76	1.56
32F927	6333	X-long Screwdriver	⅛ X ¾"	1.95	1.76	1.56
32F931	6366	Long Taper Chisel	3/16 X ¾"	2.30	2.07	1.84
32F959	6481	Tap. Screwdriver	¾ X 3/32"	1.95	1.76	1.56
32F960	6482	Micro-Spade Stepped	3/32 X 1/16"	1.95	1.76	1.56
32F042	6368*	Long Taper Pyr.	¾ X .187	1.10	.99	.88
32F044	6473*	Long Taper Chisel	¾ X .375	1.10	.99	.88

SOLDERING IRON HOLDER



Model 8000. Exclusive double safety guard design that (1) fully protects operator against accidenfal "hot tip" burns, and (2) protects iron against breakage. Keeps iron cradled safely, securely . . . ready for instant use. Heavy duty holder attaches quickly to top, side, or underside of bench. Built for day-in, day-out production line use. Shpg. wt. 1 lb.

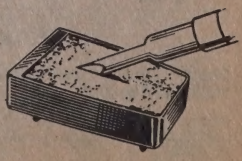
33F687 NET **3.92**

ANTI-SEIZE LUBRICANT

Type 8001. Designed for use on metals operating at high temperatures. Helps reduce seizure and resulting tip and heating unit breakage. Wt. 4 ounces.

Stk. No.	Type	1-9	10-24	25-up
32F688	8001	1.37	1.23	1.10

KLEEN-TIP SPONGE, TRAY AND REFILL

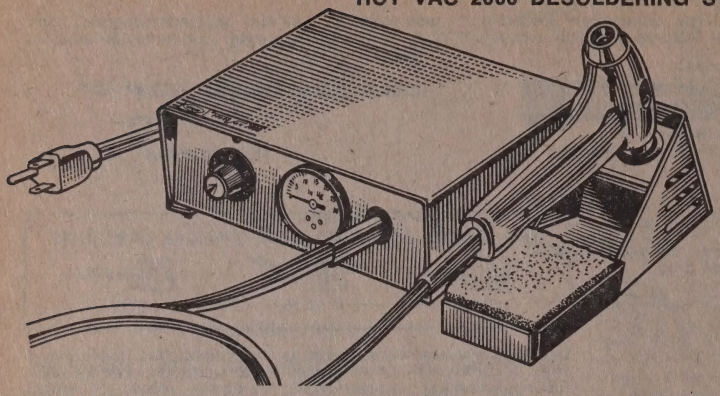


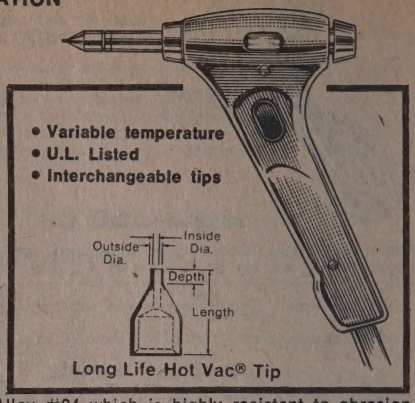
Specially processed Kleen-Tip sponge for removing oxidation and excess solder from tips. Assures proper heat flow and solder wetting. Other materials used for this purpose cause contamination or destroy plating.

Stk. No.	Type	Description	1-9	10-49	50-Up
33F683	400	Sponge and tray	2.10	1.89	1.68
33F684	455	Refill sponge	.82	.74	.66

Ungar® Desoldering Equipment

HOT VAC 2000 DESOLDERING STATION



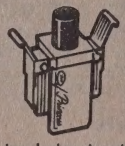


Complete station includes one each: 2005 tip, 2006 tip, 2007 tip, 2008 tip, 2002 tip cleaning tool, 2001 freestanding holder, 400 sponge tray and 455 refill sponge.
34F1072 Net **249.00**

MODEL 2000. Utilizes normal shop air (60-120psi) through a high efficiency vacuum transducer controlled by a low maintenance solid state circuit and solenoid valve. Quiet operation due to a muffled exhaust system. Built-in vacuum gauge monitors proper operation. Solid state controls adjust tip temp. from 500°F to 1000°F. Biomechanically designed handle. Non-magnetic load modulated heater provides instantaneous recovery with no transient spikes. Long life tips are machined from special Ungar Alloy #24 which is highly resistant to abrasion and erosion by solder. Solder reservoir is located in light weight, balanced handpiece and is easily emptied by removing reservoir cap even while unit is operating. In-line design resists clogging and facilitates cleaning. Free-standing holder incorporates a tip cleaning sponge and metal tray for spare tips. High flow vacuum is actuated by an easily operated switch built into handle. (Accessory foot switch also available). Unit is equally adaptable for electronic repair, rework, modification, bread-boarding and salvage. Specifications: 120 volts AC 1.0 amps. Heat resistant hyaplon handle cord. Three-wire grounded tip.

DIP Desoldering Kits

Desolder Tip



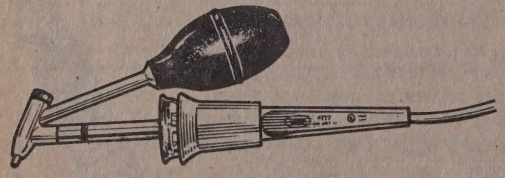
Spring loaded extractor

Desoldering braid

50DK UNGARmatic® Desolder Kit fits UNGARmatic® Controlled Soldering Irons. Includes 95 tip adapter, 6982 spring loaded extractor, 6948 desoldering tip, 5013 Super-Wick Desoldering braid. **Kit 51DK** fits standard 3-wire and DI Line Irons. Includes 100 thread-in ⅛" adapter, 6982 extractor, 6948 Desoldering tip and 5013 Super-Wick.

Stock No.	Type No.	1-9	10-24	25-Up
34F1081	50DK	9.95	8.96	7.96
34F1082	51DK	8.95	8.06	7.16

HOT-VAC® DESOLDERING/CLEANING TOOL



De-solder 50% faster . . . reduce PC repair and rework time. HOT-VAC melts and removes solder in one operation with one hand. Other hand is free to lift components. Solder reservoir is easily emptied. #7800 HOT-VAC comes complete with #777 Clean Room Handle, #4037S Heating Unit and non-clogging #7806 Tip.

Stock No.	Type	1-9	10-24	25-up
32F974	7800	22.63	20.37	18.10

REPLACEMENT TIPS

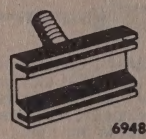
Copper Hot-Vac replacement tips with special liner, prevent sticking/clogging.

Stk. No.	Type	Hole Dia.	1-9	10-24	25-up
33F036	7806	.057"	1.35	1.22	1.08
33F034	7812	.033"	1.87	1.68	1.50

REPLACEMENT ACCESSORIES FOR MODEL 2000

Stk. No.	Type	Description	1-9	10-24	25-up
34F1078	2001	Free-standing holder	20.83	18.75	16.66
34F1079	2002	Tip cleaning tool	4.00	3.60	3.20
34F1080	2003	Vacuum control foot switch	19.95	17.96	15.96
34F1073	2005	Tip .032" I.D. .12" deep	4.50	4.05	3.60
34F1074	2006	Tip .040" I.D. .12" deep	4.50	4.05	3.60
34F1075	2007	Tip .062" I.D. .12" deep	4.50	4.05	3.60
34F1076	2008	Tip .089" I.D. .12" deep	4.50	4.05	3.60
34F1077	2009	Tip .062" I.D. .37" deep	4.50	4.05	3.60

DE-SOLDERING TIPS


6948

6945

6947

Fit Princess 6939 and Ungar 535S, 1235S, and 4035S. May also be used with 3-wire models 127, 135 and 145.

Stk. No.	Type	Description	1-9	10-24	25-Up
35F3076	6948	Tip-in-line IC's	4.00	3.60	3.20
35F3055	6943	Tip- "To" .600" dia.	3.58	3.22	2.86
35F3056	6944	Tip- "To" .500" dia.	3.58	3.22	2.86
35F3057	6945	Tip- "To" .375" dia.	3.58	3.22	2.86
35F3058	6946	Tip- "To" .280" dia.	3.58	3.22	2.86
35F3059	6947	Lead straightener	2.83	2.55	2.26

DESOLDERING BULBS

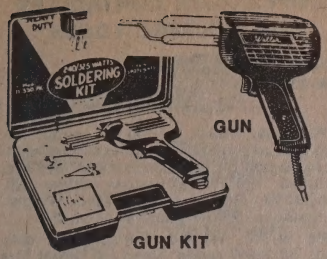
7825 Desoldering attachment of 7800 only. For use with 37HP and 362 heaters, 145 heater, 750 and 777 handles, and for 4037-S unit and 7806 tip.

7805. Vacuum action lifts solder from PC board. Tip easily removed for cleaning solder for inside bulb. For use with all Ungar® soldering irons.

Stock No.	Type No.	1-9	10-24	25-Up
32F975	7805	2.30	2.07	1.84
34F1083	7825	13.23	11.91	10.58

Soldering Tools

Weller



GUN KIT

SOLDERING KIT

MODEL D-550PK. Heavy Duty, dual heat 240/325 watt gun. Soldering tip, smoothing tip, cutting tip, tip changing wrench. All purpose 60/40 Rosin Coresolder. UL Listed.

Stk. No.	Part No.	1-2	3-11	12-Up
33F132	D550PK	23.65	21.40	19.00

HEAVY DUTY GUN ONLY

240/325 watts. AC only. Trigger selection of heats. Pistol grip design. Twin lights illuminate work. Copper tips. U.L. Listed. Shpg. Wt. 3½ lbs.

Stk. No.	Part No.	1-2	3-11	12-Up
33F129	D-550	20.35	18.40	16.30

MEDIUM DUTY SOLDERING KIT

MODEL 8200PK. Kit includes: Three copper long life soldering tips, tip changing wrench, flux brush, soldering aid, and all purpose solder. Contains 100/140 watt soldering gun. UL Listed. Shpg. wt. 3 lbs.

Stk. No.	Part No.	1-2	3-11	12-Up
33F158	8200PK	17.45	15.75	14.00

MEDIUM DUTY GUN ONLY

100/140 watt per tip. AC only. Switch from high to low. Pistol grip design. Spotlight. Copper tip. 2½ lbs.

Stk. No.	Part No.	1-2	3-11	12-Up
33F148	8200	14.95	13.50	12.00

NEWARK Can Supply All Your Electronic Needs

"MARKSMAN" SOLDERING IRON

Model SP-23K. Includes soldering iron, three different pretinned nickel-plated copper tips, soldering-aid tool, 5 ft. 60/40 rosin core solder, and instructions for soldering. Pencil type, feather weight, soldering iron with removable tip. Plastic handle remains cool. Develops up to 750°F. Long reach stainless steel barrel. U.L. Listed. Iron wt. ⅓ lbs. Kit. wt. ⅜ lbs.

Stock No.	Type	Description	1-11	12-47	48-Up
33F183	SP-23K	Kit	8.70	7.90	7.00
33F801	SP-23	Iron Only	6.25	5.65	5.00

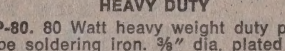
TIPS FOR SP-23 SOLDERING IRON 2 PER CARD

Stock No.	Type	Description	1-11	12-49	50-Up
35F993	MT-1	Cone Shaped			
33F994	MT-2	Screwdriver	1.40	1.30	1.15
33F995	MT-3	Chisel			

SOLDERING IRONS PENCIL TYPE

SP-40. 40 Watt pencil type. ¼" dia. plated copper tip. 2 per card. U.L. Listed.

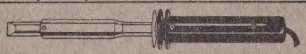
Stock No.	Type	Description	1-11	12-47	48-Up
33F802	SP-40	40 Watt iron	8.35	7.50	6.70
33F997	MT-10	¼" Chisel Tip	2.50	2.25	2.00



HEAVY DUTY

SP-80. 80 Watt heavy weight duty pencil type soldering iron. ⅜" dia. plated copper tip. U.L. Listed. Wt. 4 oz.

Stock No.	Type	Description	1-11	12-47	48-Up
33F803	SP-80	80 Watt iron	12.50	11.25	10.00
33F998	MT-20	⅜" Chisel Tip	2.50	2.25	2.00



EXTRA HEAVY DUTY SOLDERING IRONS

120 V. U.L. listed. SP120 is 120 watts, 11⅜" long. SP175 is 175 watts, 12½" long.

Stk. No.	Type	Uses		Each
33F113	SP120	MT30	Tip	14.95
33F114	SP175	MT40	Tip	18.25

REPLACEMENT TIPS

Stk. No.	Type	Description	Each
33F115	MT30	½" chisel	2.90
33F116	MT40	⅝" chisel	3.75

GUN REPLACEMENT TIPS AND PARTS

Stk. No.	Type	Description	Net
33F149	8125	2 plated tips for 8200, 8100B	
33F139	8125N	One 8125 tip and two tip nuts	
33F124	7135	2 copper tips for D-440, 8100, 8100B, 8200, WS-100, WD-135, S-400	1.41
33F140	7135N	One 7135 tip and 2 tip nuts	
33F125	7250	2 copper tips for D-550, 825DA, WS-200, WD-250, S-500	
33F141	7250N	One 7250 tip and 2 tip nuts	
33F135	6110	Cutting tip for D-440, 8100, 8200, 8100B, WS-100, WD-135, S-400, w/Tip nuts.	
33F136	6120	Smoothing tip for D-440, 8100, 8200, 8100B, WS-100, WD-135, S-400	1.41
33F137	6130	Cutting tip for D-550, 8250A, WS-200, WD-250, S-500, w/Tip nuts.	
33F138	6140	Smoothing tip for D-550, 8250A, WS-200, WD-250, S-500 w/Tip nuts.	
33F162	7323	Switch for single-heat models	3.00
33F163	7324	Switch for all dual-heat models	3.00
33F392	7409	Card set (all models)	2.25
33F170	8200RH	Replacement handle for 8200	3.40
33F160	D440RH	Replacement handle for D-440	3.40
33F161	D550RH	Replacement handle for D-550	3.40

PROFESSIONAL SERIES

PENCIL IRON

Model WP-25. Light weight soldering iron with 1/16" tip and cord set. 3 tip sizes with premium plating; plastic handle. 25 watts at 115v; 7⅞" long. 7/16" Dia. U.L. Listed. **Model WP-25-3** has 3-wire cord.

Stock No.	Part No.	1-11	12-47	48-Up
33F175	WP-25	10.85	9.75	8.70
34F1022	WP-25-3	12.55	11.25	10.00

MODELS WP-40/WP-40-3

Same features as Model WP-25, above. Rated at 40 watts. **WP-40-3** has 3-wire cord.

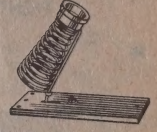
Stock No.	Part No.	1-11	12-47	48-Up
34F1023	WP-40	13.35	12.00	10.65
34F1024	WP-40-3	15.05	13.50	12.00

ACCESSORIES FOR MODEL WP-25/WP-40

Stock No.	Part No.	Tip Size	Description	1-14	15-49	50-Up
33F176	ST-1	1/16	Screwdriver			
33F177	ST-2	3/32	Screwdriver			
33F178	ST-3	⅛	Screwdriver			
34F1025	ST-4	3/16	Screwdriver			
34F1026	ST-5	1/32	Single Flat			
34F1027	ST-6	1/32	Screwdriver	1.65	1.50	1.35
34F1028	ST-7	1/32	Conical			
34F1029	ST-8	1/16	Narrow Screwdriver			
33F181	KN-60		Knurled tip nut		.75	

SOLDERING TOOL STANDS

- **For Model WP-25, WP-40 Irons**



Model PH25. Bench stand can be free standing or mounted. Aluminum construction. Prevents accidental burns on work surface. Keeps iron ready for soldering.
33F106. NET 5.00

MODEL WC 100K KIT

- **Cordless Iron**
- **Re-charger**

CORDLESS SOLDERING KIT

11-piece kit includes Model WC100 cordless iron; re-charger; regular, fine-point, and long-reach tips; soldering aid tool; sponge; rosin-core solder; instruction book; carrying case.
33F108. NET 29.25

CORDLESS SOLDERING IRON

Tip temperature of 700°F+. Re-charger. Nickel cadmium batteries. Built-in work light, interchangeable tips.
33F107. NET 24.20

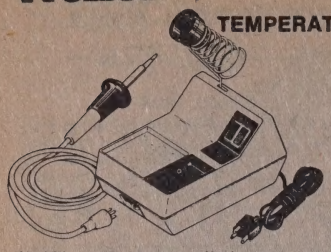
REPLACEMENT TIPS FOR WC100

Stk. No.	Type	Tip Size	Description	Each 1-11	Each 12-23	Each 24-Up
33F109	WC111	⅛	Diameter Tip			
33F110	WC112	1/16	Diameter Tip			
33F111	WC113	1/16	Long Reach Tip	2.50	2.25	2.00
33F112	WC114	1/32	Conical Tip			

16

Weller Soldering Tools

TEMPERATURE CONTROLLED "LOW VOLTAGE" SOLDERING STATIONS



15-100 watt range eliminates need to stock many tools of various wattages. Interchangeable tips give you choice of 600°, 700°, 800°F tip idling temperature. Pencils weigh only ¾ oz. for ease of operation. Wide variety of tips available. 60W, 120 V, 50/60Hz.

Model WTCPN. Plug-in iron, non-burning silicon rubber power cord, heat shield, switch and indicator light. Wt: 3½ lbs.

TC201. Replacement Soldering Pencil.

TC202. Power unit only. Includes sponge, iron holder and tip tray.

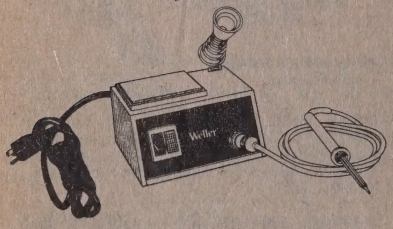
TC205. Sponge for WTCPN.

Stk. No.	Type	1-11	12-23	24-Up
35F3309	WTCPN	57.55	51.75	45.90
35F2522	TC201	28.75	25.90	22.95
33F1261	TC202	34.50	.....	....
34F1030	TC205	.75	.....	....

TEMPERATURE SENSING TIPS

Stock Numbers 600°F	700°F	800°F	Description	Style	1-24	25-99	100-Up
35F2525	35F2526	35F2527	1/16" Screwdriver	PTA	2.25	2.03	1.80
35F2529	35F2530	35F2531	3/32" Screwdriver	PTB			
35F2533	35F2534	35F2535	1/8" Screwdriver	PTC			
35F2537	35F2538	35F2539	5/16" Screwdriver	PTD			
35F2541	35F2542	35F2543	1/32" Screwdriver	PTH			
35F2545	35F2546	35F2547	3/64" Screwdriver	PTK			
35F2549	35F2550	35F2551	5/64" Screwdriver	PTI			
35F2553	35F2554	35F2555	3/32" Spade	PTBB			
35F2557	35F2558	35F2559	1/8" Spade	PTCC			
35F3311	35F3312	35F3357	1/16" Spade	PTAA			
35F3351	35F3352	35F3353	5/16" Spade	PTO			
35F3354	35F3355	35F3356	1/32" Conical	PTP			
35F3358	35F3359	35F3360	1/32" Spade	PTF			
35F3361	35F3362	35F3363	1 5/64" Screwdriver	PTE			
35F3313	35F3314	35F3364	1/8" Screwdriver	PTM			

MP SERIES SOLDERING STATION WITH PLUG-IN PENCIL UNIT



Designed for printed circuits and fast, economical soldering. Closed loop temperature control. Non-burnable cord. Low voltage output to iron. Units can be changed in seconds. Operates from line voltage with built-in step down transformer. Housings are impact resistant. Complete with tip, three-wire cord, power unit, sponge, soldering pencil and specification sheet. UL listed.

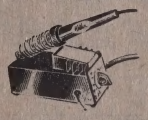
MP KITS ACCESSORIES

Stk. No.	Type	Description	1-11	12-23
33F1650	MP156	650° Station	60.00	54.00
33F1651	MP157	750° Station	60.00	54.00
33F1652	MP126	650° Pencil	25.00	22.50
33F1653	MP127	750° Pencil	25.00	22.50
33F1293	MP101	Power Unit	38.35	34.50
33F1296	MP202	Sponge	.90	—
33F1654	MP213	Funnel	.90	—
33F1655	MP214	Holder Ass'y.	1.75	—

REPLACEMENT TIPS

Stk. No.	Type	Description	1-24	25-99
33F1656	MP131	1/64" conical	2.00	1.80
33F1657	MP132	1/32" conical, Bent		
33F1658	MP133	1/32" single Flat45°		
33F1659	MP134	3/64" conical, Bent		
33F1660	MP135	3/64" single Flat45°		
33F1661	MP136	1/16" screwdriver		
33F1662	MP137	5/64" screwdriver		
33F1663	MP138	1/4" chisel		

TEMPERATURE CONTROLLED SOLDERING PENCIL



MODEL — W-TCP2. For use with solders with melting points below 300°F. Continuously variable range of tip temperatures, 200-450°F. Ship. wt. 4 lbs.

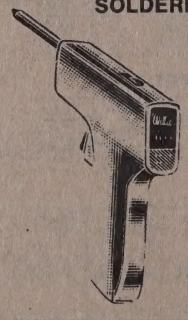
Stk. No.	Type	1-11	12-23	24-Up
35F2523	W-TCP2	108.35	97.50	86.45

TIPS FOR WTCP2

Iron plated tips with anti-wetting chrome coating.

Stk. No.	Type Size/Descrip.	1-24	25-99	100-Up
34F1031	STA 1/32" conical flat	2.50	2.25	2.00
34F1032	STB 1/16"screwdriver	2.50	2.25	2.00

SOLDERING TOOL



MODEL GT-7A. Fast heating Trigger action. Exclusive temperature controlled powerhead. For light and heavy soldering. Long reach stainless steel barrel. Convenient ejector facilitates quick changing of powerheads. Includes 3/16" chisel point, 700°F, 150 watt. Ideal for service repairs, PC boards, models and hobbies. U.L. Listed. Weight 7 ounces.

Stock No.	Type	1-2	3-11	12-Up
35F2560	GT-7A	23.35	21.00	18.65

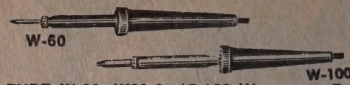
MODEL GT-6B. Controlled soldering tool with 6B, 1/8" conical point, 600°F. 150 watt.

Stock No.	Type	1-2	3-11	12-Up
35F2561	GT-6B	23.35	21.00	18.65

REPLACEMENT POWERHEADS

MODEL 7A. 3/16" chisel point, 700°F.
35F2562. NET **15.00**
MODEL 6B. 1/8" conical point, 600°F.
35F2563. NET **15.00**

TEMPERATURE CONTROLLED LINE VOLTAGE TOOLS



TYPE W-60, W60-3. 15-100 W. range. For high idle rate situations select lower temperature tips for optimum tip and tool life. Includes 700°F, 1/16" screw driver tip, 60W, 120V. 7½" long. UL Listed. Weight: 2½ ounces. **W60-3** has 3 wire cord.

TYPE W-100, W100-3. For medium duty work. 50-159W range. Used for direct line voltage operations. Includes 700°F screwdriver tip. 100W, 120V. 8¼" L. UL Wt. 3½ oz. **W100-3:** 3-wire cord.

Stk. No.	Model	1-11	12-47	48-Up
33F348	W-60	24.15	21.75	19.30
35F3320	W-60-3	25.85	23.25	20.60
33F349	W-100	30.85	27.75	24.60
35F3330	W-100-3	32.50	29.25	25.95

W-60 Replacement Tips (Screwdriver type)

600°F Stk. No.	700°F Stk. No.	800°F Stk. No.	Type Size	1-14	15-49
35F2564	35F2565	35F2566	CTSA 1/16"	2.35	2.10
35F2567	35F2568	35F2569	CT5B 3/32"		
35F2570	35F2571	35F2572	CT5C 1/16"		
35F2573	35F2574	35F2575	CT5D 5/16"		
35F2576	35F2577	35F2578	CT5E 1/4"		

W100 Replacement tips (screw driver type)

35F2579	35F2580	35F2581	CT6C 1/8"	3.35	3.00
35F2582	35F2583	35F2584	CT6D 5/16"		
35F2585	35F2586	35F2587	CT6E 1/4"		
35F2588	35F3331	35F3332	CT6F 3/8"		

TOOL STANDS

Bench Stand

Side Rail Stand

Bench stands have heavy non-sliding cast bases with sponge receptacle and non-sinking spring stand funnel. Side rail stands comprised of spring and funnel only. For irons with barrel diameters 3/8"–13/32"–17/32".

Bench Stand

Stk. No.	Type	Accepts Mod. No.	Barrel Diam.	1-11	12-47	48-Up
35F3347	PH60	W60	13/32	6.70	6.00	5.35
35F3345	PH100	W100	17/32	7.50	6.75	6.00
33F106	PH25	WP25				
		WP-40		5.00	4.50	4.00

Side Rail Stand

35F3348	SFA1	TCP	13/8	2.50	2.25	2.00
35F3349	SFA60	W60	13/32	2.50	2.25	2.00
35F3350	SFA100	W100	17/32	4.20	3.75	3.35

SP60. Sponge for PH60, PH100.
35F3319. 1-4 **.85** 5-99 **.75** 100-Up **.70**

PORTABLE TEMPERATURE CONTROLLED IRONS

Type TCP-12: 12 Volt field service soldering pencil rated at 12-14V., 2.5-2.9 Amps. AC/DC, 30-41 Watts. Complete with No. PTD7 700°F 3/16" screwdriver tip, 12' power cord with battery clips. Wt. 1¼ oz., 7½"overall length.
Type TCP-24: Same as above except 24-28V., 1.7-2.0 Amps., 41-56 Watts.

Stock No.	Type No.	1-5	6-23	24-Up
34F1033	TCP-12	28.75	25.90	22.95
34F1034	TCP-24	28.75	25.90	22.95

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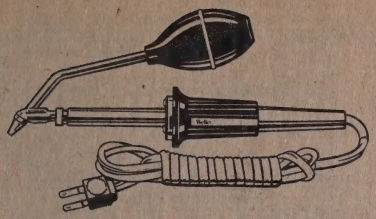


PROFESSIONAL DESOLDERING/REPAIR TOOL

For servicing printed circuit boards and solid state electronics. Complete tool includes handle, vacuum bulb, desoldering assembly and tip with .063" opening. 40W, 120V, 2 wire cord.

DS40. Desoldering tool with DST4 .063" desoldering tiplet. Wt. ½ lb.
33F1250 ....EACH: 1-2 **23.35** 3-11 **21.00**

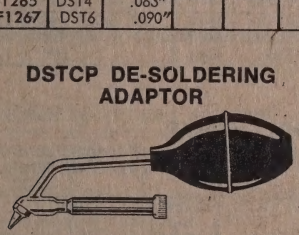
DS40-3 As above with three wire cord. Wt. ¾ lb.
33F1251 ....EACH: 1-2 **25.00** 3-11 **22.50**

DST SERIES TIPLETS for DS MODELS

- **Replacement for DS40, DS60, and DSTCP.**

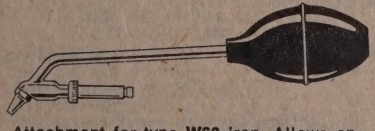
Stock No.	Type	Size Hole Dia.	1-11	12-47	48 Up
33F1262	DST1	.038"			
33F1263	DST2	.046"			
33F1264	DST3	.059"	1.67	1.50	1.33
33F1265	DST4	.063"			
33F1267	DST6	.090"			

DSTCP DE-SOLDERING ADAPTOR



Attachment for types **WTCPN** and **WTCPL**. Allows operator to de-solder and re-solder with same tool. Tiplets listed above.
33F103. NET **11.65**

DS60 DE-SOLDERING ADAPTOR

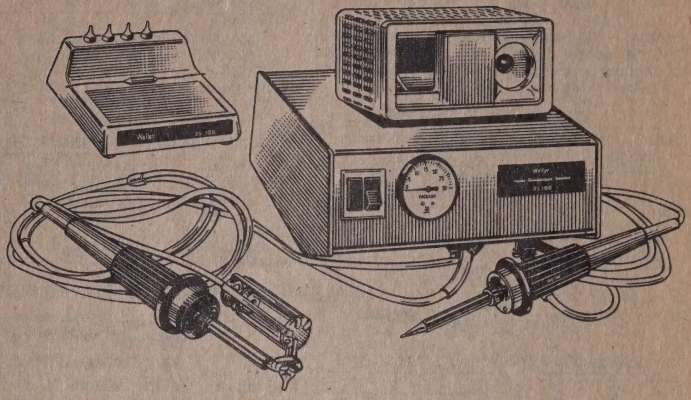


Attachment for type **W60** iron. Allows operator to de-solder and resolder with same tool. Tiplets listed above.
33F104. NET **11.65**

AC303P DE-SOLDERING BULB

May be used with any soldering iron. Tip is made of a heat resistant material that will not scratch PC boards.
33F105. NET **3.00**

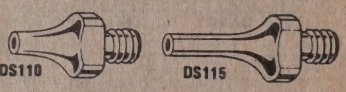
MODEL DS500 DESOLDERING STATION



Model DS40

Features temperature controlled desoldering iron, lighted on/off power switch, quick connect/disconnect plug and receptacle with plug lock, vacuum gauge, in-line vacuum filter, high efficiency vacuum transducer, air pressure (vacuum) regulator, safety iron holder, air pressure tubing with fittings and an air foot switch. Automatic control of temperature & grounded tip prevent sensitive components from damage. Iron is provided with a burn proof silicone rubber cord and quick connect locking plug. One desoldering tiplet comes with the DS500. Desoldering iron powered by 24 volt transformer within the station cabinet. Transformer's output is wired into a circuit breaker to prevent transformer damage. Iron plug and receptacle feature a locking plug retainer to prevent accidental disconnection. Vacuum obtained from the conversion of air pressure through a transducer, is turned off and on by means of a switch and the vacuum level is adjusted by an air pressure regulator. Air tubing and QC fittings provided. UL listed.

Stk. No.	Type	Description	Each
65F1330	DS500	Complete Unit	299.00
33F1270	DS102	Desoldering Iron	40.90
65F1290	DS217	Desoldering Head	22.50
65F1331	DS502	Foot Switch	36.00
65F1332	DS503	Tool Holder	32.00
65F1333	DS204	Collector Tube Filters	.45
65F1334	DS205	In-line Filter	4.50
33F1271	DS103	Collector Tube	2.65
33F1282	DS114	Tiplet	4.15
33F1287	SW60	Temp. Control Switch	7.50
33F1288	HE60	Heater Element	6.75



DS110 **DS115**

DS500 REPLACEMENT TIPLETS

Stk. No.	Type	O.D.	I.D.	L.	Each
33F1278	DS110	.060	.025	.50	
33F1279	DS111	.090	.025	.50	
33F1280	DS112	.076	.036	.50	
33F1281	DS113	.094	.045	.50	4.15
33F1282	DS114	.125	.071	.50	
33F1283	DS115	.060	.025	.75	
33F1284	DS116	.098	.045	.75	

MODEL 620K

Fourteen piece Mini-Shop Kit. A beginners complete workshop. Powerful high speed motor same as in Model 601K. Will accept other Mini-Shop accessories.
34F1035. NET **31.55**

MODEL 651K

Identical to Model 601K except that power unit output speed is adjustable. 5000 to 28000 RPM. High speed steel engraving tip included.
34F1036. NET **55.80**

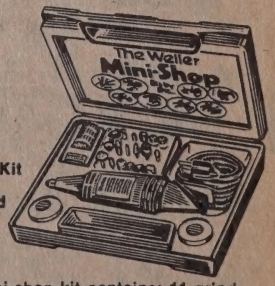
MODEL 651 POWER UNIT

Mini-Shop variable speed power unit only.
34F1037. NET **42.05**

NEWARK
For All Your
Soldering Equipment
Needs

MODEL 601K

- **Mini-shop Kit**
- **46 Pieces**
- **U. L. Listed**



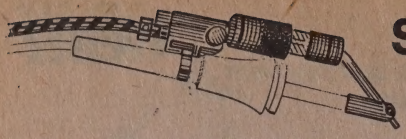
46 piece mini-shop kit contains: 11 grinding/sharpening bits, 5 polishing wheels, 6 cleaning bits, 10 abrasive discs, 3 abrasive bands, expanding drum, drill bit, mandrel, chuck wrench, dressing stone plastic polish, jeweler's rouge. 28,000 RPM 120V, 60 Hz, U.L. listed. Wt. 3 lbs.
34F190. NET **44.90**

MODEL 601 POWER UNIT

Mini-Shop power unit only.
34F1038. NET **30.00**

16

Soldering and Desoldering Tools



Complete desoldering station, compact and efficient, featuring "Instant Vacuum." Consisting of collector, intermediate fitting, and desoldering tip. Interfaces with light weight industrial iron. Air-operated vacuum pump positioned in from tip for instant vacuum.

CONVERTIKIT SYSTEM

Stk. No.	Convertikit Type No.	For Use With Iron Type	Each
34F1039	CVK-76-A40-60	American Beauty 3112 (40W-60W)	71.43
34F1040	CVK-76-E45	Esico 9345	
34F1041	CVK-76-E60	Esico 9460	
34F1042	CVK-76-H60	Hexacon 23A	
34F1044	CVK-76-Z60	Zeva S6	

CONVERTIKIT DESOLDERING AIDS

SC-77 REPLACEMENT SOLDER COLLECTORS

Stk. No.	For Convertikit Type	Each
69F185	CVK-76-A40-60	1.59
69F186	CVK-76-E45	
69F187	CVK-76-E60	
69F188	CVK-76-H60	
69F189	CVK-76-Z60	

TT-82 REPLACEMENT TRANSMITTER TUBES

Stk. No.	For Convertikit Type	Each
69F180	CVK-76-A40-60	9.80
69F181	CVK-76-E45	
69F182	CVK-76-E60	
69F183	CVK-76-H60	
69F184	CVK-76-Z60	

Parts

Stock No.	Type	Description	NET
34F1045	WS-85	Wire Stand	5.52
34F1047	FCS-83	Front collector seal	1.36
34F1048	RCS-84	Rear collector seal	1.36
34F1049	ST-79	Solder trap (Pkg. of 10)	1.00
34F1050	CF-78	Collector filter (Pkg. of 25)	1.97
34F1051	TBS-80	Steel brush	.92
34F1052	CBN-81	Nylon collector brush	.46

Desoldering Tips Lined

Stock No.	Type	Size	NET
34F1058	DT-25L	.025"x.063"	.80
34F1059	DT-36L	.036"x.076"	.59
34F1060	DT-45L	.045"x.086"	.59
34F1061	DT-61L	.061"x.098"	.59
34F1062	DT-95L	.095"x.125"	.32

AMERICAN BEAUTY SOLDERING IRONS, TIPS, AND AIDS

LITTLE DANDY® MINIATURE IRONS

Type	Lgth.	Wt.	Tip Type	Tip Dia.	Tip Lgth.
3108	6½"	3 oz.	#501	⅛"	2¼"
3110	6½"	3 oz.	#618	3/16"	2¼"
3112	7½"	4¼ oz.	#720	¼"	2¼"

Stk. No.	Type	Description	EACH
35F110	3108	20 watts/flat tip	15.75
32F987	3110	25 watts/flat tip	15.75
35F126	3112	40 watts/flat tip	18.00

PARAGON CLAD TIPS FOR 3108

Stk. No.	Type	Description	EACH
35F111	501	⅛" Chisel	2.70
35F115	505	⅛" Diamond	
35F117	509	⅛" Round, blunt	

LITTLE DANDY HEATING ELEMENTS

Stk. No.	Type	Watts	For Iron	EACH
32F1373	9014	20	3108	7.05
32F1374	9010	25	3110	7.05
32F1375	9012	40	3112	8.25

STANDARD IRONS

Feature long-life elements and plug-in tips. Order replacement tip below.

Stk. No.	Type	Watts	Tip Temp.	EACH
32F980	3125	60	850°F	21.00
33F001	3138	100	855°F	25.50
32F986	3138	150	1010°F	25.50
33F002	3158	200	1000°F	33.25
33F004	3178	300	1000°F	37.75

REPLACEMENT TIPS

Stk. No.	Type	Description	EACH
32F1387	43C	Chisel tip	3.85
32F1388	43D	Diamond tip	3.85

PARAGON CLAD TIPS FOR 3110

32F990	604	1/16 Trnd. Chisel	2.95
32F991	605	⅛ Trnd. Long chis.	
32F992	607	⅛ Trnd. Screwdvr.	
32F995	613	3/32 Trnd. Screwdvr.	
32F996	615	1/16 Trnd. Screwdvr.	
32F997	617	3/32 Screwdriver	

PARAGON CLAD TIPS FOR 3112

35F127	704	¼" Chisel	3.25
35F131	701	⅛" Turned Screwdvr.	
35F132	710	⅛" Turned Diamond	
35F133	709	¼" Diamond	

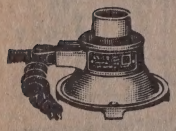
DRI-WICK® DESOLDERING TOOL

Dri-Wick is a specially woven, pure copper stranded desoldering tool. Non-corrosive, non-conductive rosin. **No danger of flux contamination.**

Stk. No.	Type	Pad Size	Width	EACH
35F1281	484-1	.060"-max.	.025"	1.65
35F1282	484-2	.060-.125"	.050"	
35F1283	484-3	.125-.190"	.075"	
35F1284	484-4	.190" min.	.095"	1.89
32F1383	484-5	.....	.130"	1.89
35F154	484-6	.....	.200"	1.65

MELTING POTS AND ULTRASONIC CLEANERS

ESICO SOLDERING POTS



Model 12-200 Watts Ideal for small parts. Inside Dimensions: 1 9/16" dia., 1½" deep. Max. Temp. 750°. Solder cap. ¾ lb. Wt. 4 lbs.

MODEL 37-600 WATTS Inside Dimensions: 3½" dia., 1¾" deep. Max. Temp: 800°. Solder Cap: 5 lbs. Wt. 7¼ lbs. **37T.** 659 Watts. 650° max. temp. With thermostat. Wt. 9⅛ lbs.

33F321 Model 12. NET.....25.00
33F325 Model 37. NET.....34.00
33F326 Model 37T. NET.....56.00

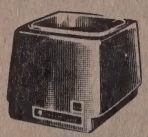
MODEL 36-250 WATTS Inside Dim: 2½" dia., 1¾" deep. Max. Temp: 750°. Solder cap: 2¼ lbs. Wt. 4⅛ lbs. **36T.** With thermostat 650° max. Wt. 6⅓ lbs.

MODEL 75T-650 WATTS Large capacity pot. Inside. Dim: 4¾" sq., 1¾" deep. Max. Temp: 650°. Solder Cap: 11¾ lbs. Wt. 9⅛ lbs.

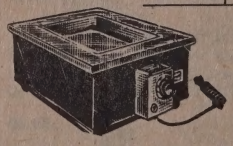
33F323 Model 36. NET.....26.50
33F324 Model 36T. NET.....47.00
33F320 Model 75T. NET.....58.00

SOLID-STATE ULTRASONIC CLEANERS

Ultrasonic cleaners are completely self-contained. Ultrasonic scrubbing thoroughly cleans complete units. Units operate on 120 VAC, 60 Hz.



Stk. No.	Type	Dimen.	Tank Size	Cleaning Power	Input	Shpg. Wt. lbs.	NET
35F138	S-30	7¼x7¼x6"	5x5x3"	50W	75W	7	121.00
35F139	S-50	12x7½x9"	5x9x4"	100W	125W	14	194.00
35F140	S-70	14x8½x9"	6x11x6"	150W	185W	17	346.00
32F1381	S-80	20¼x6¼x10½"	19¾x5¾x6"	200W	250W	20	536.00
32F1382	S-90	12x10¼x9½"	11½x9½x6"	200W	250W	20	454.00



RECTANGULAR SOLDER MELTING POTS

Wide open top area with shallow depth offers maximum dipping efficiency of flat or edge dipped circuit boards. Circuit boards can be dipped manually or the standard Waage Tanks can be easily integrated into a completely automatic assembly system. Automatic control.

550 DEGREES FAHRENHEIT

Stock No.	Type	Cap. Lbs.	Cap. Watts	Inner Shpg. Dim.	Inner Shpg. Wt.	Net Each
60F1508	RSP1-13-1	10	600	4x4"	15	79.00
60F1509	RSP2-13-1	20	1200	4x8"	23	100.00

700 DEGREES FAHRENHEIT

60F1511	RSP7-5-1	70	1600	9x12"	52	246.00

WAAGE SOLDERING POTS

ROUND SOLDER MELTING POTS

Round solder melting pots for melting solder, tin, lead-type metal and babbitt with temperatures up to 1000° F. Melting crucible of heavy cast iron. Replaceable heating elements are clamped to bottom of crucibles for even heat distribution. Furnished with 6', 115 VAC 3-conductor, grounded cordset. Automatic control.

550 DEGREES FAHRENHEIT

Stock No.	Type	Cap. Lbs.	Cap. Watts	Inside Dia.	Inside Dpth.	NET EA.
60F1501	MP1A-12-1	1	200	1½	1½	52.00
60F1502	MP4A-12-1	4	300	3	1½	57.00
60F1503	MP10A-12-1	10	500	3½	2½	64.00

Soldering Equipment

ERSIN Multicore SOLDERS

ADVANTAGES OF 5 CORES

- **Instant flux flow for rapid wetting.**
- **Eliminates flux voids common to single cores.**
- **Minimal soldering dwell time, heat conduction, and radiation.**

WIRE CORE SOLDERS WITH ROSIN FLUX

Manufactured with multiple, independent cores of high grade Ersin rosin flux. Combination of 5 core construction, purity of metals and fluxing activity insures fast wetting on partially oxidized surfaces.

ROSIN 5 CORE—1 POUND REELS 63/37 ALLOY—MELTING TEMP. 361°F (EUTECTIC)

Stock No.	Gauge	1-10	11-24
33F315	16	9.94	9.44
33F316	18	10.44	9.92
33F317	20	11.18	10.62
34F1115	21	11.80	11.21
33F1013	22	12.42	11.80

60/40 ALLOY—MELTING TEMP. 370°F

34F1116	14	9.20	8.74
33F228	16	9.48	9.00
33F230	18	9.94	9.44
34F1117	19	10.44	9.92
33F231	20	10.72	10.18
34F1118	21	11.22	10.66
34F1119	22	11.96	11.37

HALF POUND REELS—FINE GAUGES 63/37—ROSIN 5 CORE

Stock No.	Gauge	1-10	11-24
33F339	22	7.18	6.82
33F340	24	9.89	9.40
33F341	28	12.60	11.97

60/40—ROSIN 5 CORE

33F344	24	9.43	8.96
33F345	28	12.14	11.54
33F346	32	16.10	15.30

SN 62 (LMP) EUTECTIC 354°F 62 Tin, 36 Lead, 2 Silver

Stock No.	Gauge	1-10	11-24
33F310	16	16.74	15.91
33F311	18	17.48	16.61
34F1120	20	19.00	18.05
33F312	22	21.48	20.41

HMP (HIGH MELTING POINT) 565°F 5 Tin, 93.5 Lead, 1.5 Silver

33F314	18	11.96	11.36
35F1012	22	13.98	13.28

SAVBIT—REDUCES TIP WEAR

Activated rosin core solder. Multiplies life of soldering tips. Reduces solution of fine wires and thin films. Substitute for standard tin/lead alloys.

Stock No.	Gauge	1-10	11-24
33F240	16	9.06	8.61
33F241	18	9.57	9.09
33F238	20	10.07	9.57
33F1014	22	11.09	10.53

HIGH PURITY BAR SOLDER—1 LB. BARS

Stock No.	Alloys	1-10	11-24
35F1011	63/37	9.15	8.70
35F1010	60/40	8.92	8.48
34F1121	50/50	8.18	7.78
34F1122	40/60	6.98	6.63

SOLID WIRE SOLDER—60/40—1 LB. REEL

Stock No.	Gauge	1-10	11-24
34F1123	16	9.48	9.01
34F1124	18	9.94	9.45
34F1125	21	11.22	10.66

ALUMINUM SOLDERING ALLOY—TIN/LEAD/SILVER WITH FLUX CORE ALUSOL 45D—MELTING TEMP. 518°F

33F242	14	11.41	10.84
33F243	16	11.64	11.06
33F244	18	12.14	11.54
34F1126	20	11.18	10.63
33F245	22	14.58	13.85

SOLDER CREAM OXIDE FREE

Pre-alloyed solder and rosin flux mixture. Available in 25 gram syringes for controlled accuracy. Conforms to QQ-S-571e and is QPL.

Stock No.	Type	Alloy	1-10	11-24
34F1127	XM-27298	60/40	5.94	5.65
34F1128	XM-27330	62/36/2AG	7.98	7.59
34F1129	XM-27328	96/4AG	12.90	12.26
34F1130	XM-HMP	5/93.5/1.5AG	7.98	7.59

ECONO-REELS AND DISPENSER PAK SN 60 WITH ROSIN CORE

Stock No.	Type	Gauge	Length	NET
33F246	EZ100	18	14 Ft.	1.85
33F247	PC115	22	21 Ft.	1.85
33F248	SR120	19	40 Ft.	3.12
34F1131	ER220	19	100 Ft.	4.04

STANDARD WIRE GAUGE	10 swg.	14 swg.	16 swg.	18 swg.	19 swg.	20 swg.	21 swg.	22 swg.	24 swg.	28 swg.	32 swg.	34 swg.
DECIMAL EQUIVALENT	.125	.080	.064	.048	.040	.036	.032	.028	.022	.014	.0108	.009

KESTER SOLDER

Litton

KESTER "44" RESIN CORE SOLDER

KESTER SOLID WIRE SOLDERS — The equal of the flux core solders in purity, quality and fabrication, always uniform in diameter and alloy.

Alloy					1-10		11-24		25-Up	
Tin	Lead	Stk. No.	Dia.	GA	1-lb.	5-lb.	1-lb.	5-lb.	1-lb.	5-lb.
40	60	33F1133	125	11	7.12	.....	6.77	.....	6.41	.....
40	60	33F1134	125	11	.....	35.20	.....	33.44	.....	31.68
40	60	33F1102	062	16	7.50	.....	7.13	.....	6.75	.....
40	60	33F1103	062	16	.....	37.10	.....	35.25	.....	33.39
50	50	33F1104	125	11	8.72	.....	8.29	.....	7.85	.....
50	50	33F1105	125	11	.....	43.10	.....	40.95	.....	38.79
50	50	33F1106	062	16	9.00	.....	8.55	.....	8.10	.....
50	50	33F1107	062	16	.....	44.60	.....	42.37	.....	40.14
60	40	33F1108	062	16	10.74	.....	10.21	.....	9.67	.....
60	40	33F1110	031	21	12.00	.....	11.40	.....	10.80	.....

KESTER BAR SOLDER—Uniform distribution of tin-lead alloy in bar provides for more efficient and easy application. Freedom from oxide is virtually assured.

Alloy		Stk. No.	1-10	11-24	25-49
40% Tin	60% Lead	33F1100	6.86	6.52	6.18
50% Tin	50% Lead	33F598	8.28	7.87	7.46
60% Tin	40% Lead	33F599	9.94	9.39	8.95
63% Tin	37% Lead	33F1101	10.44	9.92	9.40

KESTER SOLDERING FLUXES—Use on all metals except aluminum. Kester Soldering Fluxes remain stable even under extreme conditions. **1544:** Evaporating foam flux. **1587:** 50% solid content.

Formula No.	Stk. No.	Pints	Stk. No.	Qts.	Stk. No.	Gals.
1544	33F1135	4.00	33F1136	5.50	33F1137	15.28
1587	33F1141	4.00	33F1142	5.50	33F1143	15.28

PRINTED CIRCUIT TV-RADIO SOLDER

Stock No.	Alloy	Dia.	GA.	Each (1 oz. coil)
33F200	60/40	.050	18	.86

- **Instant Wetting Action**
- **Electrically Non-Conductive Residue**
- **Completely Non-Corrosive Residue**

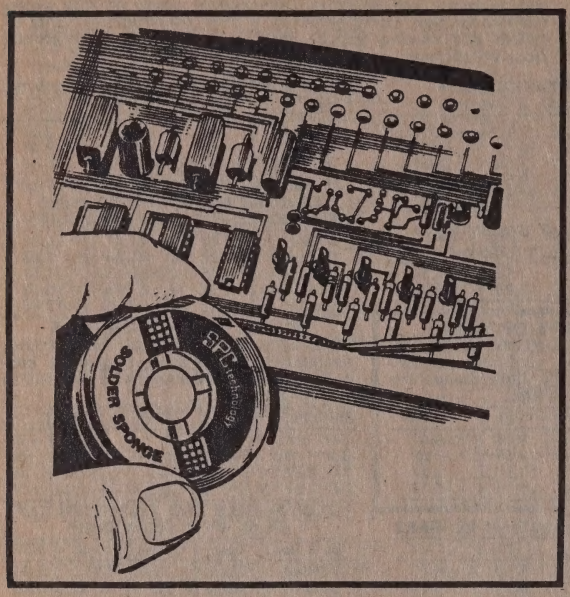
Featuring fast-acting, instant wetting flux. Makes soldering faster and provides a stronger, longer lasting bond. Flux residue is immune to fungus growth, resistant to oxidation and organic decomposition, completely non-corrosive and electrically non-conductive. 3.85% flux core.

Alloy					1-10		11-24		25-Up	
Tin	Lead	Stk. No.	Dia.	GA	1-lb.	5-lb.	1-lb.	5-lb.	1-lb.	5-lb.
40	60	33F205	094	13	7.10	.....	6.75	.....	6.39	.....
40	60	33F219	094	13	.....	35.20	.....	33.44	.....	31.68
50	50	33F207	093	13	8.74	.....	8.31	.....	7.87	.....
60	40	33F221	093	13	10.58	.....	10.06	.....	9.53	.....
60	40	33F222	093	13	.....	52.50	.....	49.88	.....	47.25
40	60	33F213	062	16	7.56	.....	7.19	.....	6.81	.....
40	60	33F214	062	16	.....	37.40	.....	35.53	.....	33.66
50	50	33F215	062	16	9.06	.....	8.61	.....	8.16	.....
50	50	33F216	062	16	.....	45.00	.....	42.75	.....	40.50
60	40	33F217	062	16	10.66	.....	10.13	.....	9.60	.....
60	40	33F218	062	16	.....	52.90	.....	50.26	.....	47.61
63	37	33F1117	062	16	11.26	.....	10.70	.....	10.14	.....
60	40	33F1119	050	18	11.14	.....	10.59	.....	10.03	.....
60	40	33F1120	050	18	.....	54.00	.....	51.30	.....	48.60
63	37	33F1121	050	18	11.70	.....	11.16	.....	10.53	.....
60	40	33F1123	040	19	11.50	.....	19.93	.....	10.35	.....
63	37	33F1125	040	19	11.98	.....	11.39	.....	10.79	.....
60	40	33F223	031	21	11.94	.....	11.33	.....	10.75	.....
60	40	33F224	031	21	.....	47.28*	.....	44.92*	.....	42.56*
63	37	33F1127	031	21	12.42	.....	11.80	.....	11.18	.....
60	40	33F1129	025	23	12.40	.....	11.78	.....	11.16	.....
63	37	33F1131	025	23	12.86	.....	12.22	.....	11.58	.....

*33F224 supplied in 4 lb. spools.

16

SPC technology SOLDER SPONGE™ brand Desoldering Braid



SOLDER SPONGE for any de-soldering job

Solder Sponge is the answer to the de-soldering needs and problems which you may have because Solder Sponge is vacuumized.

Solder Sponge is produced by utilizing space-age technology. The copper braid is de-oxydized and coated with a smooth flux layer by using the vacuumization production technology. Compare the flaky surface coating of competitive products and the smoothness of the flux coating of Solder Sponge. The better the coating the better the behavior. For his vacuumization process patents are applied for in many countries, including USA, England and Japan. The sophisticated vacuum technique produces an effective capillary action between the molten solder and the wick.

Solder Sponge meets all soldering quality specifications set worldwide by critical electronic associations. Such standards exclude harmful and corrosive chlorides content in the flux coating.

Solder Sponge is made with very soft chemicals because of a vacuum manufacturing technique, and is noncorrosive. Contains practically no chlorides or halogens and has a long shelf life.

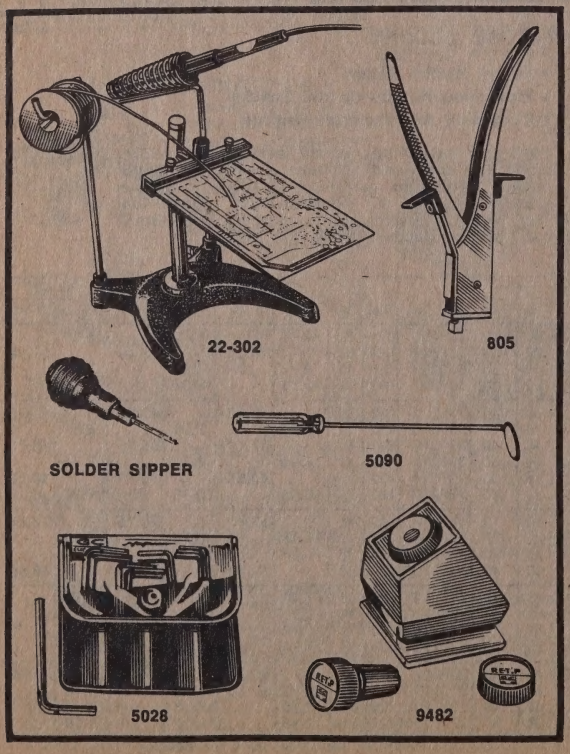
Solder Sponge effectively removes solder leaving no corrosive residue.

Solder Sponge is an effective and economical means of de-soldering available today for use in military, industrial and commercal applications.

Stk. No.	Type	Width	EACH 1-24	EACH 25-99	EACH 100-Up
32N1120	B-06	.06	1.65	1.35	1.08
32N1121	B-08	.08	1.65	1.35	1.08
32N1122	B-10	.10	1.89	1.54	1.23

GC ELECTRONICS

Tools And Soldering Equipment



NIBBLING TOOL

Type 805. Hand operated nibbling tool cuts sheet metal like a chassis punch. Start with a ⅜″ hole and nibble to shape and size desired. Easy to use, cuts up to 18 ga. steel, 1/16″ copper, aluminum and plastic.
34F1018. NET **7.95**

SOLDER SIPPER

Removes molten solder from electrical connections or any place where solder is concentrated in a small mass. Teflon tubes give long dependable life under normal use over 500°F. Small, lightweight. Shpg. Weight, 5 oz.
33F487. NET **1.50**

RE-TIP

Type 9482. Cleans soldering tips. Insert hot iron tip into RE-TIP, then withdraw—all contaminants are removed. Uniformly cleans tips up to ¼″ diameter—prevents contaminated solder joints. Prolongs tip life; tips solder faster, longer. With base for use in shop. **Type 9484.** Refill cartridge.
34F1019. RE-TIP base and cartridge. **NET**..... **6.95**
34F1020. Refill cartridge only (boxed). **NET**..... **2.95**

DELUXE SOLDER STATION

Type 22-302. Designed to hold PC board, iron, and solder spool. Time-saving device. Spring-cushion grips for secure positioning of PC board. Solder iron holder accommodates pencil type irons, dissipates heat. Spool holder takes up to 2″ spool sizes. Sturdy die-cast base insures stability. PC boards can be tilted and rotated a full 360° for ease and convenience. Adaptable for right or left-hand use.
34F1021. NET **27.95**

INSPECTION MIRROR

Type 5090. For inspecting parts, coils, wiring—numerous uses. Allows you to see under the chassis. Metal shaft with glass mirror and plastic handle. 7⅞″ long.
34F557. NET **1.28**

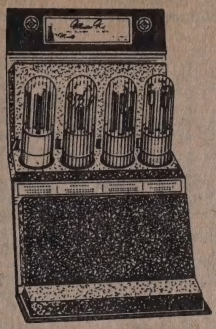
HEX AND SPLINE WRENCH KIT

Type 5028. A complete wrench kit for both hex and spline type screws, used in the electronic field. Twelve wrenches in an attractive leatherette case. Will fit No. 2 to ⅜″ screws.
34F520. NET **2.00**

16

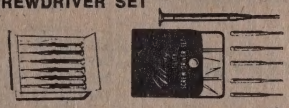
Selected Top-Quality Tools

MOODY SUBMINIATURE TOOLS



Model MMK-4. Contains four individual Moody kits each with five interchangeable, bright plated tool tips and one chuck-type swiveltop handle all in a durable leatherette case. Screwdriver kit has sizes same as SC-5 described below. Phillips and Allen kit has sizes same as PA-5 described below. Socket kit has sockets described in SW-5 below. Open end wrench kit has sizes same as OE-5 below.
28F1840. NET **22.50**

JEWELER'S SCREWDRIVER SET

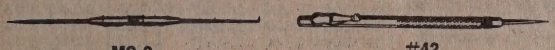


Model JS-6, meets Mil. Spec. GGG-S-121d. One set of six complete screwdrivers with properly heat-treated blades. Blades sizes .025", .040", .055", .070", .080" and .100".
33F479. NET **8.00**
Model 52. Handle and six interchangeable blades. .025", .040", .055", .070", .080", .100". Meets GGG-S-121-D.
33F696. NET **4.50**

TOOL SETS

Stk. No.	Type	Description	NET
34F768	58-0148	Phillips & Allen Set	7.50
34F772	58-0149	Allen Set	8.00
34F785	58-0150	Socket Set	8.50
34F786	58-0151	Open End Set	10.00

POCKET AND MACHINIST SCRIBERS

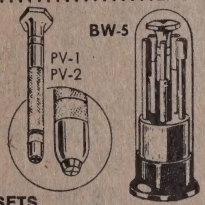


MS-2 #42

Model MS-2. Meets MIL-Spec. GGG-131. Approximately 8½" overall with a hook point and a straight point. Has knurled aluminum finger grip handle.
34F559. NET **1.20**
Model 42. On one end, powerful magnet for prodding. Other end stores a scribing point. Pocket clip.
33F697. NET **2.50**

SWIVEL TOP PIN VISES

Have knurled metal handles and solid locking chucks. The PV-1 will take drills sizes #80 to #68, (.0135" to .031"). The PV-2 will take drill sizes #67 to #52. (.032" to .0635").



Stk. No.	Type	1-11
33F480	PV-1	2.00
33F481	PV-2	2.00

SUBMINIATURE TOOL SETS

BW-5 and SW-5 Socket Wrench Set. 5 interchangeable tiny hex socket wrenches. All fit the same handle. Enables inserting or removing tiny nuts from hard-to-get-at places. Wrench sizes: 5/64", 3/32", 7/64", 1/8", and 5/32".

Type OE-5. Offset Open End Wrench Set. Tiny offset open end wrenches. Made of tough heat-treated steel. Wrenches are completely interchangeable in the chuck-type handle. Ideal for all types of tiny nuts found in electrical and other small devices. Wrench Sizes: 5/64", 3/32", 7/64", 1/8" and 5/32". Shpg. wt. 8 oz.

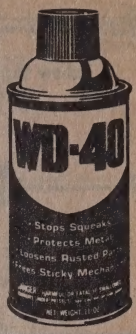
Type PA-5. Miniature Phillips and Allen 6 Piece Set. Contains two smallest-sizes Phillips screwdrivers, plus three tiny Allen-type wrenches . . . all interchangeable in swivel-top universal handle. You get: Phillips #0 and #1, plus Allen Nos. 4, 6, and 8. Shpg. wt., 7 oz.

Type SC-5. Jewelers' Screwdriver 6 Piece Set. Perfect for dismantling small assemblies. Five interchangeable rust-resistant blades fit universal swivel-top handle. Sizes include .055", .070", .080" and .100". Complete with awl and colorful plastic stand and cover. Wt.: 7 oz.

Stk. No.	Type	Description	NET
33F473	BW-5	Socket wrenches w/magnetic handle	7.00
33F472	SW-5	Socket wrenches/non-mag. handle	5.50
33F474	OE-5	Offset open end wrenches	4.20
33F476	PA-5	Mini Phillips & Allen 6 pc. set	4.80
33F475	SC-5	Jeweler's 6 pc. screwdriver set	2.95

WD-40 SPRAY CLEANER

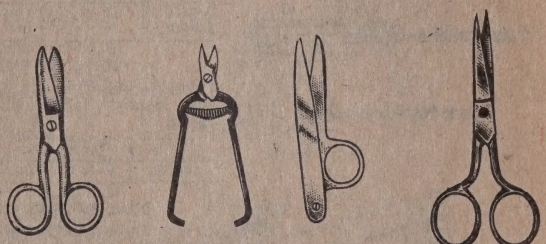
- **Penetrates**
- **Protects**
- **Cleans**
- **Lubricates**



WD-40 spray cleaner is perfect for cleaning contacts, cleaning sticky parts and lubricating all types of machine parts. As a fast-acting penetrant, WD-40 loosens rusty joints easily. WD-40 can be used to protect metal from moisture and corrosion. This silicone-free spray leaves no gummy residue and is a non-conductor of electricity. Quickly eliminates moisture-induced short circuits in electrical and electronic equipment. WD-40 is available in a 12 ounce aerosol spray.

Stk. No.	Type	Description	NET
34F787	40015	12 oz. aerosol spray	2.60

CLAUSS TOOLS

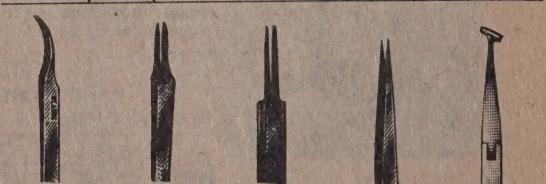


925 76½ TC4½ 384

SCISSORS AND SNIPS

Scissors have small hardened points for fine cutting. Double plated, chrome over nickel except (*).

Stk. No.	Type	Description	Size	Wt.	NET
34F780	925	Electricians' scissors	5"	3 oz.	7.50
34F781	76½*	Filament snip	6½"	5 oz.	9.00
34F782	TC4½	Thread snip for light cutting	4½"	3 oz.	8.00
34F771	384	General cutting tool, slender blades	4"	⅔ oz.	8.25
34F789	331¼	Fine Wire Cutters	3¼"	4 oz.	9.25
34F790	431½	Fine Wire Cutters	3½"	4 oz.	8.00
34F791	564	Fine Wire Cutters	4"	4 oz.	8.00



7SS 55 5 AA AW

DOMESTIC TWEEZERS

Non-magnetic, exc. for AA. Satin-finish stainless steel. Delicate feel and balance. With smooth inside points except (*) serrated

Stk. No.	Type	Description	Size	Wt.	NET
34F773	7SS	Curved tweezers	4½"	⅓ oz.	7.00
34F774	55	Long, V-shaped	4¼"	⅓ oz.	3.75
34F775	5	Long, slender	4¼"	⅓ oz.	4.00
34F776	231*	Serrated inside points	4¾"	⅔ oz.	4.75
34F777	AA	Tapered points	4⅞"	⅔ oz.	4.00

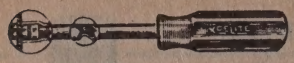
ANTI-WICKING TOOLS

Stock No.	Type	Gauge	NET
34F796	AW22	22	15.50
34F797	AW24	24	

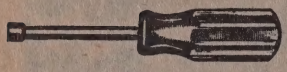
16

Top-Quality Drivers and Tools

XCELITE

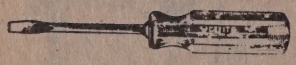


Hollow Shaft Nut Driver
HS Series

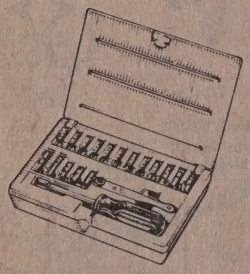


Solid Shaft Nut Driver

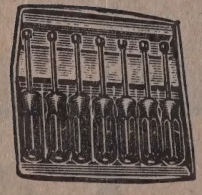
Phillips Screwdriver
X Series



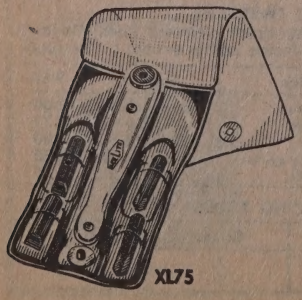
Shock Proof Screwdriver



XL-70 Sets



Tray Bien Nut Driver Sets



XL75

HOLLOW SHAFT NUT-DRIVERS

Ideal for use where nuts must be installed or removed over protruding bolts. Finely-tempered and finished steel. (*) Volume control wrench. Shpg. wt. 6 oz.

Stk. No.	Type	Nut Size	Handle	1-11	12-47	48-Up
34F319	HS-8	1/4"	red			
34F320	HS-10	5/16"	amber			
34F321	HS-11	11/32"	gree	1.80	1.62	1.44
34F322	HS-12	3/8"	blue			
34F323	HS-14	7/16"	brown	2.10	1.89	1.68
34F324	HS-16	1/2"	red	2.10	1.89	1.68
34F325	HS-18*	9/16"	orange	2.15	1.94	1.72

SOLID SHAFT NUT-DRIVERS

Most popular sizes. 6" long over all. Made of hardened and polished tool steel. Color coded plastic handles. 4-oz.

Stk. No.	Type	Nut Size	Handle	1-11	12-47	48-Up
34F300	6	3/16"	black			
34F301	7	7/32"	brown			
34F302	8	1/4"	red			
34F303	9	9/32"	orange			
34F304	10	5/16"	amber	1.57	1.41	1.25
34F305	11	11/32"	green			
34F306	12	3/8"	blue			
34F307	14	7/16"	brown			
34F308	16	1/2"	red	2.00	1.80	1.60

10 PC. NUTDRIVER SET

Contains 4MM through 13MM all with 31.75 mm. depth shaft hole. Black handles in rolled kit.

Stk. No.	Type	1-11	12-47	48-Up
34F189	4-13mm.	20.09	18.09	16.08

DUAL PURPOSE SCREWDRIVERS

Handy Screwdrivers with reversible blades. Type CR1 is for 3/16" and No. 1 Phillips screws; Type CR2, 1/4" and No. 2 Phillips screws; Overall length 7 1/4".

Stk. No.	Type	Blade Size	1-11	12-47	48-Up
34F298	CR1	3/16"	2.85	2.57	2.28
34F299	CR2	1/4"	2.85	2.57	2.28

"TRAY BIEN" NUTDRIVER SETS

Nutdrivers have carbon steel shafts. Case hardened sockets. Plastic (UL) handles color coded. Features lightweight plastic case. Wall mounting holes. Compact, easily stacked.

Model 127TB. Solid shaft nutdriver set. Hex openings range from 3/16" to 3/8" in 1/32" steps.

34F368 ..... **12.05**

Model 147TB. Hollow shaft nutdriver set. Hex openings of 1/4" to 1/2".

34F366 ..... **15.11**

PHILLIPS SCREWDRIVERS

All equipped with black plastic (UL) handles.

Stk. No.	Type No.	Point Size	Total Length	1-11	12-47	48-Up
35F1433	XST-100	0	4 5/8"	1.20	1.08	.96
35F1434	XST-101	1	6 5/8"	1.67	1.50	1.33
35F1435	XST-102	2	8 1/8"	2.10	1.89	1.68

PHILLIPS SCREWDRIVERS

Special alloy steel. Av. wt., 5 oz. †Stubby types. *Pocket clip.

Stk. No.	Type	Point Size	Blade Size	1-11	12-47	48-Up
34F290	X-101	1	3"	1.43	1.29	1.15
34F291	X-102	2	4"	1.77	1.59	1.41
34F292	X-103	3	6"	2.57	2.31	2.05
34F293	X-104	4	8"	3.22	2.90	2.57
34F294	X-108	1	6"	1.67	1.50	1.33
34F295	X-1010	1	10"	2.15	1.94	1.72
34F296	X-1020	2	10"	2.43	2.19	1.95
34F287	SX-101†	1	1 7/16"	1.33	1.20	1.07
34F288	SX-102†	2	1 5/16"	1.50	1.35	1.20
34F289	P-125*	0	2"	.87	.78	.69

SCREWDRIVERS

Tips ground to rectangle shape. Handles are amber plastic. (*) Have 1/2" dia. handles. (†) Have 1 3/8" dia. handles, stubby types. 8 oz.

SQUARE BLADES

Stk. No.	Type	Blade Size	1-11	12-47	48-Up
34F276	S-141†	1/4 x 1 1/4"	1.17	1.05	.93
34F275	S-3161†	3/16 x 1 1/4"	1.07	.96	.85
34F203	S-3163	3/16 x 3"	1.33	1.20	1.07
34F204	S-3164	3/16 x 4"	1.50	1.35	1.20
34F205	S-3166	3/16 x 6"	1.63	1.47	1.31
34F206	S-3168	3/16 x 8"	1.90	1.71	1.52
34F209	S-144	1/4 x 4"	1.80	1.62	1.44
34F210	S-146	1/4 x 6"	2.00	1.80	1.60
34F211	S-148	1/4 x 8"	2.15	1.94	1.72
35F1426	S-5164	5/16 x 4"	2.00	1.80	1.60
34F213	S-5166	5/16 x 6"	2.23	2.01	1.79
34F214	S-5168	5/16 x 8"	2.53	2.28	2.03
34F217	S-388	± x 8"	3.55	3.20	2.84
34F218	S-3812†	± x 12"	4.85	4.37	3.88

ROUND BLADES

Stk. No.	Type	Blade Size	1-11	12-47	48-Up
34F250	R-3322*	3/32 x 2"	.67	.60	.53
34F251	R-3323*	3/32 x 3"	.73	.66	.59
34F252	R-3324*	3/32 x 4"	.77	.69	.61
34F254	R-182†	1/8 x 2"	.77	.69	.61
34F253	R-183*	1/8 x 3"	.73	.66	.59
34F255	R-184†	1/8 x 4"	.87	.78	.69
34F256	R-186†	1/8 x 6"	.95	.86	.76
34F257	R-188†	1/8 x 8"	1.17	1.05	.93
34F258	R-1810†	1/8 x 10"	1.28	1.16	1.03
34F259	R-5223†	5/32 x 3"	.95	.86	.76
34F260	R-5324†	5/32 x 4"	.95	.86	.76
34F261	R-5325†	5/32 x 5"	1.07	.96	.85
34F262	R-5328†	5/32 x 8"	1.28	1.16	1.03
34F263	R-3163	3/16 x 3"	1.25	1.13	1.00
34F264	R-3164	3/16 x 4"	1.33	1.20	1.07
34F265	R-3166	3/16 x 6"	1.50	1.35	1.20
34F266	R-3168	3/16 x 8"	1.67	1.50	1.33
34F267	R-31610	3/16 x 10"	2.00	1.80	1.60
34F269	R-144	1/4 x 4"	1.77	1.59	1.41
34F270	R-146	1/4 x 6"	1.90	1.71	1.52
34F271	R-148	1/4 x 8"	2.05	1.85	1.64
34F272	R-1410	1/4 x 10"	2.15	1.94	1.72
34F273	R-5166	5/16 x 6"	2.15	1.94	1.72
34F274	R-5168	5/16 x 8"	2.28	2.06	1.83
34F277	R-181*	1/8 x 2"	.67	.60	.53

OFFSET RATCHET SCREWDRIVER SETS

XL70. 19 piece reversible screwdriver set. For all work involving Allen Hex type, Phillips, and slotted screws. All driver bits 1/4" hex shank.

35F200 ..... **21.32**

OFFSET RATCHET SCREWDRIVER SET

XL-75. 3/16" and 1/4" slotted screw bits. #1 and #2 Phillips screw bits. 3-3 3/4" reversible ratchet. 1/4" hex shank on all driver bits.

35F1436. NET **6.73**

WISS SHEARS AND SCISSORS

175-E TC-1 3765T

TC-1. Wiss Thread Clips, sharp points, nickel plated, jaws held open by spring.
34F1000. NET **6.83**

TC-5. Wiss Thread Clips, blunt points, nickel plated, 4 5/8" long.
34F1001. NET **6.83**

1570-B. Wiss Quick-Clip Thread Clips, sharp points, Delrin body, replaceable blades.
34F1002. NET **4.17**

175-E. Wiss Electricians Scissors, sharp points, scraper and file on back of blade.
34F1003. NET **6.56**

3765T. Wiss Contura-Lite needle point shears, polished stainless steel, 4 3/4"L.
34F1004. NET **5.31**

16

Professional Hand Tools

XCELITE®

METRIC HAND TOOLS & SETS. Manufactured precisely to metric dimensions. Useful in the assembly and service of foreign-designed equipment. Finished in nickel-chrome. Allen hex finished in black oxide. All dimensions given in millimeters.

No. 99PS-41MM METRIC HEX SOCKET SCREWDRIVER SET. Includes seven metric Allen Hex type blades (99-71 thru 99-77 in MM sizes 1.27, 1.5, 2, 2.5, 3, 4), 99-X5 extension blade, 99-1 handle and see-thru case.
34F621 NET **13.34**

No. 99 PS-41MMBP METRIC BALLPOINT HEX SOCKET SCREWDRIVER SET. Includes 7 screwdriver blades (99-71MMBP thru 99-77 MMBP in MM sizes 1.27, 1.5, 2, 2.5, 3, 4) 99-X5 extension blade 99-1 handle, and see-thru case.
34F622 NET **15.71**

No. PS-90MM METRIC HEX SOCKET SCREWDRIVER SET. Contains eight drivers (hex sizes .89MM, 1.27MM, 1.5MM, 2MM, 2.5MM, 3MM, 4MM, 5MM), torque handle and case.
34F623 NET **8.78**

No. PS-121MM METRIC NUTDRIVER SET. Contains ten drivers (hex sizes 3MM, 3.5MM, 4MM, 4.5MM, 5MM, 5.5MM, 6MM, 7MM, 8MM, 10MM) torque handle, and case.
34F624. NET..... **13.06**

NUTDRIVER SET

99PS51MM. Ten piece. 4MM-11MM hex opening. 2MM-7MM thread dia. Plastic case.
35F209 NET **17.04**

Kit 600. Combination Screw driver-Nutdriver Set. Two hex openings in handle, ¼ and 7/16″ serve as nutdrivers. Includes SB-1 blade. Wt. 3 oz.
35F1421. NET.....**1-11 3.10** **12-47 2.79**

CK-20. Number 25 handle with two sets of blades. RB1 and RB2. Packaged in clear plastic pouch with zip-top closure. Shpg. wt. 6½ oz.
35F1423. NET..... **5.33**

Kit CK23. Has plastic handle and three blades, choice of six tips: #1, 2 and 3 Phillips tips and 3/16″, ¼″ and 5/16″ slotted blades. In plastic zipper case.
35F1424. NET..... **6.96**

Kit HS6-18. Kit contains ten hollow shaft nut-drivers with hex openings 3/16″, 7/32″, ¼″, 9/32″, 5/16″, 11/32″, 3/8″, 7/16″, ½″, and 9/16″. Packaged in a sturdy, plastic case. Shpg. weight 2 lbs.
34F376. NET..... **20.74**

COMPACT NUTDRIVER SETS

Kit. 99 PS-50. Contains nutdrivers 99-6 to 99-12; Phillips screwdrivers 99-821 and 822; extension 99-X5; slotted blades 99-811 and 99-250; and handle 99-1. In plastic case. Shpg. wt. 1 lb.
34F341. NET..... **16.33**

ALLEN HEX SET

Kit 99-PS-40. Includes 99-1 handle; Allen hex screwdriver blades 99-20 thru 99-26 and 99-764 and 99-964; four inch ext. blade 99-X5. Shpg. wt. 12½ oz.
34F339. NET..... **13.34**

Type PS-89. 8 midget Allen hex type screwdrivers, in sizes .028″, .035″, .050″, 1/16″, 3/64″, 5/32″, 7/64″, 1/8″. "Piggyback" torque amplifier handle slips over top of midget tool handles.
35F1432. NET..... **7.86**

MINI–SCREWDRIVER SET

M-60. Six piece slotted and Phillips with case. 00 Phillips, .040, .050, .070, .080, .100 and torque amplifier handle.
35F206. NET..... **3.78**

BALLPOINT ALLEN HEX SET

99PS408P. Nine drivers. .050; 1/16, 3/64, 5/32, 7/64, 1/8, 9/64, 5/32, 3/16. 99-x5 Extension. Regular 99-1 handle. Standup. see-thru plastic case.
35F208. NET..... **17.98**

99 PR. Contains 99-1, nutdrivers 99-6 to 99-16, 99-811, 99-250, 99-281 and 99-822 in pouch, 24 oz.
34F395. NET..... **17.98**

Kit PS-120. Ten nutdrivers Hex openings of 5/32″, 1/8″, 9/64″, 3/16″, ¼″, 7/32″, 5/16″, 11/32″, tool is 3½″. Shipping wt. 9¾ oz.
34F336. NET..... **10.90**

SERIES 99 PART NUMBERS

HANDLES

Stk. No.	Type	Description	Lght.	1-11	12-47	48-Up
34F398	99-1	1 1/16″ dia.	4⅛	1.28	1.16	1.03
35F3111	99-3	1 1/16″ dia.	2″	1.20	1.08	.96
33F1150	99-1-R	Rev. Ratchet		8.76	7.89	7.01
33F1151	99-4-R	Handles, Black		8.76	7.89	7.01

NUT DRIVER

35F3112	99-6	3/16″	3⅝″	1.20	1.08	.96
35F3113	99-7	7/32″	3⅝″	1.20	1.08	.96
35F3114	99-8	¼″	3⅝″	1.20	1.08	.96
35F3115	99-S8	¼″	1⅜″	.95	.86	.76
35F3116	99-9	9/32″	3⅝″	1.20	1.08	.96
35F3117	99-10	5/16″	3⅝″	1.20	1.08	.96
35F3118	99-S10	11/32″	1⅜″	.95	.86	.76
35F3119	99-11	11/32″	3⅝″	1.20	1.08	.96
35F3120	99-12	3/8″	3⅝″	1.20	1.08	.96
35F3122	98-14	7/16″	3⅝″	1.43	1.29	1.15
35F3123	99-16	½″	3⅝″	1.43	1.29	1.15

ALLEN HEX

35F3124	99-20	.050″	4″	1.10	.99	.88
35F3125	99-21	1 1/16″	4″	1.10	.99	.88
35F3126	99-22	5/64″	4″	1.10	.99	.88
35F3127	99-23	3/32″	4″	1.10	.99	.88
35F3128	99-764	7/64″	4″	1.10	.99	.88
35F3129	99-24	1/8″	4″	1.10	.99	.88
35F3130	99-964	9/64″	4″	1.10	.99	.88
35F3131	99-25	5/32″	4″	1.10	.99	.88
35F3132	99-26	3/16″	4″	1.10	.99	.88

REAMER

35F3133	99-38	1/8″-3/8″	4⅛″	3.10	2.79	2.48

SLOTTED SCREWDRIVER

35F3135	99-250	¼″	3⅜″	1.20	1.08	.96
35F3136	99-811	5/16″	3⅜″	1.20	1.08	.96

PHILLIPS SCREWDRIVER

35F3137	99-821	#1	3⅜″	1.20	1.08	.96
35F3138	99-822	2	3⅜″	1.20	1.08	.96

EXTENSIONS

35F3139	99-X5	4″	4″	1.67	1.50	1.33
35F3140	99-X10	7″	7″	1.80	1.62	1.44

99-SMW. 27 piece kit contains 99-1 (Regular) and 99-3 (Stubby) handles, nine regular nutdrivers (99-6 thru 99-16), three stubby nutdrivers (99-S8 thru 99-S12), two slotted screwdrivers (99-811, 99-250), two Phillips screwdrivers (99-821 and 99-822), one reamer (99-38), extension blade (99-X10), 6″ long nose cushion grip plier (52CG), 5″ diagonal cushion grip plier (55CG), 6″ cushion grip adjustable wrench (46CG), plastic-coated canvas case (99-SMK). Plus WP25 soldering iron with 1/16″ screwdriver tip, ST3 1/8″ screwdriver tip, No. 100 wire stripper/cutter, and 99SMWK plastic-coated canvas case.
34F1005. NET..... **66.09**

THE SERVICEMAN'S COMPLETE KIT. Kit 99SM. 6″ longnose, 5″ dia. pliers, 6″ adj wrench, handles 99-1, 99-3, nutdrivers 99-6 thru 99-16 stubby models 99-S8, S10, S12. Phillips blades 99-821, extension. 99x10. slotted blades 99-811, 99-250, reamers 99-38. Canvas pouch.
34F388. NET..... **51.63**

99PS-60. Bristol Multiple Spline socket screwdrivers. Handle 99-1 blade 99-x5 and 9 bristol blades, two 4-flute and seven 6-flute type, .048″ to .183″. All 4″ long. Shpg. wt. 1½ lbs.
34F340. NET..... **13.34**

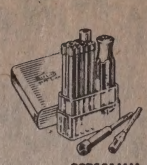
99MP. 39 piece kit contains 99-1 (regular) and 99-4 (tee) handles, ten regular nut drivers (99-6 to 99-16), nine Allen Hex type screwdrivers (99-20 to 99-26), nine Bristol Multiple Spline screwdrvers (99-61 to 99-69), three slotted screwdrivers (99-811, 99-250, 99-312), two Phillips screwdrivers (99-821, 99-822), reamer (99-38), and extension blade (99-X5).
34F223. NET..... **53.33**

Kit PS-7. Two Hex nutdrivers of ¼″ and 5/16″; two slotted screwdrivers with blades of 3/16″ and 5/32″; and two Phillips screwdrivers, types #0 and #1. Torque amplifier and workbench carrying case. Wt. 6 oz.
34F335. NET..... **7.56**

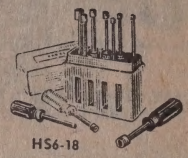
Kit PS-88. Slotted blade sizes are: 5/32″, 1/8″, 5/32″, 3/16″, and ¼″ Phillips Nos. 0, 1 and 2 points. Overall length 3½″. Shpg. weight 6¾ oz.
34F375. NET..... **7.86**

Kit PS-130. 10 pieces. Screw/nut driver set. 1, 2 Phillips. 1/8, 3/16, ¼, 5/16, 11/32, 3/8 nutdrivers.
35F207. NET..... **10.41**

KIT 600


99PS51MM

CK23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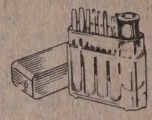
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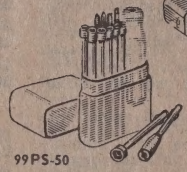
PS-88
PS-89
PS-120
PS-130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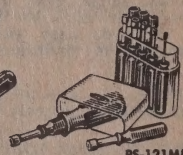
M-60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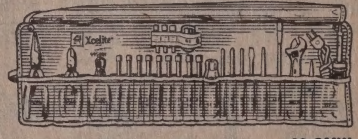
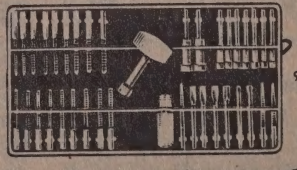
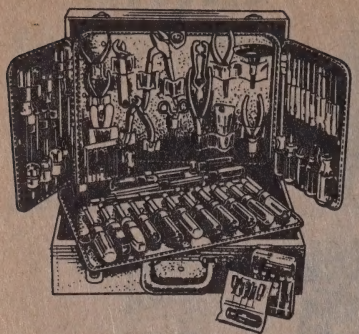

99-SMW

99SM


99MP

99PR

16



TECHNICIAN/SERVICEMAN'S AND FIELD ENGINEER'S TOOL KIT

MODEL TC-100/ST TOOL KIT

53 tools including pliers, wrenches, snips, screw and nut drivers, 31 Series 99 interchangeable screw and nut drivers, reamers, handles, and 2 sets of specialized screw and nut drivers. Leather grain case with wood frame, brass hardware and padded handle. Includes case.

35FX215 ..... 297.77
35F216. TC-200/MT. Case only. **NET 88.30**

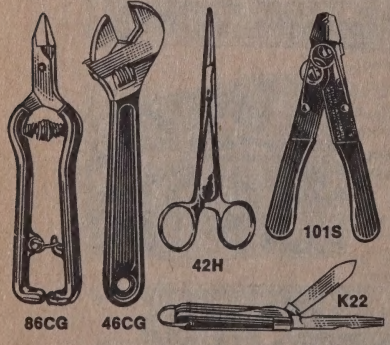
MODEL TC-200/ST TOOL KIT

10 assorted snips, pliers, wire cutters, wrenches, etc. plus 27 interchangeable Series 99 screw and nut drivers. Case also provides ample room for meters, parts, other tools, etc. File pocket for literature. Durahyde case with wooden frame, brass finished hardware. Includes case.

35FX217. NET 157.35
35F218. TC-200/MT. Case only. **NET 48.56**

MODEL TC-150/ST TOOL KIT

25 Assorted tools. 24 Series 99 screws and nutdrivers, cordless soldering iron, recharger and solder, 2 measuring tapes.
34F581. NET 247.75
34F582. TC-150/MT. Case Only.....79.47



STAINLESS STEEL "SEIZERS"

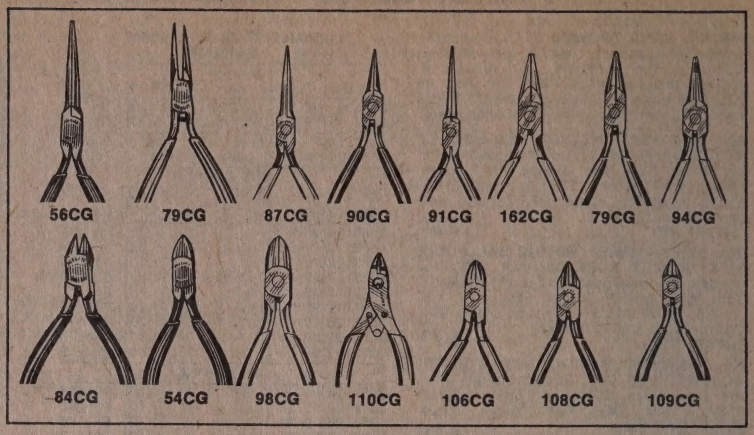
Stk. No.	Type	Description	1-11	12-47	48-Up
34F370	42H	6" straight nose	8.23	7.41	6.59
34F371	43H	6" curved nose	8.46	7.62	6.77
34F373	32H	5" straight nose	7.95	7.16	6.36

ADJUSTABLE WRENCHES

44CG. 4" length. ½" opening.
35F255. NET 6.88

46CG. 6" length. ¾" opening.
35F256. NET 6.96

48CG. 8" length. opening
48CG. 8" length. 1⅝" opening.
35F257. NET 7.43



LONG NOSE PLIERS

41CG. Midget 4" without side cutters.
35F223. NET 7.00

51CG. 6" long nose with side cutters.
35F224. NET 8.35

52CG. 6" long nose without side cutters.
35F225. NET 6.75

NEEDLE NOSE PLIERS

57CG. 5½". Fine serrated jaws. Spring.
35F230. NET 8.58

87CG. 5½". Fine serrations. 1 13/16" nose.
34F1011. NET 8.91

90CG. 4½". Spring. 3/64x1/16" point.
34F1014. NET 10.06

91CG. 6". Spring, fine serrated jaws.
34F1007. NET 9.36

CHAIN NOSE PLIERS

72CG. 5". Thin chain nose. Beveled jaws.
35F242. NET 8.20

162CG. 4" long for fine close work.
34F1006. NET 7.66

77CG. 4½" slim for subminiature elec.
34F1009. NET 8.18

CUTTING AND LOOPING

94CG. 6"long for cutting and forming.
34F1012. NET 10.65

DIAGONAL PLIERS

54CG. Midget 4" for close work.
35F219. NET 7.36

55CG. 5" plier for most cutting needs.
35F220. NET 8.00

64CG. 4" long for fine wires in close.
35F238. NET 9.83

66CG. 6" all purpose diagonal plier.
35F221. NET 8.35

67CG. 7" pliers for heavy duty cutting.
35F222. NET 8.20

98CG. 4" slim round nose design.
34F1015. NET 8.00

110CG. 4" long. Stainless steel.
34F1008. NET 18.78

106CG. 4½" Round nose, general use.
34F1110. NET 8.36

108CG. 4½" Tapered nose, back clearance.
34F1013. NET 11.38

109CG. 4" Fine tapered nose.
34F1016. NET 12.00

DIAGONAL CLOSE CUTTING PLIERS

74CG. 4" Fine tapered nose. Sharp edge.
35F236. NET 10.20

84CG. 4". Full flush cutting plier.
35F237. NET 10.56

95CG. 5". Thin pointed nose. Electronic.
35F239. NET 11.41

SPECIAL PURPOSE PLIERS

58CG. 6" electronic plier. Cutting edge.
35F226. NET 9.95

59CG. 8" long reach. Electrician's pliers.
35F227. NET 9.58

UTILITY PLIERS

50CG. 5" midget slip joint. Open adj-½".
35F231. NET 5.00

53CG. 7" all purpose. Max. opening 1 1/16".
35F232. NET 5.78

63CG. 10". Rib lock. Max. opening 1½".
35F233. NET 7.36

SIDE CUTTING PLIERS

60CG. 6". Serrated top and bottom jaws.
35F234. NET 8.50

68CG. 8". Leverage for heavy wire cutting.
35F235. NET 10.56

FLAT NOSE PLIERS

70CG. 5". For gripping. No cutter.
35F240. NET 7.86

ROUND NOSE PLIERS

71CG. 4½". Carefully rounded. Fine point.
35F241. NET 8.11

SPECIAL ELECTRONIC PLIERS

69CG. 5". Fine point. 5/16" edge.
35F243. NET 10.98

73CG. 4½". Cutter at tip. Cuts 45°.
35F244. NET 12.64

79CG. 5". Bent thin pliers. 60° angle.
35F245. NET 11.23

WIRE STRIPPERS

100. Adj. screw stop for dif. wire sizes. Cushion grips. Handles solid and stranded wire. Hardened with ground blades.
35F246. NET 2.20

101-S. Same as 100 exc. spring handles.
35F247. NET 2.85

103-S. Cam stop adj. for dif. wire sizes. Cam won't move. Fine for industrial use.
35F248. NET 3.55

SNIPS

96CG. Snips cut flush up to 14AWG.
34F585. NET 4.56

97CG. Identical to 96CG but including special clip which holds cut-off wires.
34F586. NET 6.38

86CG. 6½" Shears. Cut light sheet metal. Coil spring and latch. Cushion handle.
35F250. NET 7.70

SLIP JOINT PLIERS

75C. 5". Chrome plated plier in small size.
35F252. NET 3.43

76C. 6". Chrome plated for general use.
35F253. NET 3.57

78C. 8". Chrome plated for heavy use.
35F254. NET 4.30

ELECTRICIAN'S KNIFE

K22. Knife and screwdriver. Utility tool.
35F251. NET 7.40

TOOLS

GENERAL HARDWARE TOOLS

QUALITY CIRCLE CUTTERS

Fig. A. Cut round holes in metal, wood, bakelite, etc. Used with drill press, hand drill or brace. Fully adjustable. Wt., 8 oz.

No.	Type	Shank	Size	NET
34F571	4	Comb. ¼"	⅞" to 4"	4.80
34F573	5-B	Round 5/16"	1" to 5½"	5.10

Extra blade for Types 4, 5-A or 5-B circle cutters above. 4 oz.
34F574. NET **1.20**

Fig B. Type 55. Cuts holes from 1¾" to 8" dia. Made of tool steel with Jessup cutting bits. Has ½" shank to fit ½" chuck. Set screw wrench included. Wt., 8 oz.
34F575. NET **9.44**

34F576. Extra blade for above. **NET 1.70**

CHASSIS LAYOUT TOOLS

Fig. C. Model 83. Pocket Scribe. Hex head, steel case, locking chuck. 2¼" tapered point may be reversed. Size, 4¾".
34F560. NET **1.50**

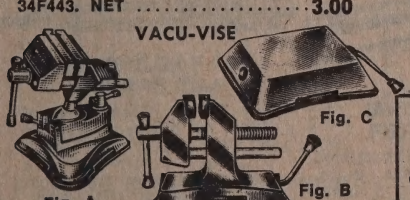
Fig. D. Model 15. Drill and Wire Gauge. Decimal equivalents for sizes 1 to 60. Lists taps and body drill sizes ¼-28 to 2-56.
34F561. NET **4.08**

Fig. E. Model 16. Multi-Use Rule & Gauge. A 4" rule in 32nds and 64ths, drill point gauge, sq., bevel protractor, center finder, circle divider, tap drill table. Wt. 4 oz.
34F562. NET **3.24**

INSPECTION MIRROR

Type 558. 2"x1" oval inspection mirror. Adjustable 6" knurled chrome plated handle.
34F443. NET **3.00**

VACU-VISE



Model 1850. Fig. A. For drilling, soldering, filing and assembling. Slide-on rubber jaws for fragile work. Swivels 360. Tilts 90. 3" metal jaws open to 2⅝". No clamps or screws needed. Holds firmly in any position to any smooth non-porous surface. 6¼"Tri. x 6¼"H. Wt. 5 lbs.
35F1183. NET **27.30**

Model 1800. Fig. B. Same as Model 1850 but non-swivel.
35F1295. NET **16.70**

MULTI-PURPOSE VACU BASE

Model 1804. Fig. C. Fastens to any smooth surface by vacuum. Die cast metal alloy. Material on top and sides for mounting. 3⅝"L x 2¾"W x 1⅛"H. Wt. 1 lb.
35F1298. NET **8.88**

Fig. F. Model 310. 6" Steel Rule and Wire Gauge. Gives 32nd and 64th graduations B and S wire gauge and decimal equiv.
34F563. NET **1.30**

Fig. G. Model 301. 6" Pocket Rule and Depth Gauge. Only ¼" wide. Gives readings in 64ths. With handy pocket clip.
34F564. NET ..... **.54**

ADJUSTABLE FILE AND TOOL HOLDER

Fig. H. Model 890. Holds files, blades, reamers, scriber points, etc. in a vise-like grip. Knurled knob assures easy and positive locking. Wt., 8 oz.
34F578. NET **2.10**

RATCHET TAP WRENCH

Fig. J. Model 160R. Made of hardened and tempered tool steel. Self-equalizing jaws positive ratchet, sliding-T-handle. Opening capacity: 3/32 to 7/32". Wt. 8 oz.
34F579. NET **9.60**

HAND DRILL AND PIN VISE

Fig. K. Model 92. A precision tool with two reversible collets for holding drills, taps, wire, etc. from the smallest size .0 to .125". Has large free-wheeling swivel head. Size: 4" long, 5/16" body dia., ¾" head. Wt. 5 oz.
34F580. NET **2.90**

INSPECTION MAGNIFIER

Fig. L. Model 549-4. 4" powerful ground and polished lens. 12" chrome plated adjustable Gooseneck Arm. Ball joint swivel permits easy adjusting. Sturdy cast-iron base for bench or table use. Wt., 4 lbs.
34F620. NET **20.40**

MACHINISTS HAND VISE

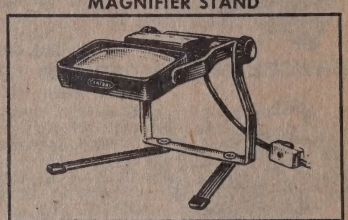
Model 815. Ideal for jobs where portability and flexibility are desired. Hard steel knurled jaw faces grip any object securely and safely. Has spring tension wing nut adjustment. Wt., 1 lb.
34F444. NET **6.00**

TWIST DRILL SHARPENER

- Restores worn twist drills
- Up to ¾" drill size
- Used by industry

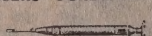
Accurately sharpens twist drills. For machine shops, garages, home workshops and all drill users. For fractional drills ⅛ to ¾ in.; for number size drills 1 to 30; for letter size drills A to Z; millimeter size drills 3.0 to 19.0 mm.
34F1180. TYPE 825. NET **11.60**

ADJUSTABLE ILLUMINATED MAGNIFIER STAND



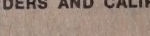
Model 1050. For assembly or inspection of small parts, soldering and engraving. For laboratory, industry, schools, and hobby use. Both lens and light frame adjust separately to required height and visual range. Lens size 4"x2" adjusts from 1" to 6½" high. .7 watt 115 volt lamp, wth 6 ft. U.L. approved cord. Sturdy extruded aluminum 5"x5" stand folds compacity for storage. Weight 1¼ lbs.
35F1182. NET **18.00**

JEWELERS' SCREWDRIVER SET



Type S-600. Set of six. Sizes: 0, 1, 2, 3, 4, 5. Swivel head with removable blade. 3" long. ½ lb.
34F577. NET **7.56**

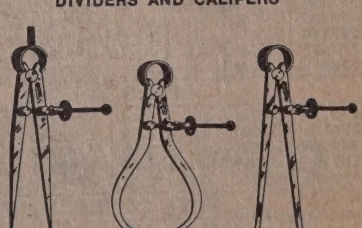
AUTOMATIC CENTER PUNCH TYPE 79



Constructed of shock-resistant alloy steel. Pressure adjustable. Ideal for rapid marking on steel. Tips replaceable. 5x½" dia. 5 oz.
34F565. NET **8.04**

34F566. Type 79P. Extra piont. **NET 1.00**

FLAT LEG MACHINISTS' DIVIDERS AND CALIPERS

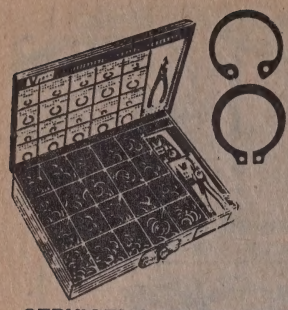


TYPE 450. Quality flat leg dividers. **Type 452.** Outside calipers, **Type 454.** inside calipers. Hardened points. Bow springs. Bearing spools.

Stk. No.	Type	Description	Fig.	Size	Each
34F1174	450-4	divider	A	4"	6.40
34F1175	450-6	divider	A	6"	7.56
34F1176	452-4	outside caliper	B	4"	6.40
34F1177	452-6	outside caliper	B	6"	7.56
34F1178	454-4	inside caliper	C	4"	6.40
34F1179	454-6	inside caliper	C	6"	7.56

16

Tools and Fasteners



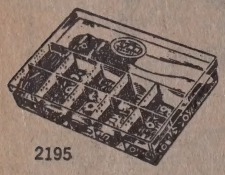
SNAP RING KITS

For use in lab, maintenance dept. or shop. Compartmented metal box with hinged cover.

TYPE 1550. Contains 109 internal snap rings up to 1" dia. in 10 most popular sizes, 112 external snap rings to ⅞" dia., plus internal and external ring pliers. Wt. 8 lbs.
35F1265. NET 23.14

TYPE 2100. 66 internal snap rings from 1 1/16" to 1 5/8" dia., 60 external rings from 1 5/16" to 1 7/16" dia., internal and external pliers.
29F260. NET 30.03

SERVICEMAN'S SOLDERLESS TERMINAL KITS



2195

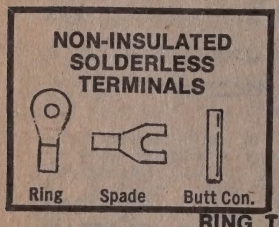
Type 2195. Kit consists of 11-bin plastic box with crimping tool and over 150 Non-Insulated terminals in 10 sizes. Includes Model 1900 crimping tool which cuts bolt sizes 10-32, 10-24, 8-32, 6-32 and 4-40. Case: 8¾x6x1¾". Shpg. wt. 2 lbs.
30F900. NET 11.83

Type 6175-63. Insulated
65F1112. NET 12.65

4900-63
5000-63

Type 4900-63. Kit contains 500 insulated single-grip terminals in 20 different types and sizes, and includes Type 1963 crimping tool and bolt slicer for correct application of terminals. Terminals and tool are housed in sturdy metal box with hinged cover. Custom molded inserts hold contents in orderly fashion. Box has handy location and specification chart in cover.
35F1266. NET 48.00

Type 5000-63. Similar to Type 4900-63 except contains 1000 non-insulated solderless single-grip terminals (50 each of 20 different types and sizes).
29F261. NET 48.00



RING TONGUE

Stk. No.	Type	Stud Size	100 Pkg.	Stk. No.	Type	Stud Size	100 Pkg.
47F2097	C11205	5-6	3.92	47F2179	C61205	5-6	7.01
47F2169	C11208	8		47F2180	C61208	8	
47F2170	C11210	10		47F2181	C61210	10	
47F2171	C11305	5-6		47F2182	C61305	5-6	
47F2172	C11308	8		47F2183	C61308	8	

SPADE TONGUE

47F2174	C13206	5-6	3.49	47F2185	C63206	5-6	7.01
47F2175	C13306	4-6	3.92	47F2186	C63306	4-6	
47F2176	C13308	8	3.92	47F2187	C63308	8	
47F2177	C13310	10	3.92	47F2188	C63310	10	
47F2178	C14206	4-6	3.49	47F2189	C64206	4-6	

BUTT CONNECTORS

Stk. No.	Type	Wire Size	100 Pkg.	Stk. No.	Type	Wire Size	100 Pkg.
47F2190	C17202	22-18	3.92	47F2195	C67202	22-18	7.01
47F2191	C17302	16-14	3.92	47F2196	C67302	16-14	7.01

FEMALE TABS

Stk. No.	Type	Wire Size	100 Pkg.	Stk. No.	Type	Wire Size	100 Pkg.
47F2194	C8302	18-14	3.92	47F2199	C68302	18-14	8.20

SNAP RING PLIERS

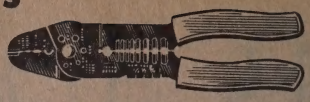
Type 21. Internal type.
35F1263. NET 3.54

Type 22. External type.
35F1264. NET 3.54

Type 210. Int. type with spring.
47F2112. NET 4.30

Type 220. Ext. type with spring.
47F2113. NET 4.30

WIRE PLIER

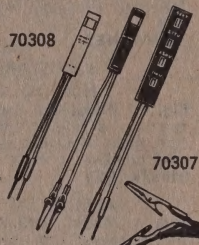


Type 19730. Crimps insulated and non-insulated solderless terminals, 22 to 8 gauge wire. Crimps ferrule on coax cable. Also 7 and 8 mm ignition terminals. Cuts bolt sizes 4-40, 6-32, 8-32, 10-24, 10-32. Stripping dies handle 22 to 6 gauge cable. Measuring guides for strip length and bolt length. Cushion grip.
47F2095. Wt. 1.5 lbs. **NET** 9.28

COMPOUND ACTION CRIMPING TOOL

Type T1710. Crimps insulated terminals to meet or exceed MIL-SPEC pull-out tests. Built-in terminal locator.
29F262. Shpg. Wt. 1½ lbs. **NET** 75.34

TWIN LEAD TESTERS

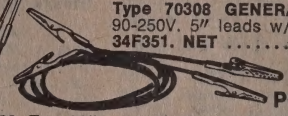


70308

Type 70306 LOW VOLTAGE. 5 to 50 volt range. Neon lamp live circuit indicator. 4½" leads w/alligator clips. Wt. 8 oz.
34F349. NET 3.01

Type 70307 MULTI-VOLT. Combination of glow lamps show voltage tested: 110-220-277-460 volts. Wt. 12 oz.
70307 **34F350. NET** 4.72

Type 70308 GENERAL PURPOSE. Tests 90-250V. 5" leads w/probes. Wt. 8 oz.
34F351. NET 1.42

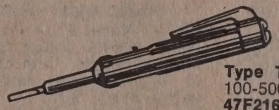


70306

TEST LEAD POUCHED SET

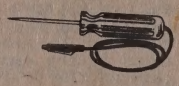
Type TK600. Two 32"L, red & blk., w/alligator clips, leads.
47F2165. Shpg. Wt. 1 lb. **NET** 2.26

CIRCUIT TESTER/DRIVER



Type TK-500. Precision screwdriver tests 100-500 volt circuits. 4½" long.
47F2163. NET 1.50

PROBE TYPE TESTERS

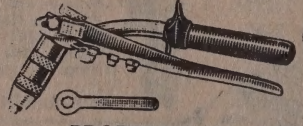


Type 70008 CONTINUITY TESTER. Tests circuit continuity. 7¾" long.
47F2166. NET 4.24

Type TK-550 6-12 VOLT TESTER. Indicates presence of 6-12 V current. 7¾" long.
47F2164. NET 3.81

AC FIELD NEON TESTER

For RF, High Vol., & Audio/Video cir. Glows in AC field.
47F2167. Type AN2. 5½"L w/pocket clip. **NET** 1.76
47F2168. Type AN44. 7⅝"L. **NET** 2.93



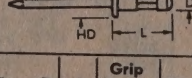
PROFESSIONAL POW'RIVETER

Model 175002. Streamlined head for tight areas. 2-pos. stroke adjustment. 3 nosepieces for ⅛", 5/32", 3/16" rivets.
35F1452. NET 41.17

SELF-ADJUSTING NUT DRIVER

Type SA-711. Does the work of four nut drivers. Adjusts itself automatically to ¼", 5/16", ⅜" or 7/16" hex size—just press and turn. Tempered steel sockets; breakproof, shockproof, Comfordome handle.
35F1274. NET 5.62

POW-RIVETS



Superior clamp-up "bubble" action for positive fastening every time. Sealed stem for waterproof, dustproof applications. Low profile.

Type	D	L	Grip Range	HD	HH	Stk. No.	100/ Pkg.	Stk. No.	1000/Pkg. 1-9	1000/Pkg. 10-Up
425	⅛	.400	To .250	.215	.044	35F1454	2.74	35F1458	21.47	19.32
528	5/32	.470	To .280	.255	.057	35F1455	4.16	35F1459	34.01	30.60
631	3/16	.530	To .312	.349	.070	35F1456	4.70	35F1460	39.18	35.26
650	3/16	.720	To .500	.340	.070	35F1457	6.83			

47F2115. D400 Assortment of 25 Pow'Rivets 1.50

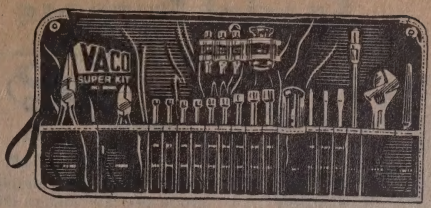
Stk. No.	Type	Shape of Tip	Each
47F2099	70296	Straight	7.09
47F2098	70297	Curved	7.38

16

Tool Kits and Tools

VACO

VACOMBO SUPER KITS

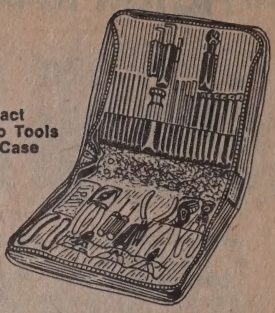


VACOMBO KIT

Type 90000. Contains: Std. handle 3/16" and 1/4" reg. blade drivers, #1 and #2 Phillips driver. Nut drivers: 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 7/16", 1/2". Pouch measures 12¾"L x 7"W.
34F354. 2 lbs. **NET** 17.62

SUPER KIT

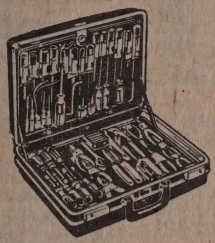
Type 90500. Contains same tools as **Type 90000** (except #2 Phillips blade), plus 6" needle-nose pliers w/side cutter; 5" diagonal cutter, 6" adj. wrench; stubby handle; stubby nutdrivers: 1/4", 5/16", 3/8", 10" extension; and 5" tapered reamer.
35F1462. Shpg. wt. 2 lbs. **NET** 49.20



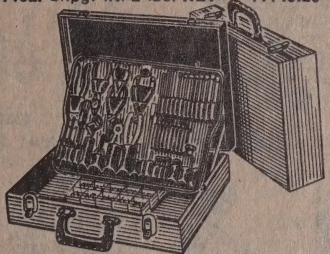
- Compact
- 36 Pro Tools
- Vinyl Case

Type 70390. Compact assortment holds 36 popular professional tools. Includes interchangeable 90-series handle and screwdriver, nutdriver and hexdriver blades. Plus pliers, electrical tools, and offset and regular screwdrivers. Zippered vinyl case is tough and lightweight. Measures 12½" by 10¼" by 1⅜". Wt. 8 lbs.
65F1111. NET 133.00

SUPER CASE



70260. Contains: Continuity Tester. 100-500V Circuit Tester. Twin Lead Tester. Neon Tester Screwdriver. Crimping Tool w/Bolt Slicer. Wire Stripper and Cutter. Measuring Tape. Hex Key Wrench Set. Phillips and Reg. Offset Drivers. 3-in-1 Tapping Tool. Spring Tool. Snap Ring Plier. One Phillips and 3 Reg. Screw Launchers. 6" Adj. Wrench. Ratchet Box Wrench. Two Rev. Screwdrivers. 12 Professional Screwdrivers. 7 Hollow Shaft Nut Drivers. 7 Professional Pliers.
34F352. NET 248.00



Type 70380. Contains: 45 of the most popular professional tools. Plus a terminal service kit, with crimping tool. Includes interchangeable 90-series screwdriver, nutdriver, and hexdriver blades and handles. Pliers, screwdrivers and electrical tools all in a vinyl covered wooden case. Measures: 18¾"x13⅞x4⅝. Wt. 12 lbs.
65F1110. NET 211.00

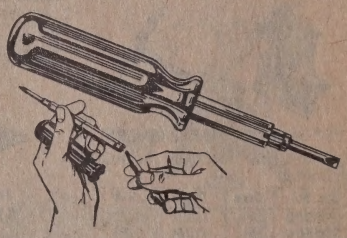
NUT DRIVER KIT

Type K-7. Stand-up, hang-up kit for workbench or tool box. Contains S6, S8, S10, S11, S12, S14, and S16 nut drivers.
47F2159. NET..14.91

HEX KEY SET

Type 90900. Contains 9 hex key blades, size in inches: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, and one full size handle. Complete with 9" by 7" carrying pouch. Wt. 1 lb.
34F348. NET 11.65

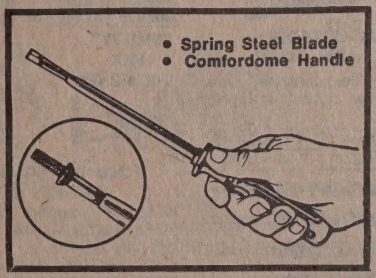
4-IN-1 SCREWDRIVER



70341. Handy, versatile screwdriver w/ interchangeable, snap-in blades. Supplied w/four different tips on two interchangeable reversible blades — #1 Phillips x 3/16" slotted and #2 Phillips x 1/4" slotted. Blades fit snugly into hex machined shaft; shaft snaps into full sized Comfordome® handle. Instructions incl.
34F353. Each 4.11

SURE-GRIP SCREW LAUNCHERS

Holds, starts and drives screws with superb gripping power and non-slip action. Split-blade wedges into screw slot by simple manipulation of adjusting sleeve. *specially ground tip for miniature screws.



- Spring Steel Blade
- Comfordome Handle

Stk. No.	Type	Blade	Lgth.	EACH
47F2161	K-21*	1/8 X3"	5¾"	2.29
35F1250	K-23	1/8 X3"	5¾"	2.02
35F1251	K-28	1/8 X8"	10¾"	2.45
35F1252	K-34	3/16X4"	7½"	2.94
35F1253	K-36	3/16X6"	9½"	2.98
35F1254	K-38	3/16X8"	11½"	3.06
35F1255	K-44	1/4 X4"	7⅝"	3.06
35F1256	K-46	1/4 X6"	9⅝"	3.18
35F1257	K-48	1/4 X8"	11⅝"	3.26

PHILLIPS SCREW LAUNCHERS

For holding, starting and retrieving cross slot screws. One tip size fits all sizes of screws. *has pocket clip.

Stk. No.	Type	Length	1-5
35F1258	K-13	3"	2.67
47F2162	K-14*	5"	3.31
35F1259	K-15	5"	3.12
35F1260	K-16	7"	3.26
35F1261	K-19	9"	3.41

3-PIECE SCREW LAUNCHER KIT

Type SK-234. Includes 1/8" x 3", 3/16" x 4" and 1/4" x 6" screw launchers in red, and white self-closing pouch. Essential for the serviceman, mechanic or homeowner. 8 oz.
35F1262. NET 8.06

PHILLIPS SCREWDRIVERS

Precision-milled, oil-tempered, Chrome-Vanadium steel blades for all Phillips cross-slot screws. Wt. 4 oz.

STANDARD TYPE

Stk. No.	Type	Point	Length	NET
34F355	P01	0	5¼"	1.25
34F356	P1	1	6½"	1.65
34F357	P2	2	7⅝"	2.06
34F358	P3	3	10"	2.78
34F359	P4	4	12½"	3.17

STUBBY TYPE

34F360	P5	2	3⅞"	1.81
34F361	P6	1	3"	1.65

HOLLOW SHAFT NUT DRIVER

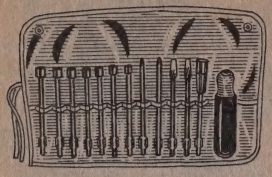
Extra hard tempered sockets, hollow shafts, polished nickel chrome finish. Color-coded Comfordome shockproof handles.

3" SHAFT LENGTH

Stk. No.	Type	Hex	Length	NET
47F2141	S6	3/16"	6⅝"	1.70
47F2142	S7	7/32"	6⅝"	1.73
47F2143	S8	1/4"	6⅝"	1.70
47F2144	S9	9/32"	6⅝"	1.73
47F2145	S10	5/16"	6⅝"	1.70
47F2146	S11	11/32"	6⅝"	1.70
47F2147	S12	3/8"	6⅝"	1.70
47F2148	S14	7/16"	7"	2.13
47F2149	S16	1/2"	7"	2.13

16

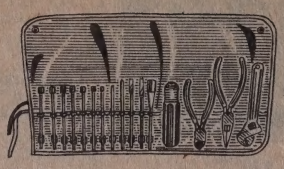
Special Purpose Tools



SCREWDRIVER AND NUTDRIVER COMBINATION KIT

13 pieces set in roll-up kit. Contains comfort grip handle, 4" extension, 3/16" and 1/4" slotted screwdriver blades, 3/16" thru 3/8" nutdriver blades (7 pieces).

Stk. No.	Type	1-9	10-49
34F1100	39992	17.25	16.00



SERVICE KIT

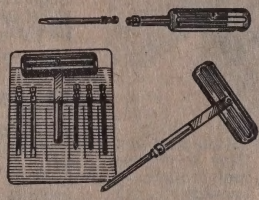
16 piece "Fred Series" components plus 6" adjustable wrench #42606, long chain nose plier with cutter #20261 and heavy duty diagonal cutter #20295. All packed in heavy duty roll-up kit.

Stk. No.	Type	1-9	10-49
34F1101	39993	39.64	36.77

SWISS NEEDLE FILES

For 12 different functions—including electronics, instrument repairs, tool makers, pattern makers. **58310** Plastic roll-up kit. 12 files. **58315** Deluxe, 12 files in stand.

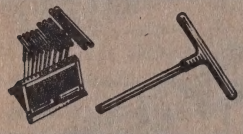
Stk. No.	Type	1-9	10-49
30F525	58310	16.60	15.40
30F529	58315	18.43	17.10



SUPER TOR-KIT

Shock resistant alloy tool steel blade. Drives super hard screws, loosens frozen screws. Includes: handle, 3 Phillips—1x3, 2x3, 3x3; 2 regular—3/16x3, 1/4x3.

Stk. No.	Type	1-9	10-49
34F924	30705	10.11	9.38



"T" HANDLE HEX DRIVERS

Cushion grip for max. torque. 6" Blades.

Stk. No.	Size	Type	1-9
30F500	3/32	11322	1.79
30F506	7/64	11324	1.79
34F925	1/8	11326	1.89
30F518	9/64	11328	2.10
30F516	5/32	11330	2.10
30F512	3/16	11332	2.20
34F926	7/32	11334	2.20
34F927	1/4	11336	2.35
34F928	5/16	11338	2.40
34F929	3/8	11340	2.40

MULTI-PURPOSE ELECTRICAL TOOL

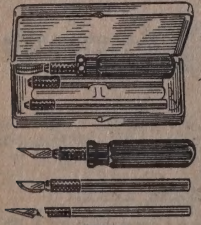
5 in 1 tool. Pliers, crimper, wire cutter, screw cutter, stripper. 8 1/2"L.

Stk. No.	Type	1-9	10-49
30F502	25504	7.83	7.26

MASTER "T" WRENCH STAND

Metal stand plus 10 drivers listed above.

30F509. 11445. NET.....24.29

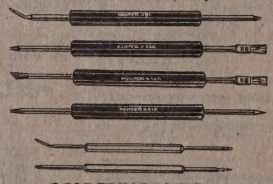


50182

PRECISION KNIFE SET

50182. 10 assorted blades and three handles in plastic case. Wt. 5 oz.

Stk. No.	Type	1-9	10-49
30F508	50182	5.53	5.13

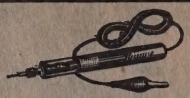


SOLDERING AIDS

Non-mag steel blades. Blk. plastic handle. 8" long except (‡) 6". Wt. 10 oz.

Type	Description
62002	Fork and Hook
62004	Fork and Brush
62006	Knife and Brush
62008	Fork and Reamer
62022‡	Fork and Hook
62024‡	Fork and Reamer

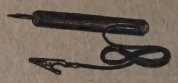
Stk. No.	Type	1-9	10-49
34F724	62002	1.68	1.56
34F725	62004		
34F726	62006		
34F727	62008		
34F728	62022	1.40	1.30
34F729	62024	1.40	1.30



CIRCUIT TRACER SET

80102. Contains complete probe set, low voltage lamp neon light plus resistor. Up to 500 volts AC/DC. Shpg. wt. 2 lbs.

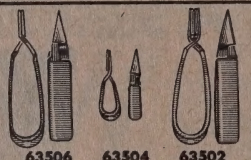
Stk. No.	Type	1-9	10-49
34F748	80102	9.95	9.23



CONTINUITY TESTER

80106. For checking in powered circuits fuses, relays, etc. Batteries included. Alligator clip. Point on probe for tight spots. 1/2 lb.

Stk. No.	Type	1-9	10-49
34F721	80106	3.23	3.00



63506 63504 63502

HEAT SINKS

63506 1 1/4"L. Tweezer nose. 63504 Med. duty. 63502 Heavy duty. Plastic handle.

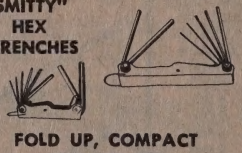
Stk. No.	Type	1-9	10-49
34F491	63502	2.20	2.04
34F492	63506	1.02	.95
34F493	63504	1.46	1.21

STAINLESS STEEL SCISSOR CLAMPS

Serrated jaws hold like vise. Absorbs, dissipates heat. Soft plastic grips. Curved blades except (**) straight.

Stk. No.	Type	Size	1-9	10-49
34F746	54035**	5"	5.71	5.30
34F747	54036	5"	5.71	5.30
30F503	54037**	6"	6.71	6.22
30F519	54038	6"	6.71	6.22

"SMITTY" HEX WRENCHES



FOLD UP, COMPACT HEX KEY SET

10181. 3" handle, 2" blade. SIZES .050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32".

10182. 6" handle, 4" blade. SIZES 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4".

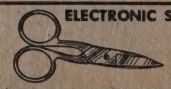
10191. 4" handle, 3" blades. SIZES 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4".

10197. 6" handle, 4" blades. SIZES 2, 2.5, 3, 4, 5, 6, 8 mm.

10198. 6" handle, 4" blades. SIZES 1.5, 2, 3, 4, 5, 6, 8 mm.

Stk. No.	Type	1-9	10-49
34F540	10181	2.06	1.90
34F1102	10182	4.15	3.82
34F763	10191	3.02	2.19
34F363	10197	4.49	4.14
34F364	10198	2.84	2.62

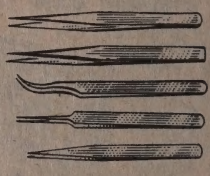
ELECTRONIC SHEAR



Stk. No.	Type	1-9	10-49
30F523	53015	8.66	8.03

Electrician's Shear. For cutting any soft thin gauge metal or wire. Forged Steel and heavy nickel plated complete with deburring ridges. 5" long overall with 2" blades.

TWEEZERS



55002. Dumont Style 4 1/4" narrow tweezer. Stainless steel.

55004. Dumont Style, 4 1/4". Needle points. Stainless steel.

55006. Dumont Style, 4 1/4". Curved points. Stainless steel.

55016. Boley Style, 4 1/4". Fine points, Carbon steel plated.

55018. Boley Style, 4 1/4", extra slim fine points, Carbon steel plated.

Stk. No.	Type	1-9	10-49
34F735	55002	4.64	4.30
34F1103	55004	5.25	4.87
34F1104	55006	4.85	4.50
34F1105	55016	2.21	2.05
34F1106	55018	2.21	2.05

Screwdrivers

Chrome vanadium blades w/ cross ground tips. Won't slip, slide or twist. Regular blades.

Stk. No.	Type	Size	1-9
34F902	30328	3/16x3	1.42
34F904	30330	3/16x4	1.55
34F908	30332	3/16x6	1.71
34F910	30304	1/4 x4	2.02
34F911	30306	1/4 x6	2.21

SCREW HOLDING SCREWDRIVERS

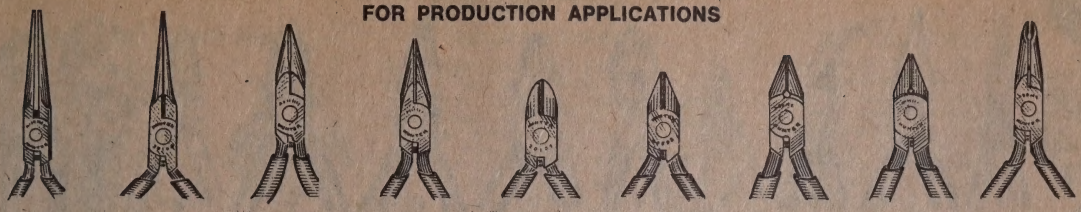
Drive or remove screws in inaccessible areas. Non-mag blds. Blade dia. 1/8" for 00-2 screws except (†) is 3/16" for 3-6 screws.

Stk. No.	Type	Length	1-9
34F458	30130	4"	7.17
34F459	30135	7"	7.76
34F460	30150†	8 1/4"	6.81
34F461	30155†	11 1/4"	7.11

Precision Pliers and Cutters

Hunter Tools

FOR PRODUCTION APPLICATIONS



20114 | 20115 20105 | 20150 | 20160 | 20197 | 20195 | 20186 | 20184 | 20190

SUPER THIN 4¾" NEEDLE NOSE. Smooth jaws, radius edged for precision bending, reaching, clamping and forming. Delicate needle nose allows access to remote areas. Ideal for guiding leads through high density areas.
34F755 Type 20114. NET.....13.70

SUPER THIN—EXTRA LONG—6" NEEDLE NOSE. Smooth jaws, radius edged, similar to 20114 but longer. Extra long "delicate" needle nose allows access to remote areas.
34F756 Type 20115. NET.....14.45

EXTRA LONG 5⅝" NEEDLE NOSE. Serrated jaw radius edged. For precision pulling, clamping and holding. Serrated jaws for firm grip.
35F3469 Type 20105. NET.....13.90

NARROW CHAIN NOSE. Serrated jaw, radius edged for precision looping, twisting, and bending. Serrated jaw for extra grip. 4¾" L.
34F166 Type 20150. NET.....13.00

NARROW CHAIN NOSE. Same as 20150 except with smooth jaws. 4¾" L.
34F1107 Type 20160. NET.....12.95

SEMI-FLUSH CUTTING. Regular head design for #20(.032") soft copper or smaller. 4⅛".
34F169 Type 20197. NET.....13.45

FULL FLUSH CUTTING. Our most popular cutter. Slim taper nose design plus full flush cut at extreme tip combine to make the ideal production cutter. Recommended for #20(.032") soft copper wire or smaller. Perfect for P.C. board and related high density applications where clearance is a factor. 4¼" L.
34F465 Type 20195. NET.....15.15

SEMI-FLUSH CUTTING. Taper nose and tip cutting. This cutter is larger than the 20195 for durability and longer life. Recommended for #18(.0403") and smaller copper wire. Ideal where density allows a larger head profile. 4¾".
34F168 Type 20186. NET.....15.40

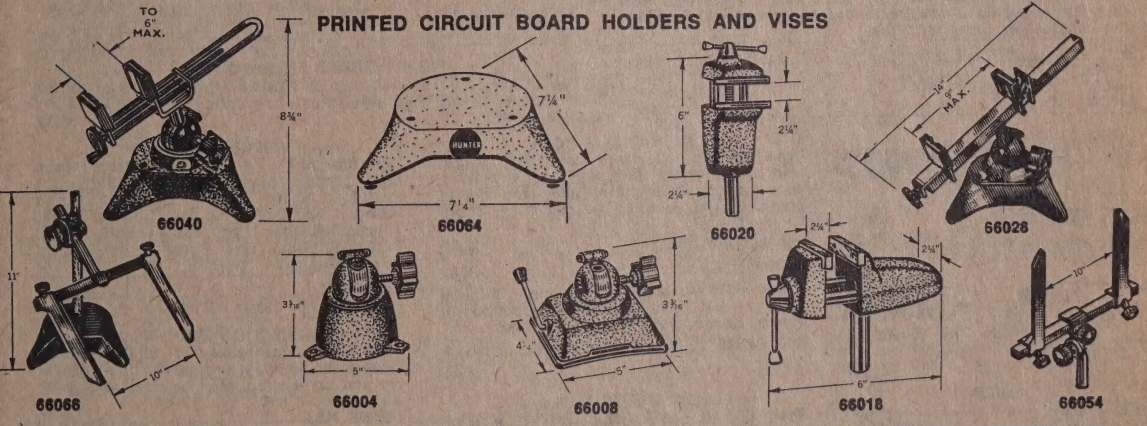
FULL FLUSH CUTTING. Similar to 20186 but with ground thin taper jaw and full flush cutting. For #20(.032") or smaller copper wire. Increased size over 20195 for durability and reduces operator fatigue. Ground head allows extra clearance in confined areas. 4¾" L.
34F1108 Type 20184. NET.....15.75

TIP DYKE-SEMI-FLUSH CUTTING. For those tight spots. Cuts at extreme tip and has alignment pin to keep the cutter blades aligned. For nickel ribbon size. .010" x .030" and smaller. Also #22 (.0253") and smaller copper wire 4¾" L.
34F468 Type 20190. NET.....24.30

MULTI-PURPOSE TOOL

5 IN 1 MULTIPURPOSE TOOL. Plier-Needle nosed and serrated. Cutter—Out front, shear cut style, cutting edges hand ground. Crimper—Handles solderless terminal types including non-insulated, insulated for #10 thru #24 wire. Stripper—6 wire stripping holes for stripping AWG solid wire in gauges #12-22, and stranded wire #14-24. Screw Cutter—Cuts 6 most common screw sizes, 4-40, 5-40, 6-32, 8-32, 10-32, 10-24.
30F502 Type 25504. NET.....7.83

PRINTED CIRCUIT BOARD HOLDERS AND VISES



Type 66066 CIRCUIT BOARD HOLDER. Spring load allows circuit board to be inserted or removed with one hand. Full 360 degree rotation for lead bend over. Friction bearing can be adjusted to desired tension for easy flip over or tight-end so will not rotate. Holds boards up to 10" wide.
34F921. NET 38.42

Model 66040 WIDE OPENING VERTICAL VISE. Designed for positioning or holding electrical and electronic products in assembly and repair. Has replaceable neoprene jaws that open to a full 6 inches. Base is eight pound cast iron, has rubber feet. Permanently-locked in mounting pin with ⅜-24 threaded end. Spring loaded so that it may be adjusted to correct tension to hold weight. Vise is chrome plated heavy gauge steel wire. Crank handle allows quick change from one position to another. Shpg. wt. 10 lb.
34F345. NET 41.33

Type 66002 PANA VISE-VERTICAL HEAD. Bench type vise (66018) on Pana Positioner (66004). 2½" capacity, jaws 2½" wide. Shpg. wt. 3.5 lbs.
34F766 NET. 24.58

Type 66012 PANA VISE-HORIZONTAL HEAD. Vertical jaw vise (66020), on Pana Positioner (66004). 4" high, 10" long, 5" wide.
34F919. NET 24.58

Type 66004 PANA POSITIONER ONLY. Pivots 360° on any tangent to a hemisphere. Achieves any compound angle. For use with all fixtures shown. Wt. 3 lbs
34F449. NET 13.38

Type 66014 NYLON JAWS. Special Nylon jaws to hold small circuits. For use with pana vise.

Stk. No.	Type	1-9	10-49	50-Up
34F344	66014	2.74	2.54	2.27

Type 66008 PANA POSITIONER-VACUUM BASE. Vacuum base with Pan-head positioner mounted on top. Accommodates vises & circuit board holders.
34F920. NET 18.98

Type 66028 QUICK ADJUST VISE. Includes 66006 positioner, 66064 base and 66024 vise. Quick adjust design allows jaw to change position. Jaw opening 9". 5 lb. base. Shpg. wt. 13 lbs.
34F917. NET 62.65

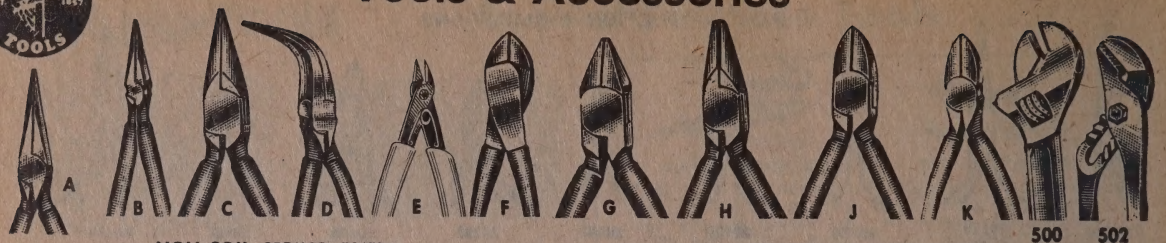
Type 66024 VISE ONLY. Adjusts from 0" to 9". Screw knob to lock work. Holds flat, round and odd shaped objects.
34F1109. NET 30.40

Type 66064 HEAVY DUTY BASE. For use with 66004 positioner. Cast iron with rubber non-marring feet.
34F1110. NET 16.74

Type 66054 DELUXE PC HOLDER. 6" wide. For use with 66004 positioner and 66064 base. Turns work 360°. Shpg. wt. 1.8 lbs.
34F448. NET 18.98

16

Tools & Accessories



NON-COIL SPRING PLIERS

Stk. No.	Type	Fig.	Handle Color	Description	1-11	12-Up
34F016	D302-6	D	Yellow	6¼" curved nose plier	6.66	5.79
34F114	D314-8	B	Yellow	8" long nose plier	5.78	5.03
34F225	D326-5	A	Yellow	5 7/16" spring adj. plier Inside jaws polished	7.68	6.68

COIL SPRING PLIERS

Stk. No.	Type	Fig.	Handle Color	Description	1-11	12-Up
34F008	D301-5C	A	Yellow	5 9/16" long nose plier	5.11	4.44
34F009	D301-6C	A	Yellow	6 5/8" long nose plier	5.29	4.60
34F010	D301-7C	A	Yellow	7 1/8" long nose plier	5.47	4.76
34F025	D307-5½C	A	Yellow	5 13/16" slim long nose plier	5.01	4.36
34F095	D321-4½C	C	Pink	4¾" long nose plier	4.93	4.29
34F113	D322-4½C	C	Pink	4¾" long nose plier	5.93	5.16
34F226	D323-4½C	A	Pink	4¾" flat nose plier. Jaws Polished	5.60	4.87
34F023	D318-5½C	.	Yellow	5 33/32" long needle nose plier	6.08	5.29
34F228	D317-5C	C	Yellow	5¼" chain nose plier	5.78	5.03
34F229	D327-5½C	A	Blue	5 13/16" slim nose plier	6.66	5.79
34F239	D221-5½C	A	Yellow	5 13/16" long needle nose side cutting plier	6.24	5.43

TYPE 502—PUMP PLIERS

Jaws are positioned and locked into place for desired size opening by engaging a tongue in proper groove. With yellow plastic handles. Av. shpg. wt. 2 lbs.

Stk. No.	Type	Length	Max. Cap.	1-11	12-Up
34F235	D502-6	6 in.	1 in.	4.17	3.63
34F097	D502-10	10 in.	1¾ in.	5.90	5.13
34F098	D502-12	12 in.	2⅛ in.	6.52	5.67

ADJUSTABLE WRENCHES

Drop forged, chrome plated with yellow plastic handle.

Stk. No.	Type	Description	1-11	12-Up
34F129	D500-4	½" capacity x 4"	5.06	4.40
34F037	D500-6	¾" capacity x 6"	5.14	4.47
34F038	D500-8	1 5/16" capacity x 8"	5.84	5.08
34F039	D500-10	1⅛" capacity x 10"	7.42	6.45
34F040	D500-12	1 5/16" capacity x 12"	10.63	9.24

NON-COIL SPRING CUTTERS

Stk. No.	Type	Fig.	Handle Color	Description	1-11	12-Up
34F117	D228-8	F	Red	8" hi-lever oblique cutter	5.92	5.15

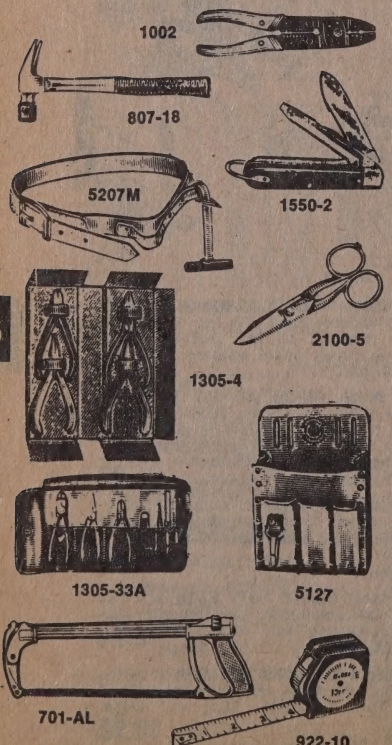
COIL SPRING CUTTERS

34F011	D203-5C	—	Yellow	5 9/16" long nose side cutters	6.13	5.33
34F012	D203-6C	—	Yellow	6 5/8" long nose side cutters	6.12	5.32
34F018	D202-5C	K	Red	5½" narrow nose oblique	5.69	4.95
34F019	D202-6C	K	Red	6 1/16" narrow nose oblique	5.80	5.04
34F020	D210-6C	K	Red	6 1/16" Semi-flush oblique cutter	6.41	5.57
34F021	D210-5C	K	Red	5½" Semi-flush oblique cutter	6.22	5.41
34F027	D052-C	—	Red	5⅛" oblique cutter for pc	8.44	7.34
34F231	D209-4C	G	Red	4 7/16" ptd. nose, semi flush cutting, oblique cutter	5.30	4.61
34F091	D224-4½C	H	Red	4⅝" semi-flush transverse end cutter	7.22	6.28
34F093	D257-4C	J	Red	4 3/16" semi-flush cutting oblique cutter	5.14	4.47
34F126	D229-5C	—	Red	5" semi-flush cutting, wire gripping oblique cutter	9.12	7.93

LIGHTWEIGHT FLUSH CUTTER

Type D275-5. Shears wire up to No. 14 AWG. Figure E above. Minimizes fly-off. Has steel hold-open spring. 5" long.

34F045 NET **3.22**



ELECTRICIAN'S TOOL

Type 1000. Strips six wire sizes 10-22 gauge; crimps terminals; stripping holes provide wire gauge. Wire cutter and stud gauge stamped on face of tool. Lgth. 7½". Shpg. wt. 8 oz.

30F998 NET 1-11 ..... **8.42**

12-Up **7.32**

Type 1002. Same as above with terminal locator that insures proper location of crimp. Length 8½". Shpg. wt. 8 oz.

34F244 NET 1-11 ..... **9.11**

12-Up **7.92**

ELECTRICIAN'S HAMMER

Type 807-18. Long neck; 1" dia. striking face. Straight claw pattern head of drop forged steel. Comfortable fiberglass cushion gripped handle. Head wt. 18 oz. 14" long. Shpg. wt. 2 lbs.

34F046 NET **10.99**

ELECTRICIAN'S WAIST BELT

Lightweight electrician belt, made of strap leather with tool loops and chain tape thong.

34F041. Type 5207M. 32-40" **5.43**

34F042. Type 5207L. 38-46" **5.58**

Type 2100-05. 5" Scissors designed for electrician and mechanic. Made of high-grade tempered steel to withstand continued hard work. Screw hinge allows adjustment. Nickel plated finish. Wt. 6 oz.

34F023 NET **7.23**

ELECTRICIAN'S KNIFE

Type 1550-2. Two-blade knife and screwdriver made of high-grade cutlery steel with durable plastic handle. Locking feature on screwdriver. Shpg. wt. 5 oz. Nominal length of blade 2½"; length of screwdriver 3".

34F022 NET 1-11 ..... **5.30**

12-Up **4.61**

4 PIECE PLIER KIT

Type No. 1305-4. 4 top quality drop forged high grade alloy tool steel pliers. Kit includes: 1 No. D257-4 Oblique Cutting Pliers, 1 No. D224-4½c End Cutting Pliers, 1 No. D-321-4½ Long Nose Pliers, 1 No. D-323-4½ Duck Bill Pliers. Vinyl roll-up pouch. Shpg. wt. ¾ lb.

Stk. No.	Type	1-11	12-Up
34F127	1305-4	23.76	20.66

COMBINATION TOOL POUCH

Type 5127. Has gusseted utility pocket, three plier pockets, two screw driver pockets and knife snap. May be used with 5207 waist belt. 7"x10". Wt. 12 oz.

34F088 NET **7.83**

POCKET TOOL ROLL

Type 1305-33A. 1 pr. side cutting pliers, long nose and oblique cutting pliers, electrician's tweezers. Also file, screwdriver, electrician's knife. Size rolled: 8x2½".

Stk. No.	Type	1-11	12-Up
34F047	1305-33A	36.70	31.91

HACK SAW

Storage chamber provided for six extra blades inside of tube. Frame is die cast zinc. Length of blade is 12 in.

34F180 Type 701-AL. Net 1-11 ..... **7.53**

12-Up **6.55**

HACK SAW BLADES-CARBON STEEL

Stk. No.	Type	Length	Teeth	1-11	12-Up
34F182	1224C	12 in.	24T	.23	.20

HIGH-SPEED STEEL BLADES

34F185	1224HS	12 in.	24T	.63	.55

TAPE RULE

Control knob for easy operation. Black numerals on yellow blade.

Stk. No.	Type	Length	Width	1-11	12-Up
34F187	922-10	10 ft.	¾ in.	5.97	5.19
34F188	922-12	12 ft.	¾ in.	6.34	5.51

Chassis Punches and Tools

GREENLEE TOOL CO.

P&B RELAY SOCKET PUNCH

Type 731R. Makes clean, accurate, finished holes for Potter and Brumfield KHP, KU, and KUP miniature relay sockets. Makes holes in up to 16 gauge metal. No sawing and filing methods. All holes are identical. Weight 10 oz.

For Type KU Relay Hole dimensions 1¼"x1⅜"
34F981 NET **40.20**

For Type KHP Relay Hole Dimensions 1.018x .861"
33F797 NET **26.45**

½" THRU 1¼" KNOCKOUT PUNCH SET

Type 735. Enlarges knockouts and punch holes for conduit in metal boxes, conduit in metal boxes, cabinets and panels. Punches cut up to 10 gauge metal. Metal is supported by die to prevent distortion. Die is recessed for slug clearance. Comes in leather case. Four punches in set, cut hole diameters of ⅞", 1 3/32", 1 11/32" and 1 11/16" for ½", ¾", 1", and 1¼" conduit. Wt. 2¾ lbs.

33F750 NET **21.05**

1½" AND 2" KNOCKOUT PUNCH SET

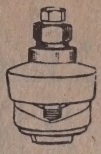
Type 737. Similar to No. 735. Consists of two punches for cutting hole diameters of 1 15/16" and 2⅜" for 1½" and 2" conduit. Packed in leather case. Weight 3½ lbs.
33F753. NET **24.40**

SQUARE CHASSIS PUNCHES

Type 731. For cutting square and oblong holes in radio chassis. Turns with ordinary wrench. Punch has 4 cutting edges. Drive screw fits into ½" pilot hole. Av. wt., 10 oz.

33F779. For ½" holes. **NET** **12.45**
33F780. For ⅝" holes. **NET** **12.30**
33F781. For ¾" holes. **NET** **13.50**
33F788. For ⅞" holes. **NET** **15.90**
33F782. For 1" holes. **NET** **16.30**

BALL-BEARING DRIVES



For faster and better hand operation of knockout punches. For use with knockout and chassis punches having a ⅜" or larger drive screw. For knockout punches No. 737 for 1½" and two inch conduit, No. 730 for 1⅞", 2", 2¼", and 2½". No. 730M for 2 25/32" openings, and No. 730 Round Radio chassis punches 1 1/16" and larger.

Stk. No.	Type	Overall Size	Wt.	Net.
33F725	AV-304BB	¾"x4"	11 oz.	5.70

For the following punches: No. 735 for ¾", 1" and 1¼" conduit. No. 730 Radio Chassis punches for 1⅝" and 1¾" opening, and Nos. 730S for 1 7/32" opening.

Stk. No.	Type	Overall Size	Wt.	Net.
33F728	AV-249BB	¾"x3¾"	9 oz.	5.50

For Knockout Punch No. 735 for ½" conduit and No. 730 Radio Chassis punches for 1 1/16", ¾", 1 13/16", ⅞" and 1 5/16" openings.

Stk. No.	Type	Overall Size	Wt.	Net.
33F731	AV-322BB	⅜"x2½"	2 oz.	2.30

Same type drive as No. AV322BB above for 1" thru 1½" sizes No. 730 Radio Chassis punch.

Stk. No.	Type	Overall Size	Wt.	Net.
33F734	AV-112BB	⅜"x2 13/16"	2½ oz.	2.60

CHASSIS "KEY" PUNCHES

Type 732 Punches for cutting holes for tube sockets and plugs with keys. Operates by wrench power. Keyed prong prevents rotation after mounting. No need for mounting plate. Available in sizes: 15/32", 15/16", 1 11/64", 1 7/64", and 1 21/64". Average shpg. wt., 10 oz.

33F789. For 15/32" holes. NET 11.85
33F790. For 15/16" holes. NET 12.90
33F791. For 1 11/64" holes. NET 14.35
33F792. For 1 7/64" holes. NET 17.15
33F793. For 1 21/64" holes. NET 18.25

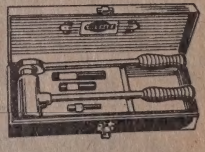
ROUND PUNCHES

Type 730 Makes round openings maximum ease in minimum time . . . Clean, Accurate holes for sockets, meters, etc. Use an ordinary wrench for drive power. Will cut metal, phenolics, or hard rubber. Shipping weight, ¾ lbs.

Stk. No.	Size	Net	Stk. No.	Size	Net
33F760	½"	4.95	33F769	1¼"	5.70
33F754	9/16"	4.90	33F755	1 5/16"	7.10
33F761	⅝"	4.90	33F770	1⅜"	7.15
33F775	11/16"	4.95	33F771	1½"	7.70
33F762	¾"	4.95	33F756	1⅝"	9.40
33F776	13/16"	4.95	33F757	1¾"	10.60
33F763	⅞"	4.95	33F758	1⅞"	13.10
33F736	15/16"	5.45	33F759	2"	13.70
33F764	1"	5.45	34F977	2⅛"	14.80
33F765	1 1/16"	5.70	33F772	2¼"	15.50
33F766	1⅛"	5.70	34F978	2½"	24.85
33F767	1 3/32"	5.70	34F979	2¾"	34.70
33F768	1 3/16"	5.70	34F980	3"	47.50

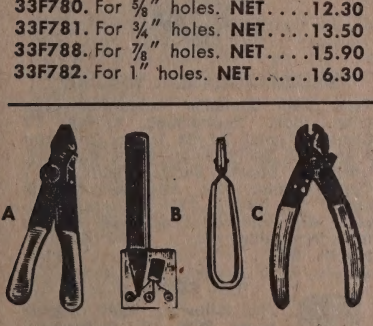
730M. Meter punch. Hole size; 2 25/32".
33F777. NET **25.10**
730-S. 1 7/32" punch for oil tight control units.
33F778. NET **9.60**
730-T. 3⅛ punch for instrument panels.
33F794. NET **49.00**
AV-1675. ¼ screw for ½-⅝ punches.
33F773. NET ..... **.55**
AV-322. ⅜x1½ screw for 1 1/16-⅞ punches.
33F787. NET ..... **.70**
AV-112. ⅜ screw for 1 to 1½ punches.
33F774. NET ..... **.70**

FAST RADIO CHASSIS PUNCH DRIVER



Type 1804. Ratchet punch driver, knockout driver assembly, and ratchet and leverage handles. 3 adapter screws. Can be used with all standard Greenlee Knockout Punches from ½" to 3" and all No. 730 Round Chassis Punches 1 1/16" and larger. Without punches. Shpg. wt., 13 lb.
33F799. NET **111.00**

MADISON EQUIPMENT CO.



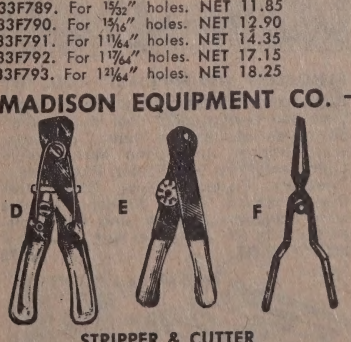
INDUSTRIAL WIRE STRIPPER & CUTTER

Model 102. Fig. A. Has needle nose with eccentric cam. Shpg. wt. 3 oz.
34F661. NET **3.15**

Model 103-S. Same as above with spring handles.
34F662. NET **3.80**

HEAT SINK TOOL-HEAVY DUTY

Model 80. Fig. B. Copper jaws for greatest heat absorption. Shpg. wt. 1 oz.
34F664. NET **2.60**



STRIPPER & CUTTER

Type 601-S. Fig. C. Heavy Duty model for use on commonly used stranded wires. 6" long. Shpg. wt., 4 oz.
34F657. NET **4.60**

WIRE STRIPPERS

Model 101-S. Fig. D. 6" long.
34F656. NET **3.06**

Model 100. Same as above less spring return.
34F655. NET **2.35**

CONTINUITY PROBE

Model V-12. 6-32V, AC/DC: Test automotive and marine wiring systems.
57F1725. NET **3.98**

"Dial-A-Strip" CUTTER

Model 106. Fig. E. 5" overall. 3 oz.
34F663. NET **2.55**

Model 107S. Same as above with spring handles.
34F667. 1-11 Each **3.45**

LONG NOSE PLIERS

Model No. 85. Fig. F. 5¾ inches long. Lightweight: 2½ lbs., per dozen.
34F668. NET **2.85**

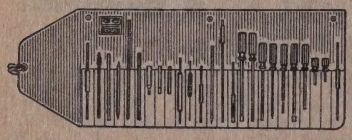
16

GC ELECTRONICS

Alignment Tools and P.C. Aids

Stock No.	Type	Fig.	All Sizes in Inches: One End	Other End	Length	Net.
35F1449	9296*	A	¼ x .078 Hex	⅜ x .078 Hex	11	.93
35F1493	9304*	B	⅜ x .077 Hex	.020 x .109 scrd.	9/16	.68
35F3375	9300*	C	¼ x .077 Hex	⅜ x .077 Hex	5	.68
35F818	8277‡	D	.140/#6 scr.	⅛ x .015 steel	2⅝	.85
35F622	8728†	E	.027 scrd.	.027 scrd.	12 1/16	.70
35F605	8196‡	F	⅛ x .015 ste.	¾ knurled	2½	.68
35F618	8728A*	G	.027 scrd.	.027 scrd.	7	.68
35F821	8275*	H	⅛ x .015 ste.	1/32 x ⅛ scrd.	4 5/16	.85
35F625	9091*	I	3/32 x .125 Hex	⅜ x .125 Hex	5 3/32	.65
35F817	9294†	J	Both 3/32 x .031 scrd.		16	.98
35F616	8276‡	K	.140/#6 scr.	⅛ x .015 steel	6⅛	.85
35F623	8606*	L	3/32 x .103 Hex	3/32 x .098 tip	5 3/32	.59
35F624	8606L*	M	3/32 x .103 Hex	3/32 x .098 tip	11 3/32	.78
35F1443	8271‡	N	.140/#6 scr.	⅛ x .015 steel	6	.93

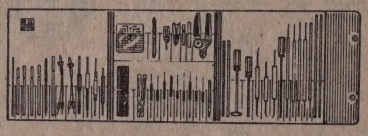
Stock No.	Type	Fig.	All Sizes in Inches: One End	Other End	Length	Net.
35F1444	8721‡	O	.140/#6 screw	.115/#4 screw	9	1.04
35F1445	8722‡	P	.116/#6 screw	.144/#6 screw	7	.93
35F1448	9295*	Q	.375 x .101 Hex	.250 x .101 Hex	11	.93
35F812	8282*	R	¼ x .100 Hex	.020 x .109 scrd.	5 7/16	.56
35F814	9088	S	Brush	Forked Tip	8	1.78
34F1170	8605	T	Cap. adj.	Tuner adj.	5 9/64	1.15
35F653	9093	U	Ang. Reamer	Forked Tip	8	1.78
35F654	9094	V	Brush	Scraper Tip	8	1.78
34F282	9069	W	Reamer	Scraper Tip	6½	1.90
34F283	9073	X	Brush	Forked Tip	6½	1.90
34F286	9074	Y	Brush	Scraper Tip	6½	1.90
34F510	9075	Z	Strt. Reamer	Forked Tip	6½	1.90
34F518	9076	AA	Ang. Reamer	Forked Tip	6½	1.90
34F517	9086	BB	Strt. Reamer	Forked Tip	8	1.78



MASTER DELUXE TOOL KIT

Type 8283. Contains: a complete assortment of align., adj. and radio tools. 25 in all. Includes: TV-FM tuning, K-Tran, Neutralizing, Long Aligning and Tel-A-Turn tools. Core, Duplex, Universal, Shorty, 2-in-1 and Screwdriver Aligners. Plus many more. Complete with case.

35F650. NET 16.32



ALIGNMENT AND SPECIALTY TOOL KIT

Type 5050. Contains: selection of align. tools and service aids. Tool is described on inside of case in detail. Includes: Wire Stripper, Inspection Mirror, Neo-Light Tester, Lo Volt Tester, Fuse Puller, Tweezers, Capacitor Tool, Oiler, Heat Sink, Transitor Tool, Wrench Kit plus wide selection of align. and adj. tools. 44 tools in all. Complete with case.

34F1171. NET 42.72

DELUXE ALIGNMENT TOOL KIT

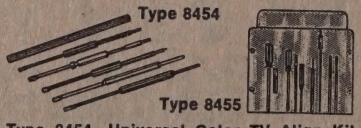
Type 8280. Contains: most often used align. tools. Neutralizing, K-Tran, TV Channel Tuner, TV-FM Tuner, Oscillator Align. and Zenith Align. tools. Plus, TV, Universal, Duplex, Shorty Duplex and 2 Core Aligners. Also, Alignment Wrench and 5" Hex Wrench. 15 tools in all. Complete with fold over flap case to keep tools from falling out.

35F801. NET 10.27

ALL PURPOSE ALIGN. TOOL AND SERVICE AID KIT

Type 5040. Contains: selection of the most popular TV align. tools and service aids. Includes: K-Tran, Hex Iron Core, Hex Align., Brush/Forked Tip, Zenith Alignment tools. Plus, Core, Duplex, Shorty and TV aligners. Also, 5" Hex Wrench and 2 screwdrivers. 12 in all. Complete with roll-up, plastic carry case.

34F1172. NET 10.74



Type 8454. Universal Color TV Align Kit. Contains: Zenith Align., Hex Iron Core, Hex Core and Double End tools. Plus: Shaft Ext., 5" Hex Wrench and case.

34F1173. NET 3.38

Type 8455. Standard TV Align. Kit. Contains: K-Tran, TV Channel Tuning, TV-FM Tuning, Long Align. tools. Plus, Core, TV, Universal and Duplex Aligners. Case.

35F651. NET 8.50

DIAL CORD

The following 100-ft. spools cover 90% of replacement needs. Nylon cord with fiberglass core treated to prevent stretching and slipping. 100-ft. size.

Type 75-A. Extra-thin cord .028" dia. 30-lb. bk. strength.

25F802. NET 3.62

Type 75. Standard cord, .028" diameter; 30 lbs. breaking strength.

25F805. NET 3.62

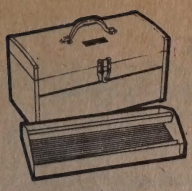
Type 74. Medium cord, .040" diameter; 35 lbs. breaking strength.

25F808. NET 4.12

16

Tool Boxes and Chests

SIMMONDS



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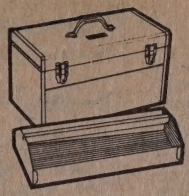


50048

TYPE 50039 1 Tray Cantilever Boxes. 16″ long, 6″ high, 10″ deep. Cubic Capacity 960″. Wt. 8.5 lbs. Color: Green textured, black enamel tray.
80W725. NET 19.62

TYPE 50046 Mechanic's Tool Box 18″ long, 9″ high, 8″ deep. Cubic Capacity 1296″. Individual packed weight 10 lbs. Lift-out tray. Color: Charcoal gray; enamel finish.
80W726. NET 22.36

TYPE 50048 Mechanic's Tool Box 20″ long, 11″ high, 10″ deep. Cubic Capacity 2200″. Individual packaged wt. 15½ lbs. ea. Color: Black wrinkle finish. Black enamel lift-out tray.
80W727. NET 31.82

TYPE 50051 All Purpose Tool Box 16″ long, 7½″ high, 7½″ deep. Cubic Capacity 900″. Case of six 39 lbs. Lift-out tray, Color: Charcoal gray; enamel finish.
80W728. NET 15.14

TYPE 50052 All Purpose Tool Box 18″ long, 7½″ high, 7½″ deep. Cubic Capacity 1012″ Case of six 43 lbs. Lift-out tray. Color: Charcoal gray; enamel finish.
80W729. NET 16.64

TYPE 50053 Hip Roof Tool Box 24″ long, 12″ high, 10″ deep. Cubic Capacity 2880″. Individual packed wt. 18 lbs. Lift-out tray. Color: Black wrinkle finish, black enamel tray.
80W731. NET 37.42

TYPE 50057 Hip Roof Tool Box 20″ long, 9″ high, 8″ deep. Cubic Capacity 1440″. Individual packed wt. 10.8 lbs. Lift-out tray. Color: Charcoal gray; enamel finish.
80W730. NET 26.10

TYPE 50058 Government-Type Hip-Roof Tool Box 21″ long, 7¼″ high, 8½″ deep. Cubic Capacity 1294″. Individual packed wt. 10.5 lbs. Lift-out tray. Color: Green textured, black enamel tray.
80W732. NET 23.54

TYPE 50066 Mechanic's Drawer Box 20″ long, 10¼″ high, 8½″ deep. Cubic Capacity 1743″. 2 Drawers 18¼″ long, 2⅜″ high, 7½″ deep. Individual packed. wt. 16 lbs. Color: Charcoal gray; enamel finish.
80W733. NET 40.32

TYPE 110S Steel baked on enamel finish—offset returned edge—no sharp edges. Cash. box.
80W739. NET 2.60

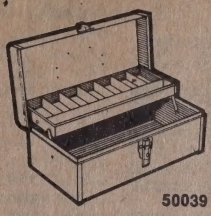
Type 111S Same as 110S with tray.
80W740. NET 3.20

TYPE 130S Cash box. All edges rolled steel with baked enamel finish.
80W741. NET 3.35

TYPE 131SA Same as 130S with tray.
80W742. NET 4.55

TYPE 132S Cash Box 2 cantilever trays—no sharp edges—nickel plated hrdwre.—hasp catch—all offset returned edges—formed steel handle.
80W743. NET 6.20

TYPE 1300 Plastic Tackle Box. 13½″ x 6⅞″ x 5⅜″. No metal construction. 1 large cantilever tray w/6 compartments. Packed 12 to a shipping carton. Shpg. wt. 20 lbs.
80W744. NET 2.95



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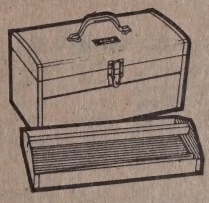

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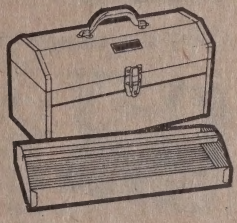

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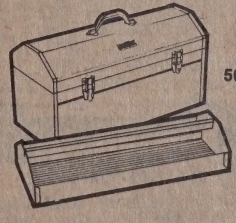

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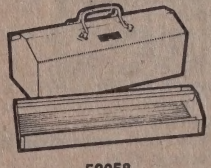

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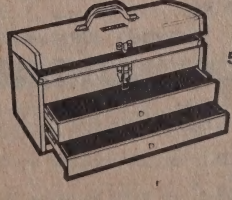

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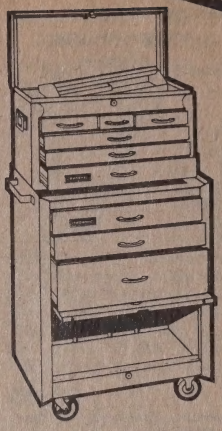


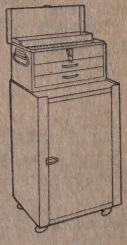
Chest Roller Cabinets

51006
51105
51103

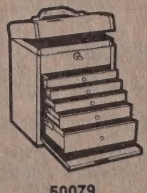
TYPE 51006W Six Drawer Chest 26⅛″ x 15″ x 12⅛″. 2-drawers 7⅞″ x 1⅞″ x 10¾″, 1-drawer 4⁷⁄₁₆″ x 1⅞″ x 10¾″, 2-drawers 22½″ x 1⅞″ x 10¾″, 1-drawer 22½″ x 2⅞″ x 10¾″. Wt. 64 lbs.
80W737. NET 143.68

TYPE 51105W Five Drawer Roller Cabinet 26½″ x 36″ x 18½″ 4 drawers—22¼″ x 3⅛″ x 16¾″, 1 drawer—22¼″ x 6⁷⁄₁₆″ x 16¾″, Bottom Compartment 23½″ x 9¾″ x 17⅛″. Shpg. wt. 145 lbs.
80W745. NET 255.79

TYPE 51103W Three Drawer Roller Cabinet. 26½″ x 29⅜″ x 18⅛″. 2 drawers—22¼″ x 3⅛″ x 16¾″, 1 drawer—22¼″ x 6⁷⁄₁₆″ x 16¾″. Bottom compartment 23½″ x 9¾″ x 16¾″. Shpg. wt. 104 lbs.
80W738. NET 193.82



TYPE 51171 Stors-All Chest & Cabinet Comb. 42⅜″ x 48½″ x 25½″. 2 drawers 18¼″ x 2⅜″ x 7½″. Roller Cabinet Features: 4 heavy duty casters. Full length piano hinge door. Chrome plated draw bolt w/lock tab. Combination Features: Aligning holes for securing Chest to cabinet. Hardware included. Wt. 51 lbs. Color: Black wrinkle w/burnt orange finish & white strips.
80W736. NET 113.12



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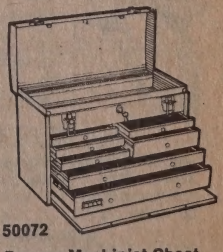


50072

TYPE 50072 Seven Drawer Machinist Chest 20″ x 13¼″ x 8½″. Till in top compartment: 19½″x3½″x8″. 4-drawers 8⅝″x1″, 1-drawer 8⅝″ x 2″, 1-drawer 18¼″ x 1½″, 1-drawer 18¼″ x 2⅜″. Drawers 7½″ deep. 31.0 lbs.
80W735. NET 95.48

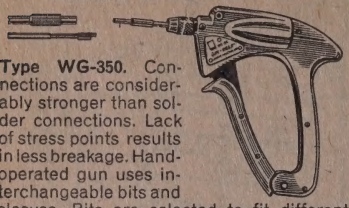
TYPE 50079 Five Drawer Porta-Chest 10½″ x 13¼″ x 8½″. Till in top compartment 10¼″ x 3¼″ x 8½″, 3-drawers 9″ x 1″, 1-drawer 9″ x 1½″, 1-drawer 9″ x 2⅜″. Drawers 7¼″ deep. 14.7 lbs.
80W734. NET 51.70

16

Jonard Industrial Tools

JONARD INDUSTRIES CORP.

MANUAL QUICK-WRAP GUN



Type WG-350. Connections are considerably stronger than solder connections. Lack of stress points results in less breakage. Hand-operated gun uses interchangeable bits and sleeves. Bits are selected to fit different sizes of terminal height, width and wire sizes combinations. Sleeves are selected to fit over the bit. Sleeves are insulated to help prevent shorting of adjacent connections. Terminal Dia. x Depth are all .075 x .750" except for wire gauge 22-24 which is .075 x .807".

35F3641. NET.....53.80

***Modified wrap includes additional 1½ turns with insulation on terminal.**

QUIK-WRAP BIT

Stock No.	Type	Wire Gauge	Regular or *Modified	Each
35F3642	BW-2426	24-26	Regular	13.50
35F3643	BW-2224	22-24	Regular	
35F3644	BWM-2426	24-26	*Modified	
35F3645	BWM-2200	22	*Modified	

QUIK-WRAP SLEEVE

35F3646	SW-2426	24-26	Regular	6.20
35F3647	SW-2224	22-24	Regular	

WRAPPING TOOL KIT

KW-350. Handles most popular wire wrap connections. Fitted in durable leather finished case.

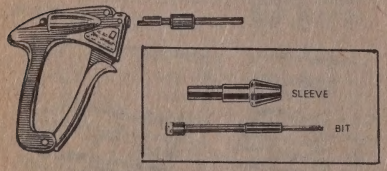
35F3636. NET.....42.00

UNWRAPPING TOOL KIT

KU-360. Unwraps most popular wire wrap connection sizes. Durable leather finished case.

35F3637. NET.....48.00

MANUAL QUICK-UNWRAP GUN



UG-360. Portable tool unwraps connections easily. Only bits are required, no sleeves are necessary.

35F3638. NET.....52.30

QUIK-UNWRAP BITS

Stock No.	Wire Gauge	Type	Each
35F3639	20-26	BU-2026 Bit	7.15
35F3836	28-32	BU-2832 Bit	7.15
35F3837	20-32	SU-2032 Sleeve	4.50

CONNECTOR TOOL

KA-260 3-Piece Contact Insertion Kit.
35F1148. NET.....38.25
KR-260 3-Piece Contact Removal Kit.
35F1149. NET.....40.80

MASTER 15-PIECE SET

Type K-55. Precision chrome plated carbon steel tools for maintaining relays. Contains: two spring adjusters; tension and thickness gauges; duck bill plier; screwdriver tweezers; mirror, four-way tool; brush; armature; stop benders; contact spray and burnisher. Leather zippered case. 3½ lbs.

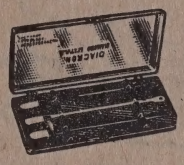
35F1127. NET.....71.30

MASTER 20-PIECE SET

Type K-600. Includes pliers, drivers, tweezers, burnisher, soldering iron and aids, files, magnifier, etc; all tools for service of electronic equipment. Zippered leather case.

35F1137... 59.40

DIAMOND CLEANER BURNISHER



Consists of abrasive diamond particles for cleaning of relay contacts with minimum pressure. Nominal material removal will not alter normal contact gap.

35F1100. Type K-234. Kit of 3. **NET. 24.30**
35F1101. Type D-200. Coarse, Green, 2 diamond faces. **NET.....8.40**
35F1102. Type D-300. Medium, Red. 2 diamond faces. **NET.....8.40**
35F1103. Type D-400. Fine, Blue, 1 diamond face. **NET.....8.40**

PENFILE POCKET CLEANER-BURNISHER

Non-residual, hardened steel. Plastic dielectric cap permits working on live and dangerous contacts. 5½" length x ⅜" diameter.

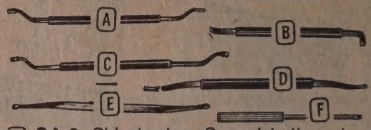
Type P-4 Penfile. ¼"W x 1¼"L x .007"T. 12 blades.
35F1107. NET.....6.85
Type P-6 Penfile. 3/16"W x 1¾" L x .007"T. 12 blades.
35F1108. NET.....6.85
Type RB-4. Replacement blades for P-4. Package of 25
35F1109. NET.....7.50
Type RB-6. Replacement blades for P-6. Package of 25
35F1110. NET.....7.50

ECONOMY BURNISHERS

3½" long. **OB-1, -2,** standard packages of 1 dozen, **OB-3, -4,** standard packages of 1 dozen.

Type OB-1. For fine cont. 3/16" w, .007" thk.
35F2219.....8.65
Type OB-2. For extra sensitive pts. Blue. ¼" wide, .007" thick.
35F2220.....10.00
Type OB-3. For general purpose contacts. Red. ¼" wide, .010" thick.
35F2221.....13.70
Type OB-4. For industrial uses. Green. ¼" wide, .020" thick.
35F2222.....16.45

PRECISION SPRING ADJUSTERS



A SA-2. Chisel edge. Curved both ends. Adj. horiz. relays. .023" slots, 7" L.
35F1114. NET.....6.50

B SA-6A. For vertical and horizontal relays. .029" slots, 5½" length.
35F1115. NET.....6.35

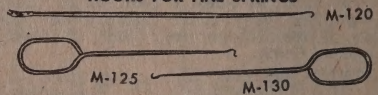
C SA-16. Double-ended lengthwise slots, .031" slots, 8" length.
35F1117. NET.....6.95

D SA-17. Offset flat type. For relay contact springs. .023" slots, 8" L.
35F1118. NET.....8.30

E SA-20. Upward and downward slots for closely set springs. .024" slots, 7" L.
35F1119. NET.....8.30

F SA-7. Straight type for rotary switches and flat-type relays. .015" slot, 4½" L.
35F3838. NET.....3.75

HOOKS FOR FINE SPRINGS



Use for inserting, removing, and adjusting fine springs in hard-to-reach areas. Tapered to fine point, highly polished.

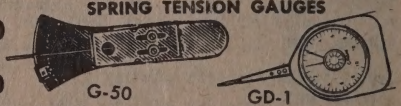
Stock No.	Type	Each
35F1126	M-120	2.90
35F1129	M-125	2.90
35F1131	M-130	3.60

PUSH-PULL GAUGES

For measuring tension and compression of spring loaded equipment.

GPP-2. 0-110 grams, 5 gram steps. ⅜" x 11".
35F1143. NET.....22.60
GPP-5. Two scales: 0-500 grams, 50 gram steps; 0-16 oz.-in., 1 oz.-in. steps. ½" x 15".
35F1188. NET.....26.40
GPP-8. Two scales: 0-220 grams, 5 gram steps; 0-8 oz., .25 oz. steps. 1½" x 14½".
35F2215. NET.....15.10
GPP-36. Two scales: 0-1020 grams, 20 gram steps; 0-36 oz., .5 oz. steps. 1½" x 14½".
35F2216. NET.....15.10
GPP-72. Two scales: 0-2025 grams, 25 gram steps; 0-72 oz., 1 oz. steps. 1½" x 14½".
35F2217. NET.....15.10
GPP-15. Two scales: 0-6084 grams, 100 gram steps; 0-15 lbs., 4 oz. steps. 1½" x 14½".
35F2218. NET.....15.10

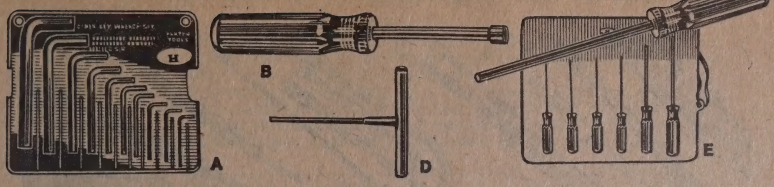
SPRING TENSION GAUGES



Model G-50. Engraved scale front and back for horiz. and vert. reading. Scale is 0-50 gm., at 5 gm. intervals. 5" length.
35F1111. NET.....13.10
35F1135. G-30. 0 to 30 gm. **NET.....13.10**
35F1136. G-150. 0 to 150 gm. **NET.....13.10**

Type GD. Readings can be taken clockwise and counter-clockwise. Pointer remains at maximum force measured, enabling reading to be taken after measuring.

Stk. No.	Type	Range (grams)	Net Each
35F1185	GD-1	0-10	31.70
35F1139	GD-5	6-50	31.70
35F1138	GD-10	10-100	31.70
35F1140	GD-15	15-150	31.70
35F1141	GD-100	100-1000	68.00



B. METRIC NUT DRIVERS

Solid shaft. Regular hex opening. 1¼" depth of hole. 3" blade length except 10mm, 11mm-2½". 6⅛" overall length except 10mm, 11mm-6⅜". 1 x 3⅛" handle except 10mm, 11mm-1⅛ x 3⅞".

Stock No.	Type	MM	Dec."	1-11	12-47	48-Up
34F132	32102	4	.1575			
34F133	32104	4.5	.1773			
34F134	32106	5	.1968			
34F135	32108	5.5	.2167	1.80	1.67	1.49
34F136	32110	6	.2362			
34F137	32112	7	.2756			
34F138	32114	8	.3150			
34F139	32116	9	.3543			
34F140	32118	10	.3937	2.31	2.14	1.91
34F141	32120	11	.4331			

A METRIC L-TYPE SET

13070. 10 sizes: 1.27mm, 1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm, 8mm, 10mm.

Stock No.	Type	1-9	10-49	50-Up
34F144	13070	3.89	3.61	3.22

NEWARK Can Supply All Your Electronic Needs

D. METRIC "T" HANDLE HEX DRIVERS

Alloy steel. Heat treated and hardened. Kit contains all 5 sizes. Blades won't bend, twist or break in normal use.

Stock No.	Type	Size	Lgth	1-9	10-49	50-Up
34F153	11202	2.5mm	6"	1.40	1.30	1.16
34F154	11204	3mm	6"	1.40	1.30	1.16
34F155	11206	4mm	6"	1.40	1.30	1.16
34F156	11208	5mm	6"	1.98	1.84	1.64
34F157	11210	6mm	6"	1.98	1.84	1.64
34F158	11225	Vinyl Kit		8.16	7.57	6.76

E. MERTIC HEX DRIVERS

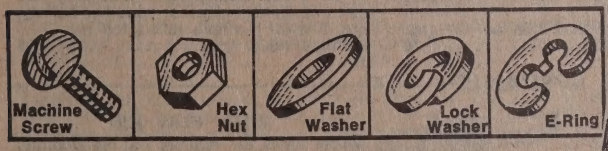
8650 alloy steel blade. Permanently fitted into plastic handle. Kit contains all six sizes.

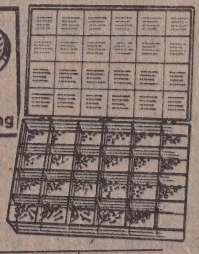
Stock No.	Type	Size	Lgth	1-9	10-49	50-Up
34F159	12260	2mm	7½"	1.83	1.70	1.52
34F160	12265	2.5mm	7½	1.83	1.70	1.52
34F161	12270	3mm	7½	1.83	1.70	1.52
34F162	12275	4mm	8	1.83	1.70	1.52
34F163	12280	5mm	8	1.83	1.70	1.52
34F164	12285	6mm	8	2.23	2.07	1.85
34F165	12290	Kit		11.15	10.34	9.24

METRIC HEX WRENCH KIT—5026

Kit of 9 metric hex wrenches. 0.9 to 3.2mm sizes. Complete with plastic carrying pouch.
30F240 NET 2.32

METRIC HARDWARE ASSORTMENTS—H-2040





Popular sizes metric hardware in convenient compartmentalized storage containers. Diagram inside container lid identifies specific compartment of each product. E-Rings black treated for corrosion; all other hardware nickel plated steel.
30F248 NET 15.50

Size	Contents	Qty. in Pkg.
2x3mm	ROUND HEAD MACHINE SCREWS—STEEL, NICKEL PLATED	15
2x5mm		15
2x8mm		15
2x14mm		15
2.6x3mm		15
2.6x5mm		15
2.6x8mm		15
2.6x14mm		15
3x4mm		15
3x6mm		15
3x8mm		15
3x12mm		15
4x4mm		15
4x6mm		15
4x8mm		15
4x10mm		15

Size	Contents	Qty. in Pkg.
2mm	HEX NUTS—STEEL, NICKEL PLATED	25
2.6mm		25
3mm		25
4mm		25
2x4.3x0.4	FLAT WASHER—STEEL NICKEL PLATED	15
2.6x7.5x0.5		15
3x8x0.5		15
4x8x0.5		15
2.6x0.6mm	SPRING LOCK WASHER STEEL, NICKEL PLATED	25
3x0.7mm		25
4x1mm		25
5x1.3mm		25
2.5mm	E-RING—STEEL	15
3mm		15
4mm		15
5mm		15

SPRING LOCK WASHER ASSORTMENT H-2038

2.6 x 0.6 35
3 x 0.7 35
4 x 1 35
5 x 1.3 35
30F244 NET 3.30

METRIC HARDWARE ASSORTMENTS

Steel nickel plated machine screws, flat washers and hex nuts in compartmentalized storage containers.

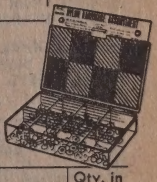
Size	Contents	Qty. in Pkg.
2mm HARDWARE—H-2030		
2x3mm	Round Head Machine Screws	20
2x5mm		20
2x8mm		20
2x14mm		20
2mm	Hex nuts	30
2x4.3x0.4	Flat Washer	30
2.6mm HARDWARE—H-2032		
2.6x3mm	Round Head Machine Screws	20
2.6x5mm		20
2.6x8mm		20
2.6x14mm		20
2.6mm	Hex Nuts	25
2.6x7.5x0.5	Flat Washer	25
3mm HARDWARE—H-2034		
3x4mm	Round Head Machine Screws	20
3x6mm		20
3x8mm		20
3x12mm		20
3mm	Hex Nuts	25
3x8x0.5	Flat Washer	25
4mm HARDWARE—H-2036		
4x4mm	Round Head Machine Screws	15
4x6mm		15
4x8mm		15
4x10mm		15
4mm	Hex Nuts	15
4x8x0.5	Flat Washer	15

PRICE LIST

Stock No.	Type	Net
30F245	H-2030	3.30
30F243	H-2032	
30F242	H-2034	
30F241	H-2036	

NYLON HARDWARE ASSORTMENT—H-5706

Most popular sizes of nylon screws, nuts, & washers in compartmentalized storage containers.

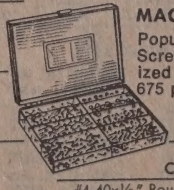


Contents	Qty. in Pkg.
6-32x½" Round Head Machine Screws	10
8-32x½" Screws	10
6-32x½" Binding Head Machines Screws	10
8-32x½" Screws	10
6-32 Thr. 5/16" W 7/64" Th. Hex Nuts	20
8-32 Thr. 11/32" W ⅛" Th. Nuts	20
No. 6 Scr. .150 HL. 5/16" O.D. .05 Th. Washers	20
No. 8 Si. .170 Si. ⅜" O.D. .05 Th. ers	20

30F247. NET 5.20

MACHINE SCREW ASST.—9199

Popular sizes of Machine Screws in compartmentalized storage containers. 675 pieces.

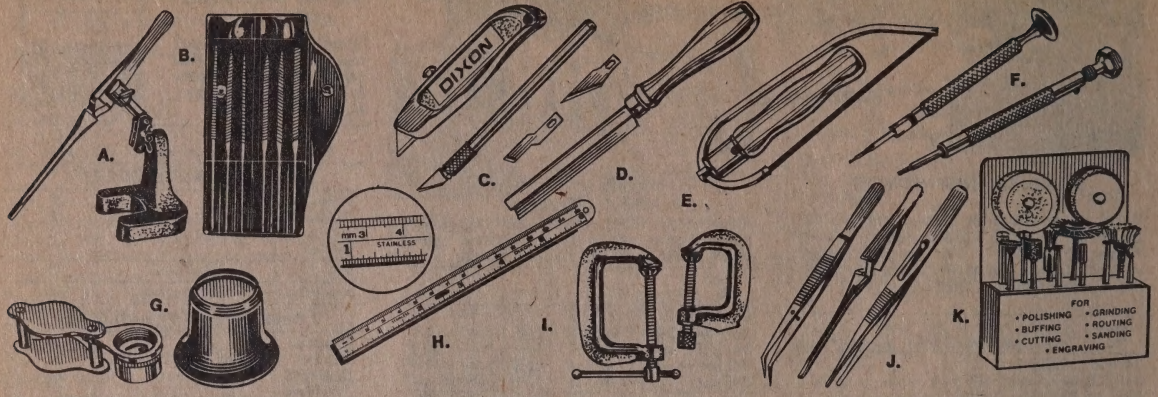


Contents	Qty. in Pkg.
#4-40x½" Round Head Machine Screws	100
#6-32x¼"	100
#6-32x½"	75
#6-32x¾"	50
#8-32x½"	50
#4-40x¼" Hex Nuts—Steel Nickel Plated	100
#6-32x¼"	100
#8-32x¼"	100

30F246. NET 10.27

DIXON
PRECISION TOOLS SINCE 1868

Precision Specialty Tools



A. The Third Hand. Cross-lock tweezer mounted in double ball joint to heavy iron base. Holds work in any position.
34F1280 H200. NET.....6.75

B. 6 Pc. Swiss Needle File Set. Assorted 14 CM files, Cut #2. Vinyl folding pouch.
34F1283 H757. NET.....13.50

Swiss Needle File Set. Three 14 CM files, med. Cut #0. Shapes: round, half round, bent 3 square. (Not illustrated.)
34F1281 H755. NET.....6.25

Swiss Needle File Set. Three 14 CM files, fine Cut #4. Shapes: round, half round, bent 3 square. (Not illustrated.)
34F1282 H755A. 6.25

C. Mini-Utility Knife. 3⅛" long. Blade adjusts to 3 positions, closes for safe carry.
34F1284 H110. NET.....1.75

Mini-Knife Blades. 5 double-end blades for H110. (Not illustrated.)
34F1285 H110A. NET..... .75

Precision Knife Set. 5" aluminum handle. Includes 3 blades.
34F1286 H111. NET.....1.25

Precision Knife Blades. 8 assorted No. 11 and No. 16 blades. For H-111. (Not illustrated.)
34F1287 H111A. NET.....1.20

D. Brass Back Razor Saw. Blade 5". Overall length 10".
34F1288 H101. NET.....2.95

E. Pocket Hacksaw. Adjustable handle. Overall length 12½". 7½" when folded.
34F1289 H105. NET.....4.95

3 Hacksaw Blades. For pocket hacksaw. (Not illustrated.)
34F1290 H105A. NET..... .85

F. Reversible Blade Screwdriver. 1/16" and 3/32" double end blade widths. Swivel head. Overall length 4½".
34F1293 H800. NET.....2.95

Screwholding Screwdriver. Self adjusting jaws. Blade width 1/16". Lgth. 4¾".
34F1294 H803. NET.....7.25

5 Pc. Precision Screwdriver Set. Hexagon swivel head. Popular blade sizes. Nickel plated. (Not illustrated.)
34F1295 H855. NET.....3.95

G. Eyepiece Magnifier. 2.5X power mag.
34F1292 H900. NET.....1.75

Pocket Magnifier. 10X power mag. Folds into nickel plated case.
34F1291 H901. NET.....2.95

H. Metric and English Scale Rule. Graduations in mm. and 1/32". Stainless Steel.
34F1296 H710. NET.....1.25

I. Mini-Clamps. (2). Sizes: 1" and ¾".
34F1297 H210. NET.....1.95

J. Cross-Locking Tweezers—6½". Exerts 1½ lbs. tension. Fits H200. (Not illus.)
34F1299 H500. NET.....1.75

Slide Lock Tweezers — 5⅞". Serrated round tips. Nickel plated. (Not illus.)
34F1300 H504. NET.....3.75

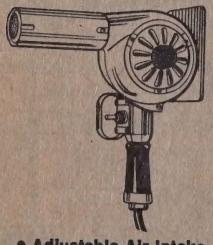
Curved Tweezers — with Pin — 4½". Pin keeps point aligned. Serrated sharp points.
34F1301 H508. NET.....1.95

Straight Tweezers—7". Long sharp points.
34F1302 H511. NET.....1.95

Retrieving Tweezers—8". Long round pts.
34F1303 H520. NET.....4.75

K. 18 Piece Rotary Tool Accessory Kit. ⅛" and 3/32" shanks. For sanding, buffing, etc. Fits all portable rotary tools.
34F1298 H980. NET.....7.95

MASTER APPLIANCE



- **Adjustable Air Intake**
- **Double-Jacketed heater housing**

AIR HEAT GUN

Sturdy die-cast aluminum housing. 8 ft. neoprene-jacketed 3-wire cord and plug that is oil and grease resistant. Turbo type fan blade is efficient and quiet in operation. All models for 115V A.C. or D.C. operation. Equipped with adaptor for 2 prong receptacle. Shipping wt. 5 lbs.

Stk. No.	Model	Amp.	Temp. F	Net Each
37F1442	HG201	5	200/300	53.50
37F1437	HG301	12	300/500	53.50
37F415	HG501	14	500/750	57.90
37F442	HG751	20	750/1000	64.90

- **Air-cooled barrel**
- **High-impact housing**
- **Shaded pole motor**

MITE™ HEAT GUN

Model 10008 Air velocity 700 feet/minute, volum 3.8 CFM. Nozzle length 3⅞", nozzle opening 1" diameter. Motor 3300 RPM. 4.5 amps maximum power consumption. High-impact Noryl® housing. Brushless-type shaded pole motor for whisper-quiet operation. Air-cooled barrel, three-conductor grounded cord. Has color-coded anodized barrel, safety light and three-way trigger switch. Size 8⅞ inches long, 7 inches high. Cord length 7 feet. Wt. 1¾ pounds.
37F1450. NET 39.90

16

ELEMENT KITS

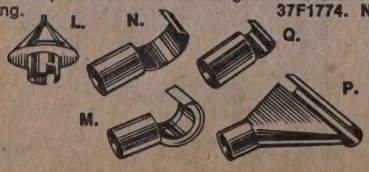
Incl. 1 element, 1 mica insulation, 2 element lead nuts, 1 element anchoring screw, 1 mounting washer, 1 nozzle screen, 1 screen retaining ring.

HAS-017K. For HG201.
37F1767. NET 4.95
HAS-018K. For HG301.
37F1769. NET 4.95
HAS-011K. For HG501.
37F1772. NET 6.95
HAS-015K. For HG751.
37F1774. NET 6.95

HEATING ELEMENTS

Type 20012. Blue Nozzle. Temperature ½" from nozzle 500° F, power 340 watts.
37F2900. NET 5.75

Type 20013. Silver Nozzle. 475°F, 475 W.
37F2901. NET 5.75
Type 20014. Black Nozzle. 800°F, 525 W.
37F2902. NET 5.75



ATTACHMENTS

Stock No.	Type	Figure	Description	Net
37F427	A-206-HG	L	¼" Pin Point Cone.	13.95
37F425	A-160-HG	M	Baffle for tubing up to ¾" O.D.	5.60
37F426	A-170-HG	N	Baffle for tubing ¾" to 2" O.D.	5.60
37F428	A-203-HG	P	Extra wide baffle for tubing up to ¾" O.D.	17.95
37F429	A-205-HG	Q	Baffle for tubing up to 1¾" O.D.	10.85

Adjustable Lamps and Brackets

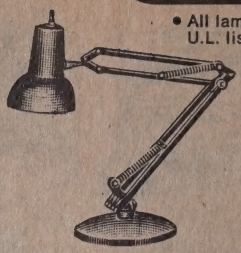
• All lamps are U.L. listed.

LUXO LIL-E

Mini-LUXO LIL Lamp is now built with all the ideal precision-engineered features for office, home or school. The New LUXO LIL sets perfectly on a desk and glides into position and holds it thanks to flexible spring-tension balancing. Scientifically balanced to give you perfectly even distribution of light exactly where it is needed. Lift LUXO LIL-E off its base and slip into clamp, peg board or wall mount brackets. Unit is then ready for use where space is not available. Colors; red, black, and white. Size: Fully extended, 24″; Base 7″. Individually Boxed. Comes with 40S11 bulb. Shpg. wt. 6 lbs.

Stk. No.	Type	Color	1-5	6-Up
99F1127	LIL—E	Black with Base	23.30	20.97
99F1129	LIL—E	White with Base		
99F1128	LIL—E	Red with Base		
99F1119	AL	Clamp Black	2.67	2.40
99F1120	AL	Clamp White		
99F1121	AL	Clamp Red		
99F1122	BL	Wall Bracket Black		
99F1123	BL	Wall Bracket White		
99F1124	BL	Wall Bracket Red		

Stk. No.	Type	Description	
25F088	40S11	Replacement Bulb	2.45



LIL-E

LUXO-O-LAMPS COMPLETE WITH BULBS AND TUBES
LFM-1A ILLUMINATED MAGNIFIERS

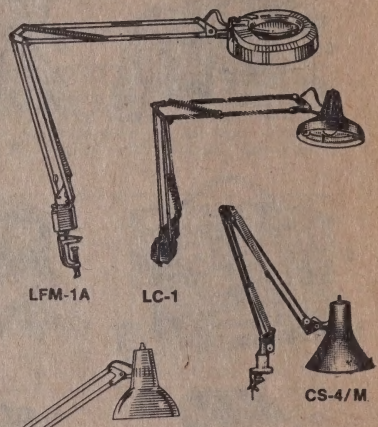
Large magnification, cool fluorescent light, and maneuverable. Lamps can be raised or lowered, tilted or turned to any direction. Sweep and movement same as All Angle Lamp L-1 listed below. 3 Diopter 5″ ground glass lens. Dove Gray finish. Grounded line cord. With fluorescent tube and brackets below. Shpg. wt. 8 lbs.

Stock No.	Type	Description	1-5	6-Up
99F1100	LFM-1A	Illuminated Magnifier w/Bracket	63.97	57.57

ACCESSORIES FOR LFM MAGNIFIERS

Stock No.	Description	1-5	6-Up
99F1102	Lens attachment #1 increase to 4 diopters	12.00	10.80
99F1103	Lens attachment #2 increase to 8 diopters	13.33	12.00

FC 8T 9CW. Replcement circline tube. 25F169. NET.....4.62



LFM-1A LC-1 CS-4/M

CS-4/M CROWNLITE 2

Versatile Crownlite can be used everywhere. All metal construction for years of rugged maintenance-free use. Steel tubing, tempered steel springs and machined hardware assure long life. Flexible arm movement twists, turns, stretches—up, down, around to the desired position. Supplied with a four-way bracket.

99F1130 Polar White. **NET**.....16.65
99F1131 Black. **NET**.....16.65
99F1132 Red. **NET**.....16.65

LC-1A COMBO LAMP

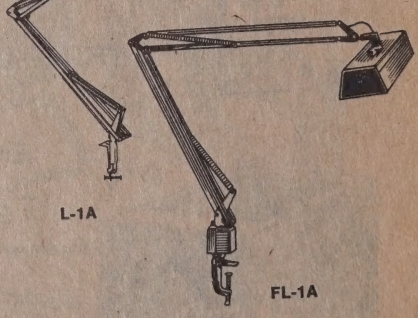
Combines 60 W incandescent with 22 W fluorescent for balance of light, close to daylight quality. 300 ft. candles at 12 in.; 2 arms make 45″ extension. Famous Luxo spring balance. Styled in dove gray. Complete with grounded line cord, 22WT-9 fluorescent tube and 60 watt bulb and bracket. Shpg. wt. 8 lbs.

99F1106. 1-5.....49.97 **6-Up**.....44.97

L-1A ALL ANGLE LAMP

Tubular steel fixture raises, lowers, tilts, traverses, and turns in 45″ radius, 360° sweep. 60 watt incandescent bulb, dual cool shade for greater light output and cool operation. With bulb, brackets and grounded cord. Shipping weight 5 lbs.

Stock No.	Type	Description	1-5	6-Up
99F1109	L-1A	All Angle Lamp	29.97	26.97



L-1A FL-1A

FL-1A FLUORESCENT LAMP

All angle/all purpose lamp with "feather touch" positioning. Unique spring extension arm and 360° sweep. 19″ x 4″ shade for excellent reflecting control. With fluorescent tubes, bracket and grounded cord. Styled in dove grey. Complete with 2—F15T8 fluorescent tubes. Shipping weight 9 lbs.

99F1107. 1-5.....49.97 **6-Up**.....44.97
F15T8/CW Type 25F 168/W Replacement Bulb. Net..... 2.70

LB-1A MACHINE TOOL LAMP

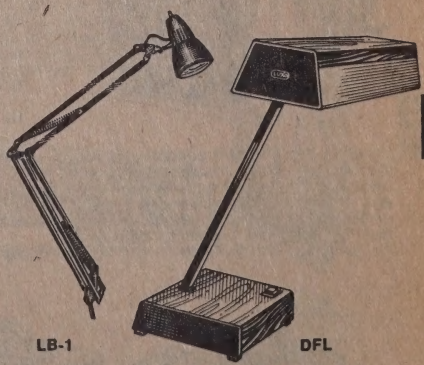
Designed for use in shops where work area must be well lit to provide safe and efficient operation. The lamp arm will not change position due to machinery vibration because of spring-balanced construction. Inner reflector for cool shade. 4½″ dia.; 2 extension arms for 45″ reach. With bulb, bracket and grounded cord. Styled in dove grey. Shipping weight 5 lbs.

99F1111. 1-5.....28.63 **6-Up**.....25.77

DFL DESK LAMP

Pre-angled light shield and two 15 watt fluorescent tubes are incorporated into a contemporary lamp design. Long lasting black baked enamel and woodgrain vinyl finish add to the elegance of the design. Has weighted base for stability with separate instant on-off switch. Rubber pads for surface protection. Warranted against defective parts and workmanship. Size: 15.62″ high x 18.75″ wide.

99F1101. 1-5.....29.97 **6-Up**.....26.97



LB-1 DFL

ACCESSORY BRACKETS

Type A. Clamps to level surface. 2¼″ maximum. Shipping Weight ½ lb.
99F1112. 1-5.....2.33 **6-Up**.....2.10
Type B. Screws to vertical surface. Shipping weight, ½ lb.
99F1113. 1-5.....2.33 **6-Up**.....2.10
Type C. Screw to level surface. Shipping weight, ½ lb.
99F1114. 1-5.....2.33 **6-Up**.....2.10
Type F. Clamps to level surface 2¼″ maximum. Shipping weight, 1 lb.
99F1115. 1-5.....5.67 **6-Up**.....5.10

A B C F

Schauer Battery Chargers, Inverters, Converters

SCHAUER
BATTERY CHARGERS

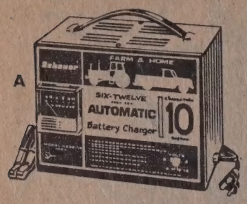


FIG. A—10 AMP AUTOMATIC
Charges 6 and 12 volt batteries at a 10 amp rate. For farm, home and recreation. 7¼"H x 9¼"W x 5¾"D. Weight 12 lbs.
TYPE CR612
02F1087. NET.....60.80

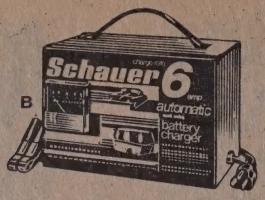


FIG. B—6 AMP AUTOMATIC
Charges 12 volt batteries at a 6 amp rate. Full recharge in 4 to 9 hours. For cars, trolling motors and travel trailers. 7¼"H x 9¼"W x 5¾"D. Weight 8¼ lbs.
TYPE BR412
02F1086. NET.....47.45

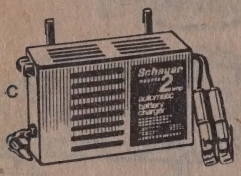


FIG. C—2 AMP AUTOMATIC
Charges 12 volt batteries at a 2 amp rate. For charging or maintaining auto, farm, lawn and recreation batteries. 5¼"H x 3¾"W x 2¼"D. Wt. 2⅞ lbs.
TYPE HR2012C
02F1085. NET.....29.20

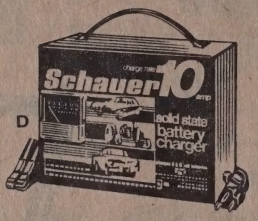


FIG. D—10 AMP MANUAL
Charges 6 and 12 volt batteries at a 10 amp rate. Full recharge in 2 to 6 hours. 7¼"H x 9¼"W x 5¾"D. Weight 11¾ lbs.
TYPE C7612
02F1084. NET.....49.55

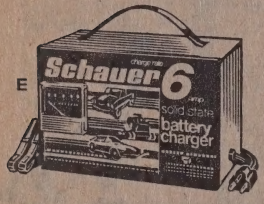


FIG. E—6 AMP MANUAL
Charges 6 and 12 volt batteries at a 6 amp rate. Full recharge in 3 to 7 hours. 6¼"H x 9¼"W x 5¾"D. Weight 8 lbs.
TYPE B7612
02F1083. NET.....38.55

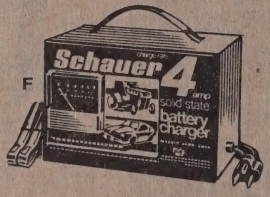


FIG. F—4 AMP MANUAL
Charges 6 and 12 volt batteries at a 4 amp rate. Full recharge in 5 to 14 hours. 5½"H x 7⅝"W x 4¾"D. Weight 5¾ lbs.
TYPE A7612
02F1082. NET.....33.95

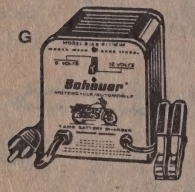
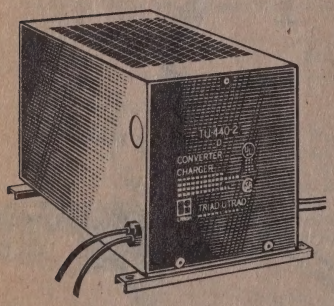


FIG.G—1 AMP MANUAL
Charges 6 or 12 volt batteries at a 1 amp rate. Compact. For motorcycle, snowmobile and car batteries. 4¾"H x 4¼"W x 4⅜"D. Weight 3⅜ lbs.
TYPE 11612
02F1081.....20.80

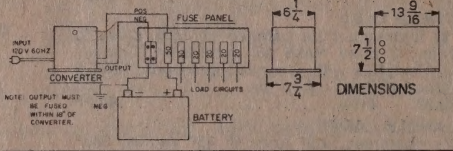
FIG. H—CHARGER PLUG
Accessory for use with battery chargers. Permits charging 12 volt batteries at up to 10 amps through the car's cigarette lighter receptacle. Wt. 2 oz.
TYPE A8412
02F1088. NET.....6.15

TRIAD-UTRAD CONVERTER/BATTERY CHARGER



Employs the use of a constant voltage transformer which results in constant regulated output with any line input voltage of 90-130. This eliminates over or under charging due to brown-outs or high line condition. Cannot be damaged by overloads. Even a short.

TYPICAL CONNECTION DIAGRAM

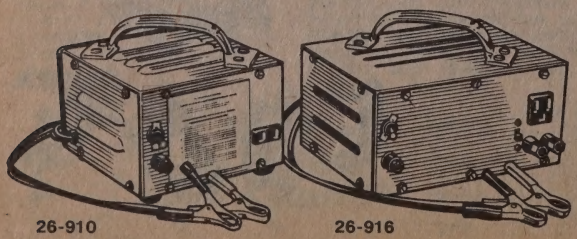


Stk. No.	Type	EACH
02F1075	TU-323	135.00
02F1076	TU-430-2T	87.50
02F1077	TU-440-2T	104.17
02F1078	TU-550-2	135.00
02F1079	TU-470-2T	141.67
02F1080	TU-500-2	202.00

Type	Charge Rating	INPUT Volts	INPUT Amps	OUTPUT Volts	OUTPUT Amps	Weight
TU-323	20 amps (dual 10)	90 to 130 VAC 60 Hz	3.3	12 VDC min. full load 14.1 VDC max. no load	20	28 Lbs.
TU-430-2T*†	30 amps	90 to 130 VAC 60 Hz	5.0	12 VDC min. full load 14.1 VDC max. no load	30	19 Lbs.
TU-440-2T*†	40 amps	90 to 130 VAC 60 Hz	6.3	12 VDC min. full load 14.1 VDC max. no load	40	32 Lbs.
TU-550-2*†	50 amps	90 to 130 VAC 60 Hz	7.7	12 VDC min. full load 14.1 VDC max. no load	50	36 Lbs.
TU-470-2T*†	70 amps	90 to 130 VAC 60 Hz	11.0	12 VDC min. full load 14.1 VDC max. no load	70	40 Lbs.
TU-500-2	40 amps	200 to 240 VAC 50 Hz	3.0	12 VDC min. full load 14.1 VDC max. no load	40	32 Lbs.

*Automatic reset thermal cutout.
†UL approved.

GC PORTABLE VOLTAGE INVERTER



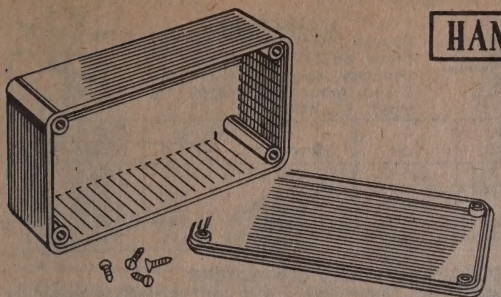
PORTABLE INVERTER
Inverts 12 VDC to 110 VAC. For campers, boats, trailers, shop, and at home. Operates TV sets, CB units, Ham gear, small appliances and radios. Rugged construction. Transistorized circuitry. With 6½ ft. leads, and carrying handle. **INPUT:** 12 VDC 20 amps. **OUTPUT:** 117 VAC 185 watts max. @ 60 Hz nominal. 6"H x 6¼" W x 7½" D.
TYPE 26-910
02F1073. NET.....63.26

DELUXE PORTABLE INVERTER
- FREQUENCY STABILIZATION
- ACCOMMODATES POWER HAND TOOLS
- MINIMAL CURRENT DRAW ON IDLE

Uses high temperature silicon power transistors. Short proof output. Output light. Detachable input cables. **INPUT:** 12 VDC, 20 amps. **OUTPUT:** 117 VAC, 200 watts cont. @ 60.3 Hz controlled. Max. variation, battery voltage 9-15 V. 6"H x 8¼"W x 6¼"D.
TYPE 26-916
02F1074. NET.....94.45

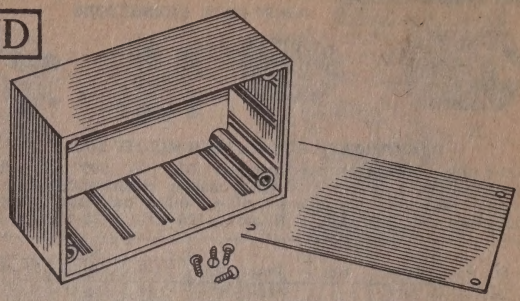
Plastic Cases, Light Sticks, Cordomatic Reels

HAMMOND



PLASTIC CASES

Types 1591 A, B, C, D and E. Type number suffixes specify colors: -OR=Orange, -BK=Black, -BU=Blue and -GY=Grey. Average wall thickness 0.062" (1.8mm). Rated 85°C (185°F). Molded in ABS plastic for good electrical insulation, and easy punching or drilling. Comes with 3mm slot head screws, countersunk into lid and threaded into brass bushings. Slots on 0.2" centers hold .062" PC cards. Interlocking flange on lid.



PLASTIC CASES WITH PANELS

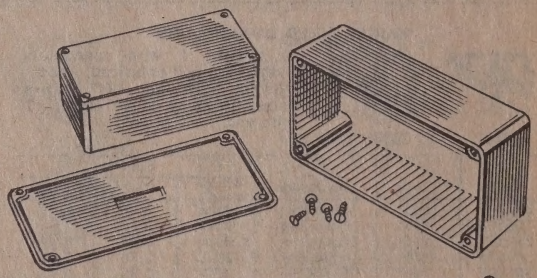
Types 1591L, 1591M, 1591N. Average wall thickness .08" (2mm). Case is ABS plastic. Comes with four slot head screws threaded into integral brass bushings which hold panel recessed into front of case. Rated for 85°C (185°F). 1mm (0.04") thick grey painted aluminum panel. Internal slots on all four sides for holding 1.5mm (0.062") PC boards. -OR=Orange, -BK=Black, -BU=Blue, -GY=Grey.

Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	Dimensions L" x W" x D"	Each
65F1750	1591A-OR	65F1758	1591A-BK	65F1766	1591A-BU	65F1774	1591A-GY	4.00x2.00x.844	2.80
65F1751	1591B-OR	65F1759	1591B-BK	65F1767	1591B-BU	65F1775	1591B-GY	4.40x2.44x1.06	3.10
65F1752	1591C-OR	65F1760	1591C-BK	65F1768	1591C-BU	65F1776	1591C-GY	4.75x2.56x1.40	3.80
65F1753	1591D-OR	65F1761	1591D-BK	65F1769	1591D-BU	65F1777	1591D-GY	6.00x3.15x1.84	4.50
65F1754	1591E-OR	65F1762	1591E-BK	65F1770	1591E-BU	65F1778	1591E-GY	7.50x4.33x2.22	6.50
65F1755	1591L-OR	65F1763	1591L-BK	65F1771	1591L-BU	65F1779	1591L-GY	3.35x2.20x1.12	3.90
65F1756	1591M-OR	65F1764	1591M-BK	65F1772	1591M-BU	65F1780	1591M-GY	4.37x2.80x1.63	5.00
65F1757	1591N-OR	65F1765	1591N-BK	65F1773	1591N-BU	65F1781	1591N-GY	6.33x3.78x2.06	7.00

DIECAST BOXES

Types 1590L, 1590M, 1590, 1590P and 1590R. Average wall thickness 0.062" (1.8mm). Aluminum alloy for easy punching and drilling. Comes with 3mm slot head screws, countersunk into lid and threaded in tapped holes. Rated to 600°C (1112°F). Interlocking flange lid. Internal slots on 0.2" (5mm) centers hold .062" (1.5mm) thick PC cards or dividers.

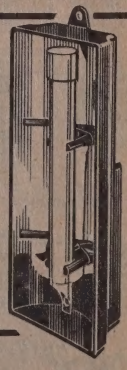
Stk. No.	Type	Dimensions L" x W" x D"	Each
65F1782	1590L	4.00x2.00x.844	3.80
65F1783	1590M	4.40x2.44x1.06	4.60
65F1784	1590N	4.75x2.56x1.40	5.70
65F1785	1590P	6.00x3.15x1.84	7.70
65F1786	1590R	7.50x4.33x2.22	11.80



CYALUME LIGHT STICKS

Self-contained 6" plastic tubes become a windproof, waterproof, safe and cool light source when bent to release the chemicals inside. Available as **30 minute Hi-Intensity Safety-Lights** giving off a bright yellow glow and as **12 hour General Purpose Safety-Lights** emitting a yellow-green glow. Shelf life of 2 years or more, no batteries or power required, non-toxic, no heat emitted, 360° safe lights. **Cyalume Multi-Purpose Lantern** reflector directs light doubling the light in one direction. Equipped for hanging, clipping to clothing or magnetically attaching to metal surface. **Safety-Light Dispenser** is steel, affixes to wall, has security seal and has locator to glow in darkness.

Stk. No.	Type	Description	Each
49F1270	95270-53	12 hr. lightstick—pkg. of 10	14.00
49F1271	95270-52	½ hr. hi-intensity—pkg. of 10	16.00
49F1272	95270-60	Lantern Accessory	2.25
49F1273	.....	Lightstick Dispenser	6.50



CORDOMATIC REELS AND ACCESSORIES

Stk. No.	Type	Cord	Length	Rating	Each
36F910	600	18-2SV0	20′	6A	18.95
36F911	600G	18-3SV0	20′	6A	20.95
36F912	900	18-2SJ0	40′	7A	33.95
36F913	900G	18-3SJ0	30′	7A	34.95
36F914	S/900G	16-3SJ0	25′	9A	35.95
36F916	500P	16-3SPT2	20′	9A	16.95
36F917	900P	16-3SPT2	50′	7A	31.95
36F918	125DCG	18-3SJT	25′	10A	11.95
36F919	150DCG	18-3SJT	50′	10A	17.95
36F920	225DCG	16-3SJT	25′	13A	14.95
36F921	400HAG	Grounding Type Handle Assembly			5.50
36F922	400HA	2 Conductor Handle Assembly			3.95

Types 600 and 600G are garage light reels. **Type 900** is a heavy duty drop light reel. **900G** and **S/900G** are grounding type heavy duty drop lights. **500P and 900P** are grounding type power outlet reels. **Types 125DCG, 150DCG and 225DCG** are heavy duty drop lights. **Types 400HAG and 400HA** are deluxe pistol grip handle assemblies. Products are oil and water resistant and meet OSHA requirements. Cords are UL listed.

16

Electrical Wiring Devices

TWIST-LOCK CONNECTORS

H

J

K

L

10 AMP 2-WIRE CONNECTORS MIDGET SIZE

Cord-grip connectors accommodate .312″ to .500″ diameter cords. Brown bakelite, with metal casings plated to resist corrosion. Female receptacles will accept either polarized or non-polarized caps. 250 volts at 10 amps; 125 volts at 15 amps. U.L.

Stk. No.	Type	Fig.	Description	Each 1-9	10-24	25-49
38F501	7427	J	Fem. Con.	2.18	1.94	1.70
38F522	7464	J	Fem. Con.	2.18	1.94	1.70
31F1365	7465-VBLK	H	Male Con.	2.18	1.94	1.70
38F502	7466	K	Male Base	3.09	2.75	2.41
38F503	7468	L	Fem. Base	2.83	2.52	2.20

*Has one wide and one narrow blade to fit all corresponding polarized slots of receptacles.

MIDGET TWIST LOCK

7594

7593

7500 series twist lock. 15 amp, 125 volt. Cylindrical hollow brass split ring for ground provision. Non-interchangeable unit with UL requirements.

Stk. No.	Type	Description	Each 1-9	10-24	25-49
32F742	7593	Conn. body w/cord grip	4.23	3.76	3.29
32F743	7594	Cap w/cord grip	3.16	2.81	2.46
38F523	7595	Inlet, exposed terminals	3.82	3.40	2.97
38F524	7596	Outlet, exposed terminals	4.50	4.00	3.50

MIDGET SIZED CONNECTORS

7432

7433

10 ampere, 3 wire connectors, midget size and polarized. Accommodate .281″ to .421″ cable. Rated 250 volts at 10 amps; 125 volts and at 15 amps.

Stk. No.	Type	Description	Each 1-9	10-24	25-49
32F747	7432	Male Plug	4.35	3.87	3.39
38F504	7485	Male Plug	2.51	2.23	1.95
38F505	7484	Fem. Con.	3.46	3.07	2.69
38F506	7486	Male Plug	3.07	2.73	2.39
38F507	7487	Fem. Con.	3.74	3.33	2.91
32F748	7433	Fem. Con.	5.44	4.84	4.23

STANDARD SIZE—POLARIZED

M

N

P

10 amp. 3 wire cable connectors accommodate .296″ to .687″ dia. cables. Type 7572 is nylon cap. Rated: 250 volts at 10 amps; 125 volts at 15 amps.

Stk. No.	Type	Fig.	Description	Each 1-9	10-24	25-49
31F1366	7567-C	M	Male Plug	3.31	2.94	2.57
38F510	7555	N	Fem. Con.	4.51	4.01	3.51
38F511	7556	—	Male Base	4.04	3.59	3.14
38F512	7557	P	Fem. Base	4.32	3.84	3.36

3-WIRE GROUNDING TYPE SINGLE OUTLETS

5278

5207

Polarized for grounding exposed metal. 5279 has flush housing with permanent type mounting plate (2.437 Dia.). Male recessed 5278. 5207 (Dia. 1.531) "insulprene" connector body. 5280-C (1.531 Dia.) grounding cap may be anchored. All are 15A., 125V.

Stk. No.	Type	Description	Each 1-9	10-24	25-49
32F727	5278	Male Base	4.35	3.87	3.39
32F728	5279	Female Base	6.80	6.05	5.29
31F1367	5280-C	Male Cap.	5.13	4.56	3.99
32F730	5207	Fem. Con.	3.60	3.20	2.80

VALISE PLUG

Special nylon webs join the three sections together for economy, speed, and long life. 3-wire grounding except *(2-wire). U.L. listed.

Stk. No.	Type	Description	Each 1-9	10-49	50-Up
31F1335	5965-VY	15A/125V, 2 pole	1.97	1.75	1.53
31F1363	5865-VY*	15A/125V	1.63	1.45	1.27
34F1151	5666-VY	15A/250V	2.37	2.10	1.84
34F1152	5364-VY	20A/125V	3.84	3.41	2.99
34F1153	5464-VY	20A/250V	4.00	3.56	3.11

CORD CONNECTORS

Type 5269. 3-Wire cord connectors grounding type 15 amps, 125v. With cord grip. Cord diameter: .296″ to .687″.

Stock No.	Type	Description	Each 1-9	10-24	25-49
30F1301	5269-C	Body	5.53	4.92	4.30

SUPER "TWIST-LOCK" DEVICES

R

T

S

Rated: 600 volts at 10 amps; 250 volts at 20 amps. Take .437″ to .750″ cables. 20 amp. 3-wire connectors.

Stk. No.	Type	Fig.	Description	Each 1-9	10-24	25-49
38F515	7327	S	Male Base	6.72	5.98	5.23
38F516	7328	T	Fem. Base	7.43	6.61	5.78

Type 5266-C. 3-Wire grounding type caps and bodies, polarized. 15 amps, 125v. Fitted with "U" shaped bodies for grounding.

Stk. No.	Type	Fig.	Description	Each 1-9	10-24	25-99
32F750	5266-C	R	Rubber Caps	3.13	2.78	2.43

3-WIRE GROUNDING TYPE ADAPTER

Type 5273-L. For grounding exposed metal parts of portable electrical equipment. Designed to adapt standard 2-wire convenience outlets for use with new 3-wire grounding caps, 15 amps. 125 volts. Shpg. wt., 4 oz. Std. pkg.—50; Carton—10.

Stk. No.	Type	1-9	Each 10-24	25-49
38F517	5273-L	2.29	2.03	1.78

FEMALE GROUNDING-TYPE MOTOR BASE OUTLET

Type 5256. A good, standard grade outlet meeting FED. SPEC. W-C-596 (S). Parallel-blade with U-ground. Rated: 15 amps, 125 volts AC or DC. Nickel-plated brass construction. U.L. approved.

Stk. No.	Type	1-9	Each 10-24	25-49
32F746	5256	3.89	3.46	3.03

TWIST LOCK RECEPTACLES

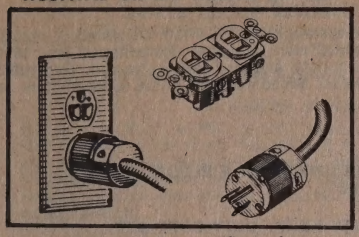
3-wire grounding-type convenience outlets. 5242 is side-wired only. 5252 and 5262 are back or side-wired. Isolated ground receptacles have grounding terminals isolated from mounting strap to prevent transmission of transient current often associated with building ground.

Stock No.	Type	1-9	Each 10-24	25-49
32F701	5242*	1.45	1.29	1.13
32F717	SG-62*	6.22	5.53	4.84
32F749	5252*	2.39	2.13	1.86
34F1154	5262*	4.68	4.16	3.64
34F1155	IG-4700IG	7.08	6.30	5.51
34F1156	IG-4710IG	8.43	7.50	6.56
34F1157	IG-2310IG	5.47	4.86	4.26
34F1158	IG-2610IG	7.47	6.64	5.81
34F1159	IG-2410IG	7.32	6.50	5.69
34F1160	IG-2710IG	11.09	9.86	8.63
34F1161	IG-5262*IG	6.22	5.53	4.84
34F1162	IG-5261*IG	7.51	6.67	5.84
34F1163	IG-5362*IG	7.97	7.08	6.20
34F1164	IG-5651*IG	4.33	3.85	3.37

(*) = Straight Blade
IG = Isolated Ground Receptacles

Wiring Devices

HOSPITAL GRADE WIRING DEVICES



Designed to meet the specific performance demands required by hospitals. Gives the kind of performance demanded when safe, uninterrupted power is critical.

STRAIGHT BLADE 15A/125V, 2 POLE, 3-WIRE GROUNDING

Stock No.	Type	Description	1-9	10-49	50-Up
31F1336	8200	Recpt., brn.	5.69	5.06	4.43
31F1337	8200-I	Recpt., ivory	5.94	5.28	4.62
31F1338	8200-R	Recpt., red	5.94	5.28	4.62
31F1339	8200-GY	Recpt., gray	5.94	5.28	4.62
31F1340	8200-WHI	Recept., white	5.94	5.28	4.62
31F1341	8215-C	Plug, nylon	3.42	3.04	2.66
31F1342	8215-CT	Plug, clear	4.23	3.76	3.29
31F1343	8215-CAT	Plug, cl. angle	4.00	3.56	3.11
31F1344	8219-C	Conn., nylon	5.77	5.13	4.49
31F1345	5262-ILH	Recpt., grnd. lighted	7.94	7.06	6.18
31F1346	IG 5262-H	Recpt., grnd. orange isol.	6.79	6.04	5.28
31F1347	SG621-I	Recpt., grnd. ivory	6.49	5.77	5.05

STRAIGHT BLADE 20A/125V, 2 POLE, 3-WIRE GROUNDING

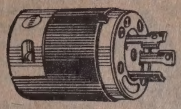
Stk. No.	Type	Description	1-9	10-49	50-Up
31F1348	8300	Receptacle, duplex brn.	6.50	5.78	5.06
31F1349	8300-I	Receptacle, duplex ivory	6.81	6.05	5.30
31F1350	8300-R	Receptacle, duplex, red	6.81	6.05	5.30
31F1351	8300-GY	Receptacle, duplex, gray	6.81	6.05	5.30
31F1352	8300-WHI	Receptacle, duplex, white	6.81	6.05	5.30
31F1353	8310	Receptacle, single, brn.	4.88	4.34	3.80
31F1354	8310-I	Receptacle, single, ivory	5.12	4.55	3.98
31F1355	8310-R	Receptacle, single, red	5.12	4.55	3.98
31F1356	8310-GY	Receptacle, single, gray	5.12	4.55	3.98
31F1357	8310-WHI	Receptacle, single, white	5.12	4.55	3.98
31F1358	8315-C	Plug, nylon	4.19	3.72	3.26
31F1359	8315-CT	Plug, clear	5.16	4.59	4.02
31F1360	8319-C	Conn., nylon	6.81	6.05	5.30

WALL PLATES

Impact resistant. Brown. Available in Ivory, Red, Grey and White on special order.

Stock No.	Type	Description	1-9	10-49	50-Up
31F1361	8241	single gang switch	1.46	1.30	1.14
31F1362	8248	single gang duplex receptacle	1.46	1.30	1.14

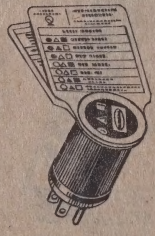
INSULGRIP NYLON CABLE CLAMPS



Molded of Dupont® Zytel, a rugged nylon which resists flame, arc, corrosion, shock and a wide range of environmental conditions. Powerful cable grip jaws offset wire in clamp to prevent strain on wiring terminals. Exclusive "Picture Window" wiring chamber lets you see if wires are inserted correctly. UL and CSA listed.

Stock No.	Type	Description	Cord Dia.	NET 1-9	NET 10-49	NET 50-Up
34F1140	2611	Twistlock, Plug	.385-.780	6.11	5.43	4.75
34F1141	2613	Twistlock, Conn.Body	.385-.780	12.62	11.22	9.82
32F725	4720-C	Twistlock, Plug	.296-.687	3.27	2.90	2.54
34F1142	4729-C	Twistlock Conn.Body	.296-.687	5.84	5.19	4.54
32F750	5266-C	Straight Blade, Pl.	.296-.687	3.13	2.78	2.43
32F751	5266-CA	Straight Blade, Pl.	.328-.640	3.46	3.07	2.69
30F1304	5366-C	Straight Blade, Pl.	.296-.687	4.08	3.63	3.18
34F1143	5369-C	St. Blade, Conn.Body	.296-.687	6.56	5.83	5.10
31F1366	7567-C	Twistlock, Plug	.296-.687	3.31	2.94	2.57
34F1144	7565-C	Twistlock, Conn.Body	.296-.687	5.59	4.97	4.35

RECEPTACLE CIRCUIT TESTER



- Durable construction
- Ease of operation
- Immediate diagnosis

5200 Tester has a simple arrangement of neon lights indicating various fault conditions in electrical circuits. Quick and easy operation. By plugging the 5200 Tester into a single phase, 125V, 2-pole, 3-wire outlet the combination of lighted and unlighted lamps indicates circuit condition.

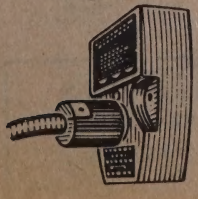
34F1145. NET.....14.73

PENDANT OR FEED-THRU SWITCH

Single pole, 10A 125V—5A 250V. Black phenolic housing and handle.

Stk. No.	Type	Description	1-9	10-49
34F1146	275	standard	3.24	2.88
34F1147	275-MO	contacts momentary open	7.25	6.44
34F1148	275-MC	contacts momentary closed	6.35	5.65

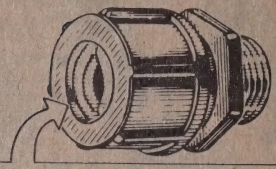
GROUND FAULT INTERRUPTER & POUCH



Plugs into any standard 15A., 120 V. straight blade, U-ground receptacle. Cord connected equipment can then be plugged into the single 3-wire grounding outlet in face of unit for ground fault protection. Underwriters' Laboratories listed for indoor use. Conforms to applicable National Electrical Code requirements.

Stock No.	Type	Description	Each
31F1333	GFP-115	15A, 125V, 5mA sensitivity	62.50
31F1334	GFP-P	pouch for above	8.00

HUBBELL CORD CONNECTORS—STRAIGHT MALE TYPE SHC



- Assures Against Cord Pullout
- Oil And Water Tight

Provides assurance against cord pullout because of patent pending "Gotcha" Ring. Neoprene bushing provides liquid tight seal. Cord grips up to 3" are available in straight male and female 45° and 90° angle configurations.

NPT HUB SIZE: ¼"

Sold in packages of 25 only

Stk. No.	Type	Form Size	Diameter Range	Each
31F1300	SHC-1001	F-1	.062-.125	1.80
31F1301	SHC-1002	F-1	.125-.187	
31F1302	SHC-1003	F-1	.187-.250	
31F1303	SHC-1004	F-1	.250-.312	
31F1305	SHC-1006*	F-1	.375-.437	

*CABLE JACKET MUST BE STRIPPED

NPT HUB SIZE: ⅜"

31F1309	SHC-1010	F-1	.250-.312	1.80
31F1310	SHC-1011	F-1	.312-.375	
31F1311	SHC-1012	F-1	.375-.437	

NPT HUB SIZE: ½"

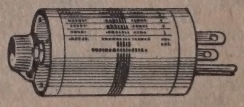
31F1312	SHC-1013	F-1	.062-.125	1.80
31F1314	SHC-1015	F-1	.187-.250	1.80
31F1315	SHC-1016	F-1	.250-.312	1.80
31F1316	SHC-1017	F-1	.312-.375	1.80
31F1317	SHC-1018	F-1	.375-.437	1.80
31F1318	SHC-1022	F-2	.250-.375	1.76
34F1149	SHC-1023	F-2	.375-.500	1.76

NPT HUB SIZE: ¾"

Sold in standard packages only.

Stock No.	Type	Form Size	Diameter Range	Std. Pkg.	Each
31F1319	SHC-1029	F-2	.062-.125	25	1.96
31F1320	SHC-1030	F-2	.125-.187	25	
31F1321	SHC-1031	F-2	.187-.250	25	
31F1322	SHC-1032	F-2	.250-.275	25	
31F1323	SHC-1033	F-2	.375-.500	25	
31F1324	SHC-1034	F-2	.500-.625	25	
31F1325	SHC-1037	F-3	.625-.750	15	2.58

GROUND FAULT LEAKAGE TESTER



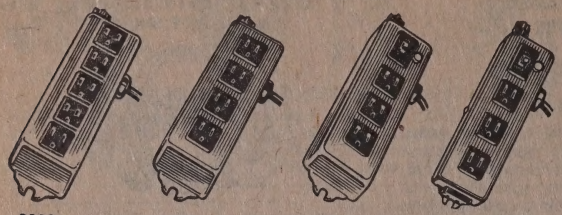
GFT 2-G. Designed to measure trip level of either portable or "wired in" GFI in a range of 2 to 7 milliamperes. May be used on any 110, 120, 130 volt circuit at 15 or 20 amperes, or circuits above 20 amperes with use of adapters. Compact, tough impact resistant nylon housing. Highly visible indicator light on center band. Can be used to test tools or appliances with either two or three cords.

34F1150. NET.....28.25

SPC technology Power Outlet Boxes and Strips

SERIES 800

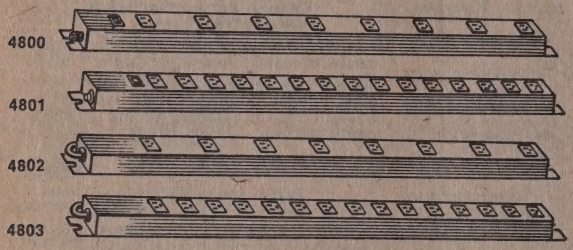
Box size is 8⅝" x 2⅜" x 1½" high. Mounting centers are 8¼". Shipping wt. 6' cord—2 lbs. 15' cord—3 lbs.



0800 0801 0802 0803

SERIES 4800

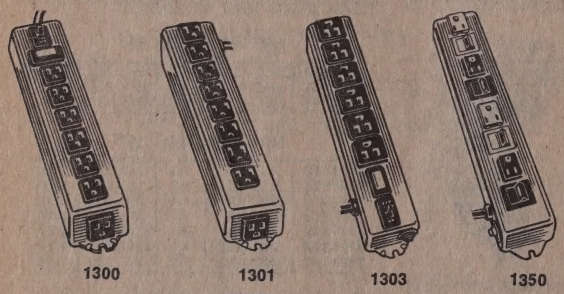
Box size is 49" x 2" x 2" x 1½" high. Mounting centers are 48¾". Shipping wt. 6' cord—6 lbs.; 15' cord—7 lbs.



4800
4801
4802
4803

SERIES 1300

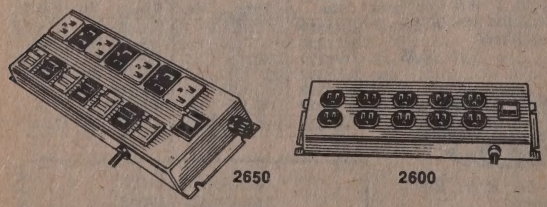
Box size is 13⅛" x 2⅜" x 1½" high. Mounting centers are 12¾". Shipping wt. 6' cord—2 lbs.; 15' cord—3 lbs.



1300 1301 1303 1350

SERIES 2600

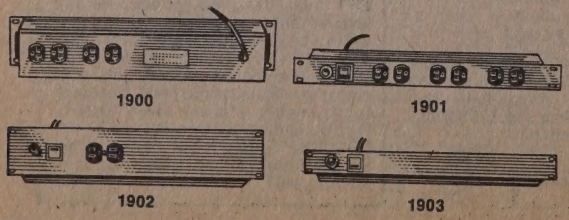
Box size is 13⅜" x 4⅛" x 1½" high. Mounting centers are 13" x 2⅞". Shipping weight 6' cord—3 lbs.; 15' cord—4 lbs.



2650 2600

SERIES 1900
RACK MOUNTED OUTLET PANELS

6 "U" ground outlets with pilot light, on-off switch, and fuse or push-to-reset circuit breaker protection. Provides an easy power source for standard relay racks. Size is 19" x 1¾" or 19" x 3½". Mounting centers are 17¾". Shipping weight 6' cord—3 lbs.; 15' cord—4 lbs.



1900 1901 1902 1903

MULTIPLE OUTLET STRIPS

Housed in durable steel cases. Contain UL listed or recognized components. Rated 15 amps, 125 volts, 60 Hz., 1875 watts, continuous duty and are factory tested. Grounded case. Choose either Standard Line or UL Line models on next page.

- **"U" GROUND OUTLETS HAVE ELECTRICAL WIRED GROUND**
- **FINEST QUALITY HEAVY DUTY CORD-SET**
- **GRAY FINISHED, STURDY STEEL CASES**
- **RATED 15 AMPERES, 125 VOLTS**
- **PRE-WIRED AND READY FOR USE**

Stk. No.	Type	Outlets No.	Outlets Style	Protection	Control	Cord Lgth.	EACH
60N2420	0800-XS	5	U-GRD	—	—	6'	9.00
60N2421	0800-XF	5	U-GRD	—	—	15'	11.25
60N2422	0801-FS	4	U-GRD	Fuse	—	6'	10.00
60N2443	0801-FF	4	U-GRD	Fuse	—	15'	12.25
60N2444	0801-BS	4	U-GRD	C.B.	—	6'	12.25
60N2445	0801-BF	4	U-GRD	C.B.	—	15'	14.50
60N2446	0802-FS	3	U-GRD	Fuse	LR	6'	11.15
60N2448	0802-BS	3	U-GRD	C.B.	LR	6'	13.40
60N2449	0802-BF	3	U-GRD	C.B.	LR	15'	15.65
60N2497	0803-FS	4*	U-GRD	Fuse	LR	6'	12.50
60N2498	0803-BS	4*	U-GRD	C.B.	LR	6'	14.75
60N2499	0803-BF	4*	U-GRD	C.B.	LR	15'	16.95
60N2407	1300-FS	7*	U-GRD	Fuse	R-P	6'	16.60
60N2408	1300-FF	7*	U-GRD	Fuse	R-P	15'	18.85
60N2440	1300-BS	7*	U-GRD	C.B.	R-P	6	18.85
60N2409	1300-BF	7*	U-GRD	C.B.	R-P	15'	21.10
60N2410	1301-XS	9*	U-GRD	—	—	6'	13.55
60N2411	1301-XF	9*	U-GRD	—	—	15'	15.80
60N2400	1303-FS	6	U-GRD	Fuse	R-P	6'	15.65
60N2438	1303-FF	6	U-GRD	Fuse	R-P	15	17.90
60N2401	1303-BS	6	U-GRD	C.B.	R-P	6'	17.90
60N2439	1303-BF	6	U-GRD	C.B.	R-P	15'	20.15
60N2453	1350-BF	4	U-GRD	C.B.	LR-I	15'	25.05
60N2432	1900-BS	6	U-GRD	C.B.	LR	6'	24.55
60N2491	1900-BF	6	U-GRD	C.B.	LR	15	26.80
60N2578	1901-BS	6	U-GRD	C.B.	LR	6'	23.70
60N2493	1902-BF	6	U-GRD	C.B.	LR	15	25.90
60N2580	1903-BS	6	U-GRD	C.B.	LR	6'	23.55
60N2581	1903-BF	6	U-GRD	C.B.	LR	15'	25.80
60N2459	2600-BS	10	U-GRD	C.B.	LR	6'	25.60
60N2430	2600-BF	10	U-GRD	C.B.	LR	15'	27.80
60N2456	2650-BS	7	U-GRD	C.B.	LR-I	6'	36.80
60N2457	2650-BF	7	U-GRD	C.B.	LR-I	15'	39.05
80N200	4800-BS	8	U-GRD	C.B.	LR	6'	30.45
80N222	4800-BF	8	U-GRD	C.B.	LR	15	32.70
80N203	4801-BS	15	U-GRD	C.B.	LR	6'	38.20
80N272	4801-BF	15	U-GRD	C.B.	LR	15'	40.45
80N273	4802-XS	8	U-GRD	—	—	6'	24.50
80N206	4802-XF	8	U-GRD	—	—	15'	26.75
80N207	4803-XS	15	U-GRD	—	—	6'	32.10

*** = 1 Outlet on end of box**
R = Rocker on-off switch
LR = Lighted rocker switch
P = Pilot light
I = Individual switch for each outlet

CONTACT NEAREST NEWARK FACILITY FOR LARGER QUANTITY PRICES

Power Outlet Boxes and Strips

SPC technology

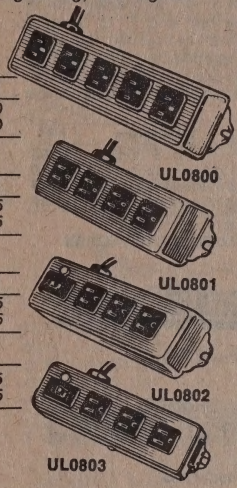
UL LISTED

MEET OSHA STANDARDS—EXCEED NEC REQUIREMENTS

- Furnished With 15 Amp Push-To-Reset Circuit Breakers
- Finest Quality Heavy Duty UL Listed Cord-Sets
- U-Ground Outlets With Electrically Wired Ground
- Unique Cross Slot Mounting Arrangement
- Snap-In Components And Circuit Breakers Are UL Listed
- Housings Of Sturdy, Blue Finished Steel
- Rated 15 Amps, 130 Volts Continuous Duty
- Mounting Screws Provided

SERIES UL800

Box size is 8⅝" x 2⅜" x 1½" high. Shipping Weight: 2 lbs. with six foot cord; three lbs. with 15 ft. cord. 5 3/16" mounting centers. **UL0800:** Five outlets only. **UL0801:** Four outlets only. **UL0802:** Three outlets with lighted rocker switch. **UL0803:** Four outlets, one on end of box for series string wiring, with lighted rocker switch.



UL0800

Stock No.	Type	Cord	Each
60N2582	UL0800-BS	6′	14.90
60N2583	UL0800-BF	15′	17.30

UL0801

Stock No.	Type	Cord	Each
60N2584	UL0801-BS	6′	13.65
60N2585	UL0801-BF	15′	16.05

UL0802

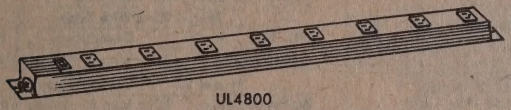
Stock No.	Type	Cord	Each
60N2586	UL0802-BS	6′	15.25
60N2587	UL0802-BF	15′	17.65

UL0803

Stock No.	Type	Cord	Each
60N2588	UL0803-BS	6′	16.05
60N2589	UL0803-BF	15′	18.45

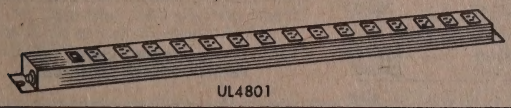
SERIES UL4800

Box size is 49" x 2" x 1½" high. Shipping Weight: 6 lbs. with 6 ft. cord; 7 lbs. with 15 ft. cord. 46¼" mounting centers. **UL4800:** eight outlets with lighted rocker switch. **UL4801:** fifteeen outlets with lighted rocker switch. **UL4802:** eight outlets only. **UL4803:** fifteen outlets only.



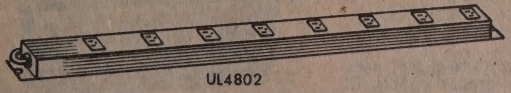
UL4800

Stock No.	Type	Cord	Each
80N274	UL4800-BS	6′	30.90
80N275	UL4800-BF	15′	33.35



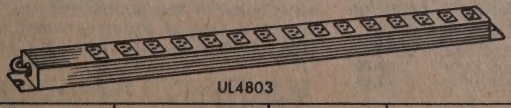
UL4801

Stock No.	Type	Cord	Each
80N276	UL4801-BS	6′	40.20
80N277	UL4801-BF	15′	42.65



UL4802

Stock No.	Type	Cord	Each
80N278	UL4802-BS	6′	28.45
80N279	UL4802-BF	15′	30.85



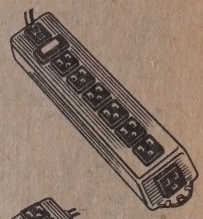
UL4803

Stock No.	Type	Cord	Each
80N280	UL4703-BS	6′	37.90
80N281	UL4803-BF	15′	40.30

SERIES UL1300

Box size is 13⅛" x 2⅜" x 1½" high. Shipping Weight: 2 lbs. with 6 ft. cord; 3 lbs. with 15 ft. cord.

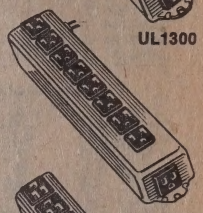
UL1300: seven outlets, one on end of box for series string wiring, with on-off switch and pilot light. 10⅜ mounting centers.



UL1300

Stock No.	Type	Cord	Each
60N2590	UL1300-BS	6′	19.55
60N2591	UL1300-BF	15′	21.95

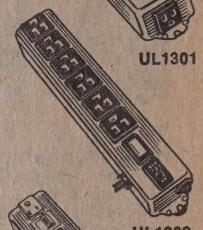
UL1301: nine outlets, one on end of box for series string wiring. Use as slave with model UL1300 as control.



UL1301

Stock No.	Type	Cord	Each
60N2592	UL1301-BS	6′	19.20
60N2593	UL1301-BF	15′	21.60

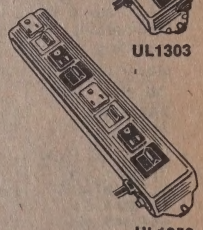
UL1303: six outlets with on-off switch and pilot light.



UL1303

Stock No.	Type	Cord	Each
60N2594	UL1303-BS	6′	20.30
60N2595	UL1303-BF	15′	22.70

UL1350: four alternating black and white lighted rocker switch-outlet groups.

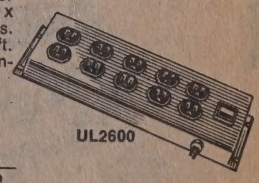


UL1350

Stock No.	Type	Cord	Each
60N2598	UL1350-BS	6	23.65
60N2599	UL1350-BF	15′	26.05

SERIES UL2600

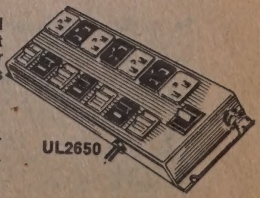
UL2600. Five duplex outlets (a total of 10) with lighted rocker switch. Box size is 13⅜" x 4⅛" x 1½" high. Shipping Weight: 3 lbs. with 6 ft. cord; 4 lbs. with 15 ft. cord. 10 11/16" x 2¾" mounting centers.



UL2600

Stock No.	Type	Cord	Each
60N2600	UL2600-BS	6′	26.50
60N2601	UL2600-BF	15′	28.90

UL2650. Seven alternating black and white lighted rocker switch-outlet groups plus master lighted rocker switch control. Same dimensions as UL2600.



UL2650

Stock No.	Type	Cord	Each
60N2602	UL2650-BS	6′	42.65
60N2603	UL2650-BF	15′	45.05

OUTLET BOXES

HEAVY DUTY OUTLET BOXES

Model 20

Model 24

Panel mtd. fuse or ckt. brkr.; On-Off switch; Bright neon pilot light; UL approved component's 15 amps, 130V; 12¾" mtg. ctrs; Size, 13⅛"x2⅜"x1⅝"; Steel case.

Model 20 2-Wire Outlet Box

Stk. No.	Model	Description	NET
60F2402	20	fuse 10' cd. set	12.15
60F2403	20CB	ckt. brkr., 10' cd. set	14.40

Model 24 "U" Ground Outlet Box

60F2400	24	fuse, 6' cd. set	15.65
60F2438	24-15	fuse, 15' cd. set	17.90
60F2401	24CB	ckt. bkr., 6' cd. set	17.90
60F2439	24CB-15	ckt. bkr., 15' cd. set	20.15

"U" GROUND OUTLETS

Model 602

Model 603

Model 605

Models 602, 603 and 605. Tough cord set. UL approved components. 15 amps, 130 volts. Steel case finished in silver gray textured hammertone "U" ground outlets. 8¼" mounting ctrs. Size: 8⅝"x2⅜"x1½".

Model 602: Outlets only.

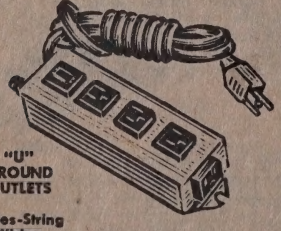
Stk. No.	Model	Description	NET
60F2420	602	6' cord set	9.00
60F2421	602-15	15' cord set	11.25

Model 603. Fuse or Circuit breaker

60F2422	603	Fuse 6' cord set	10.00
60F2443	603-15	Fuse 15' cord set	12.25
60F2444	603CB	Ckt. brkr., 6' cord set	12.25
60F2445	603CB-15	Ckt. brkr. 15' cd. set	14.50

Model 605. Pilot light, On-Off switch, Fuse or circuit breaker.

60F2446	605	Fuse 6' cord set	11.15
60F2447	605-15	Fuse 15' cord set	13.40
60F2448	605CB	Ckt. brkr. 6' cd. set	13.40
60F2449	605CB-15	Ckt. brkr. 15' cd. set	15.65



"U" GROUND OUTLETS

Series-String Wiring

Series 608. 4 "U" ground outlets, pilot light, on/off switch, fuse or circuit breaker, outlet on one end for series string wiring. Cord. 15A, 130V. UL listed components. 8¼" mtg. centers. Size: 8⅝"x2⅜"x1½". Ship. wt. 2 lbs. 6' cord; 3 lbs. 15' cord.

Stk. No.	Model	Description	NET
60F2497	608	fuse, 6' cord	12.50
60F2498	608CB	Ckt. brkr, 6' cord	14.75
60F2499	608CB-15	Ckt. bkr, 15' cord	16.95

OUTLET BOXES

Model 17

Model 15

Series stringing possible. Model 15 is control unit, with fuse or circuit breaker, on-off switch, neon pilot light and 7 "U" ground outlets. Model 17 is slave unit with 9 outlets; can be used independently when outlets only are required. Size: 13⅛"x2⅜"x1⅝"; 15 amps, 130V. Steel case, tough UL approved cord set.

Stk. No.	Model	Description	NET
60F2440	15CB	ckt. brkr. 6' cord set	18.85
60F2409	15CB-15	ckt. brkr. 15' cord set	21.10
60F2410	17	6' cord set	13.55
60F2411	17-15	15' cord set	15.80

HEAVY DUTY OUTLET BOXES

Model 700

Model 705

4" "U" ground outlet boxes. Features: 48¾" mtg. ctrs.; Size, 49x2x1½"; UL approved components; Rated at 15 amps. 130V continuous duty; Steel case finished in silver gray textured hammertone.

Model 700 Series, 8 Outlets On-Off Switch, Bright Pilot Light

Stk. No.	Model	Description	NET
80W200	700CB	Ckt. brkr. 6' cd. set	30.45
80W222	700CB-15	Ckt. brkr. 15' cd. set	32.70

Model 705 Series, 15 Outlets On-Off Switch, Bright Pilot Light

80W203	705CB	Ckt. brkr. 6' cord set	38.20
80W272	705CB-15	Ckt. brkr. 15' cord set	40.45

Model 710 Series, 8 Outlets Only

80W273	710	6' cord set	24.50
80W206	710-15	15' cord set	26.75

Model 715 Series. 15 Outlets Only

80W207	715	6' cord set	32.10
80W208	715-15	15' cord set	34.35

MULTI-LENGTH OUTLET BOXES

Space-saver size in a sturdy steel case. Completely wired. "U" ground outlets. UL approved cord set. On-Off switch. 15 amps, 130V. size, 49x1½x1⅛"; Steel case finished in silver gray textured hammertone.

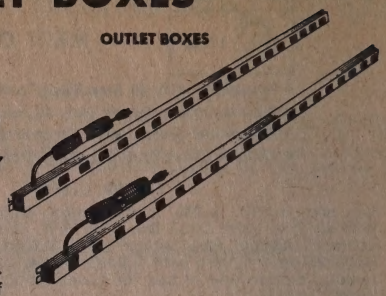
Model 1100 Series. 12 Outlets On-Off Switch Bright Pilot Light Combination.

Stk. No.	Model	Description (Set)	NET
80W277	1145-CB	Ckt. brkr. 6' cord	30.25
80W278	1145CB-15	Ckt. brkr. 15' cd.	32.45

Model 1141 Series. 13 Outlets Only

Stk. No.	Model	Description (Set)	NET
80W279	1141	6' cord	25.20

OUTLET BOXES



Model 1165-CB-15. 19 "U" ground outlets, on-off switch, push-to-reset circuit breaker and 15-foot UL approved cord set. 73 x 1½W x 1⅛D.
80W281. NET.....43.85

Model 1161-15. Twenty "U" ground outlets, pilot light. 15-foot cord set. 73 x 1½W x 1⅛D.
80W282. NET.....38.60

Model 1160-15. Ten "U" ground outlets. 15' cord. 73 x 1½W x 1⅛D.
80W283. NET.....25.50

COLOR CODED SWITCH-OUTLET BOXES

Model 30

Model 32

Four color keyed switch-outlet groups. Both models available with panel mounted fuse or circuit breaker. Model 30 is the two wire type with a rugged 10' Neoprene cord-set. Model 32 is the "U" ground type with a choice of six or fifteen foot Waber high quality UL approved cord-set.

Model 30-2 Wire Type

Stk. No.	Model	Description	NET
60F2405	30CB	Ckt. brkr. 10' cord set	16.50

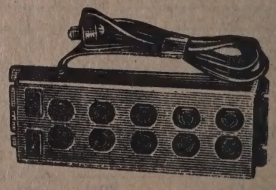
Model 32-"U" Ground Type

60F2414	32CB	Ckt. brkr. 6' cord set	19.70
60F2415	32CB-15	Ckt. brkr. 15' cord set	21.95

Model 32P. "U" Ground Type Ind. Pilot Lights.

60F2452	32PCB	Ckt. brkr. 6' cd. set	22.80
60F2453	32PCB-15	Ckt. brkr. 15' cd. set	25.05

800 SERIES DUPLEX MASTER POWER CONTROLS



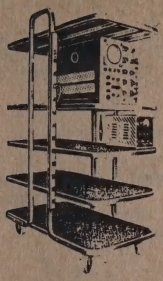
"U" Ground outlets. 12⅞x2⅞" mtg. ctrs.; On-Off switch; 15 amps, 130 volts. HPN cord set; Choice of fuse or push-to-reset ckt. bkr; steel case of textured hammertone; bright neon pilot light. Size: 13⅜"x4⅛"x 1½".

Stk. No.	Model	Description	NET
60F2429	800	Fuse 6' cord set	23.35
60F2430	800CB-15	Ckt. brkr. 15' cd. set	27.80
60F2458	800-15	Fuse 15' cord set	25.60
60F2459	800CB	Ckt. brkr. 6' cord set	25.60

16

Power Controls and Carts SGL WABER Electric

WHEELED UTILTIY CARRIERS



Low-4

Low-8

Construction with 1" square steel tubing makes these wheeled carriers ideal for use in school, laboratory or industrial plant. Beautifully finished in bright chrome plating. Heavy duty, 5 inch wheels with heavy plate casters are quiet, fast and swivel easily. Adjustable shelf position. Units without outlet boxes have provisions for mounting Waber outlet boxes. Equipment shown in illustrations is not included.

Low-4. 5-shelf model with double cantilever. (Less outlet box). Size 48" x 26" x 71" H.
80W161. NET.....315.00

LOW-6. Scope dolly is designed to accomodate big scopes and oversized test equipment. Non-skid deck is inclined at 10°. Integral 3-outlet box has pilot light and fuse, is rated at 15A, 130V. Capacity, 500 lbs. Size: 19" x 31" x 35" H. Shpg. wt. 38 lbs.
80W162. NET.....154.00

LOW-8. Scope dolly has top shelf adjustable to provide convenient viewing, 3-outlet box has on-off switch, pilot light and fuse, rated at 15A, 130V. Capacity, 360 lbs. Size: 18½" x 33" x 30" H. Shpg. wt. 38 lbs.
80W164. NET.....147.00

LOW-25. Scope dolly has integral 3-outlet box with pilot light, fuse and switch. Top shelf is at fixed 20° angle. 360 lb. capacity. Dimensions, 21" x 31" x 33½" H. Shpg. wt. 32 lbs.
80W165. NET.....112.00

LOW-15. Dual-shelf cart with 3-outlet box same as above. Capacity 500 lbs. 20" x 29" x 36" H. Shpg. wt. 40 lbs.
80W168. NET.....196.00

LOW-17. Dual-shelf cart w/outlet. Specifications same as Low-15 except 32" H.
80W169. NET.....154.00

DELUXE COLOR CODED POWER CONTROL CENTER OUTLET BOXES

MODEL 25. Features individual control, and master control. Seven outlets can be individually switched. UL listed cord set. "U" ground outlets. Model 25P features built-in pilot lights on all switches.

Stk. No.	Model	Description	Net
60F2441	25CB	Ckt. brkr. 6' cd. set	32.55
60F2442	25CB-15	Ckt. brkr. 15' cd. set	34.80
60F2456	25PCB	Ckt. brkr. 6' cd. set	36.80
60F2457	25PCB-15	Ckt. brkr. 15' cd. set	39.05

CONSOLE DESK TOP

U.L. Model 95. Gives you complete control over instruments and equipment. "U" ground outlets, each controlled by its own switch with pilot light. Outlets in rear of units. Circuit breaker. 15' cord set. Model 95 7½x2¾x2¾. Model 96. 9¼x2¾x2¾. Model 97. 11x2¾x2¾.

Stk. No.	Type	Outlets	Each
60F2575	Ul95CB-15	4	27.75
60F2576	Ul96CB-15	6	33.70
60F2577	Ul97CB-15	8	39.70

RACK MOUNTS—MASTER POWER CONTROLS

Model 900

Model 900. "U" ground outlets controlled by an on-off switch, pilot light, fuse or ckt. bkr. UL Listed cord set. Size 3½"x19".

Stk. No.	Model	Description	Net
60F2432	900CB	Ckt. bkr. 6' cord set	24.55
60F2491	900CB-15	Ckt. bkr. 15' cd. set	26.80

Model 904. Similar to 900 but with 2 outlets in front, 4 in back. Made to be mtd. on a rack panel for remote control of other Waber power outlet boxes mtd. inside the rack cabinet. Size, 3½x19".

Stk. No.	Model	Description	Net
60F2492	904CB	Ckt. Bkr. 6' cd. set	23.65
60F2493	904CB-15	Ckt. Bkr. 15' cd. set	25.90

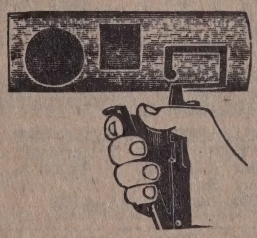
RACK PANELS

903

Model 903. 6 "U" ground outlets (in the front) "on/off" switch, pilot light, circuit breaker, 6 or 15-foot cord set. Component parts UL approved. Size: 1¾"x19".
Model 911 has same features except outlets are in back. (6-foot cord, remaining have 15-food cord.)

Stock No.	Type	Description	Net
60F2578	903CB	Circuit Brk.	23.70
60F2579	903CB-15	Circuit Brk.	25.95
60F2580	911CB	Circuit Brk.	23.55
60F2581	911CB-15	Circuit Brk.	25.80

ADEL



HAND NIBBLING TOOL

Makes any size or shape hole over 7/16" dia. Bites through 18-gauge steel or 1/16" aluminum, copper or plastic. Takes sharp angles and tight curves. Leaves smooth edges. Minimum hold size 7/16" diameter. Punch is replaceable. Shipping weight 8 oz.

Stk. No.	1-3	4-11	12-71
33F670	6.45	6.15	5.95

Replacement punch for above.
33F671. NET.....3.85

3M COMPANY SCOTCH TAPE

ELECTRICAL TAPE

Type 33. General purpose insulation. Dielectric strength: 10,000 volts. .007" thick with black plastic backing.

Stk. No.	Type	Size	Color	1-9	10-99
36F898	33	¾"x66'	Blk.	1.88	1.55
36F899	33	¾"x20'	Blk.	.70	.58
36F907	35	¾"x66'	Gray	1.80	1.49

COLOR CODED TAPE

Type 35. Vinyl plastic electrical tape for color coding and general purpose insulation. Strong and conformable.

Stk. No.	Type	Size	Color	1-9	10-99
36F900	35	½"x20'	Red	.55	.45
36F901	35	½"x20'	Wh.		
36F902	35	½"x20'	Yel.		
36F903	35	½"x20'	Gray		

TINNED COPPER SHIELDING TAPE

Type 24. All metal 100% tinned copper shielding braid continues electrostatic shielding. Knitted from No. 36AWG wire. Highly conformable.

Stk. No.	Type	Size	Color	1-9	10-99
36F904	24	1"x15'	Tin	4.50	3.43

GLASS-CLOTH INSULATED TAPE

Type 27. For operating temperatures requiring high-heat insulated wires. Thermo-setting pressure-sensitive adhesive assures a permanent bond at temperatures up to 300°F. High tensile strength.

Stk. No.	Type	Size	Color	1-9	10-99
36F905	27	½"x66'	Wh.	3.16	2.41

ALL-WEATHER TAPE

Type 88. A super-tough flame-retardant black plastic backing provides excellent resistance to abrasion, oil acids, etc. Extra pliability and conformability at temperatures down to 0°F. The thickness is .0085".

Stk. No.	Type	Size	Color	1-9	10-99
36F886	88	¾"x66'	Blk.	2.09	1.73

SILICON RUBBER TAPE

Type 70. High temperature splicing tape composed of fully cured inorganic silicone backing with a silicone pressure sensitive adhesive. Excellent conformability, high temperature characteristics, electric strength, and ozone resistance. Self cleaning rubber backing.

Stk. No.	Type	Size	Color	1-9	10-99
36F906	70	1"x30'	Blk.	10.23	7.80

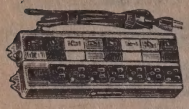
16

SGL WABER Electric U.L. Listed Multiple-Outlet Strips

SERIES 68 AC & DC—SPDT, DPDT, 3PDT RELAYS

Complete line of multiple outlet strips . . . all bearing the **U.L.** label. All the units shown on this page have passed the testing of the Underwriters Laboratories and are designed to exceed NEC requirements and meet OSHA standards. These units are equipped with push-to-reset circuit breakers, completely wired and ready to plug in. All are rated at 15 amperes, 125 volts, 60 Hz continuous duty. Cases are of rugged steel, finished in hammertone blue. Plug-in units are available with 14/3 jacketed cord-sets. All units incorporate 3-wire "U" ground outlets.

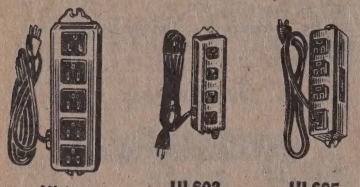
U.L. LISTED DELUXE OUTPUT STRIPS



UL800CB: 10 U grnd. outlets. **UL25CB:** 7 switch outlet groups. **UL25PCB:** Pilot lights on switches; otherwise same as UL25CB. 6' cord—3 lbs.; 15'—4 lbs.

Stk. No.	Type	Description	EACH
80W289	UL25CB-6	6' line cord	36.25
80W290	UL25CB-15	15' line cord	38.65
80W291	UL25PCB-6	6' line cord	42.65
80W292	UL25PCB-15	15' line cord	45.05
80W293	UL800CB-6	6' line cord	26.50
80W294	UL800CB-15	15' line cord	28.90

U.L. LISTED COMPACT OUTLET STRIPS

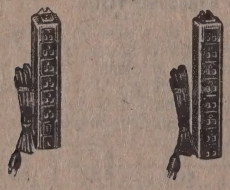


UL602 UL603 UL605

Compact outlet strips provide "U" ground type outlets and all are protected by circuit breakers. Model **UL602CB** has 5 outlets. Model **UL603CB** has 4 outlets. Model **UL605CB** has 3 outlets, on-off switch and pilot light. 6' cord—2 lbs.; 15' cord 2½ lbs. 8⅝" L x 2⅜" W x 1½" H.

Stk. No.	Type	Description	EACH
61F1657	UL602CB-6	6' line cord	14.90
61F1652	UL602CB-15	15' line cord	17.30
61F1662	UL603CB-6	6' line cord	13.65
61F1654	UL603CB-15	15' line cord	16.05
61F1660	UL605CB-6	6' line cord	15.25
61F1656	UL605CB-15	15' line cord	17.65

U.L. LISTED OUTLET STRIPS



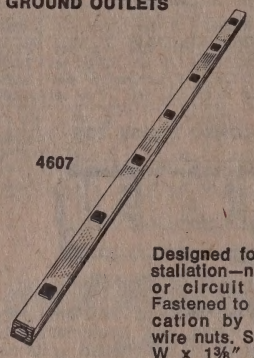
MODEL UL15 MODEL UL17

Models **UL15CB** and **UL17CB** are designed for series stringing with a convenient outlet on one end and a cord-set on the other end. **UL15CB** is the control unit with on-off switch, pilot, circuit breaker and 7 "U" outlets. **UL17CB** is the slave unit. Both models are finished in blue hammertone. Model **UL24CB** has 6 outlets, on-off switch, pilot and circuit breaker. Wt.: 6' cord—2 lbs.; 15' cord—3 lbs. Size: 13⅛"L x 2⅜"W x 1½"H. Suffix in model no. indicates cord length in feet.

Stk. No.	Type	Description	EACH
61F1650	UL15CB-6	7 outlets	19.55
61F1659	UL15CB-15	7 outlets	21.95
61F1653	UL17CB-6	9 outlets	19.20
61F1661	UL17CB-15	9 outlets	21.60
61F1655	UL24CB-6	6 outlets	20.30
61F1663	UL24CB-15	6 outlets	22.70

For price quotes on larger quantities and for items not listed call or write your nearest NEWARK ELECTRONICS distributor.

U.L. LISTED WIRE-IN ELECTRICAL OUTLET STRIPS
- **INTERNALLY WIRED**
- **GROUND OUTLETS**



Designed for fixed installation—no cord-set or circuit breakers. Fastened to desired location by means of wire nuts. Size is 1½" W x 1⅜" H. Models 4305, 4309: Lgth. 3', Wt. 3 lbs. **4407, 4413:** Lgth. 4', Wt. 4 lbs. **4508, 4515:** Lgth. 5', Wt. 5 lbs. **4607, 4610, 4619:** Lgth. 6', Wt. 6 lbs.

Stk. No.	Type	Outlets	Centers	EACH
80W301	4305	5	7"	14.95
80W302	4309	9	3½"	19.05
80W303	4407	7	7"	18.45
80W304	4413	13	3½"	25.65
80W305	4508	8	7"	20.85
80W306	4515	15	3½"	29.30
80W307	4607	7	10½"	20.70
80W308	4610	10	7"	24.20
80W309	4619	19	3½"	34.65

U.L. LISTED OUTLET STRIPS

Model **UL764** has 8 "U" ground outlets w/lighted rocker switch. **UL770** has outlets only. Size: 24"L x 2"W x 1½"H. 6' cord—3½ lbs.; 15' cord—4 lbs.

Stk. No.	Type	Description	EACH
80W310	UL764CB-6	6' line cord	27.30
80W311	UL764CB-15	15' line cord	29.70
80W312	UL770CB-6	6' line cord	25.25
80W313	UL770CB-15	15' line cord	27.65

HEAVY DUTY OUTLET BOXES

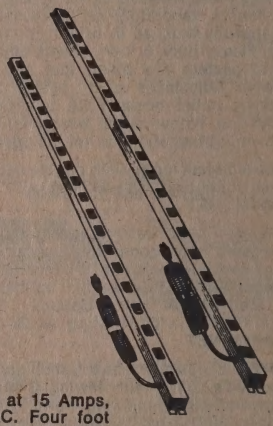
UL700

UL705

4 foot outlet strips. Rated at 15 Amps, 125VAC. Last digit of type no. indicates length of cord in feet. Size: 49"L x 2"W x 1½"H. Wt. 5½ lbs.

Stk. No.	Type	Outlets	EACH
61F1658	UL700CB-6	8	30.90
61F1651	UL705CB-6	15	40.20

U.L. LISTED SPACE SAVING OUTLET STRIPS
- **"U" GROUND OUTLETS**



Rated at 15 Amps, 125VAC. Four foot series: **UL1142, UL1143, UL1145.** Six foot series: **UL1162, UL1163, UL1165.** Equipped with circuit breakers. Model **UL114,** Wt. 5½ lbs.; Model **UL116,** Wt. 7½ lbs. Suffix in type no. indicates cord length in feet.

Stk. No.	Type	Outlets	EACH
80W314	UL1142CB-6	7	24.50
80W315	UL1142CB-15	7	26.90
80W316	UL1143CB-6	13	32.25
80W317	UL1143CB-15	13	34.65
80W320	UL1145CB-6	12	32.70
80W321	UL1145CB-15	12	35.10
80W324	UL1162CB-6	10	32.00
80W325	UL1162CB-15	10	34.40
80W326	UL1163CB-6	20	41.70
80W327	UL1163CB-15	20	44.10
80W330	UL1165CB-6	19	43.15
80W331	UL1165CB-15	19	45.55

U.L. LISTED DESK TOP CONSOLE OUTLETS

UL95CB: 4 outlets w/pilot lights on switches. **UL96CB:** 6 outlets w/pilot lights on switches. **UL97CB:** 8 outlets w/pilot lights on switches. 6' cord—3½ lbs.; 15'—4½ lbs.

Stk. No.	Type	Description	EACH
80W295	UL95CB-6	6' line cord	26.25
80W296	UL95CB-15	15' line cord	28.70
80W297	UL96CB-6	6' line cord	33.40
80W298	UL96CB-15	15' line cord	35.80
80W299	UL97CB-6	6' line cord	40.20
80W300	UL97CB-15	15' line cord	42.65

Solid State DC Fans

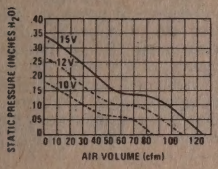
PAMOTOR

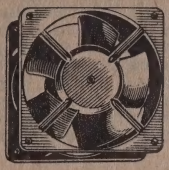
Conforms to UL, CSA, IEC, and VDE standards. Feature single phase brushless motor with all electronics mounted on PC card within motor frame. Drive amplifiers for motor are controlled by patented Hall-effect generator circuit which is coupled by small pole pieces to motor's field magnet.

First electronic DC cooling fans that do not require an external voltage inverter. This means that you save valuable mounting space and weight because only consideration in mounting is fan itself. This concept has eliminated many of inherent reliability and RF noise problems generally associated with using AC motors in DC environment.

Engineered to tackle those specialized applications which require highly reliable DC performance. Common uses include mobile radio equipment, medical electronics, shipboard computers, airborne applications, and communications systems where 19 to 28 VDC is normally available. Brushless motor design, reverse polarity protection, minimum magnetic and RF radiation. Power drain at maximum back pressure is approximately 20% of that required in conventional AC units. Operation is possible at lower voltages. Precision bearings and high temperature lubricants help to achieve a rated life expectancy of 100,000 hours of continuous operation at 25°C.

MODEL 4112X AXIAL FAN

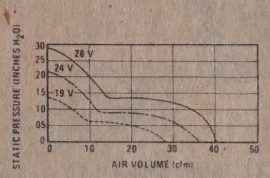


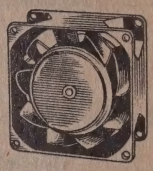


All metal fan is rated at 12 VDC, develops air flow of 122 CFM @ 15 VDC and 0 static pressure. Power consumption at 12 VDC and 0 static pressure is 8.2 Watts; @ maximum static pressure, 10.6 Watts. Typical noise level at 15 VDC is 35.6 dB SIL. Life expectancy 100,000 hours @ 25°C. Fan is lubricated for life and finished in electrophoretic black varnish. Operating temperature: —20° C to +80° C. Size: 4 1/16" square x 1 1/2" deep. Wt. 21 ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1001	4112X	84.30	75.85	70.25	65.70

MODEL 8124

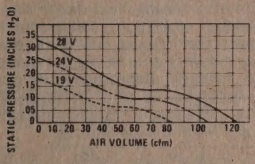


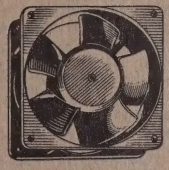


SPECIFICATIONS @ 24 VDC: Input power 2.8 Watts, airflow 37 CFM, noise level 27.9 dB SIL. Size: 3.13" square x 1.50" deep. Weight 19 ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1022	8124	84.30	75.85	70.25	65.70

MODEL 4124X

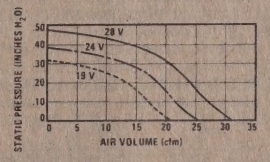


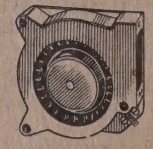


SPECIFICATIONS @ 24 VDC: Input power 4.1 Watts, airflow 106 CFM, noise level 32.9 dB SIL. Size: 4.68" square x 1.50" deep. Weight 21 ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1020	4124X	84.30	75.85	70.25	65.70

MODEL RL90-18/24



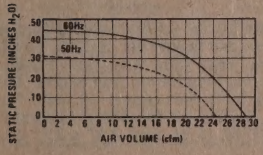


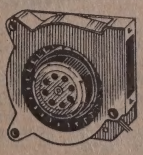
SPECIFICATIONS @ 24 VDC: Input power 5 Watts, airflow 31 CFM, noise level 44.9 dB SIL. Size: 4.75" square x 1.46" deep. Weight 22 ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1007	RL90-18/24	84.30	75.85	70.25	65.70

RADIAL BLOWERS ACCESSORIES

SERIES RL90-18 RADIAL BLOWERS





Rated at 100,000 hours of continuous operation at 20°C, these blowers can deliver 29 CFM of air. Model RL90:18/00: Input power 21 watts @ noise level of 42.7 dB SIL, 115 VAC. Model RL90-18/50: 19 watts @ 42.7 dB SIL, 220 VAC. Size: 4.75" square x 1.46" deep. Weight: 20 ounces. UL recognized.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1002	RL90-18/00	32.95	29.65	27.45	25.70
57F1003	RL90-18/50	32.95	29.65	27.45	25.70

NEWARK Your Dependable Source For all Your Electronic Needs

ACCESSORIES

Mounting Brackets—5501. Two cadmium plated steel mounting brackets. These must be ordered separately.

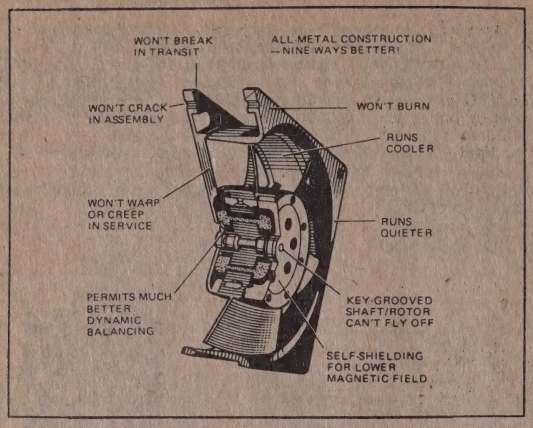
Filter—5502. The multilayer, oil-treated metal filter is designed to permit a maximum of air flow while providing effective filtering.

Screen Assembly—5503. The screen portion is a protective fan guard and is housed in a rugged die-cast metal frame with spring steel holding clips which mount the assembly on equipment panels. Mounting brackets (part number 5501) for the screen assembly must be ordered separately.

Stock No.	Type	Description	For Series	1-499
57F1030	5501	Brackets (2)	2000, 2110, 2500C 4500C, 4600C, 5500S	1.10
57F1031	5502	Filter		2.85
57F1032	5503	Screen Assembly		6.40
57F1033	5504	Fingerguards	As above plus 4700	3.20
57F1034	5505	Plug, cord 24"	4500C, 4600C, 4800	1.20
57F1035	5506	Fingerguards	7500S	6.55
57F1036	5507	Fingerguards	1000A, 1110, 1300, 1500	1.40
57F1039	5508	Fingerguards	5500C	2.65
57F1037	5509	Air Straightr.	7500S	5.00
57F2605	5511	Adaptor plate	7500S	3.40
57F1005	5512	Adaptor Ring	7500S, 7506, 7550S, 7556, 7600S, 7606, 7650S, 7656, 7900S, 7950S	4.65

17

Air Cooling Devices

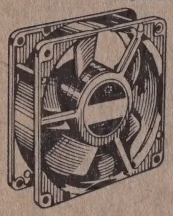

WON'T BREAK IN TRANSIT
ALL METAL CONSTRUCTION —NINE WAYS BETTER!
WON'T CRACK IN ASSEMBLY
WON'T BURN
RUNS COOLER
WON'T WARP OR CREEP IN SERVICE
RUNS QUIETER
PERMITS MUCH BETTER DYNAMIC BALANCING
KEY-GROOVED SHAFT/ROTOR CAN'T FLY OFF
SELF-SHIELDING FOR LOWER MAGNETIC FIELD

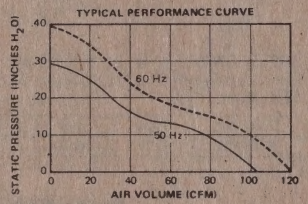
DESIGNED TO OUTLAST THE EQUIPMENT THEY COOL

- **All Metal Construction**
- **Low Noise Level**
- **Maintenance Free Operating Life**
- **Low Operating Temperature**

Patented design yields maximum performance at minimum cost. Rigorous quality control assures a high level of workmanship and performance. All metal, non-flammable construction for greater durability and heat dissipation. No cracking, creeping or warping to cause lock-up or bearing failure. Computer-designed, impulse welded steel impellers. Special moisture resistant finish prevents corrosion or other deterioration from high humidity or extreme temperature variations. Unique, patented "insideout" motor configuration that delivers greater torque and power at reduced operating temperature and reduces electromagnetic radiation. Maintenance-free, hand-fitted bearing system. Rotors dynamically balanced to a maximum shift of the center of gravity of .0001 inch in each end plane. Aerodynamically designed venturies and fan housings for maximum air intake with minimum air turbulance and noise. Speech interference level (SIL) is characteristically 5 dB to 10 dB below that of competitive designs with comparable air flow.

Model 4600XP Miniature Fan

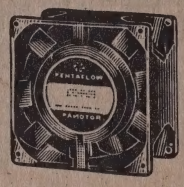


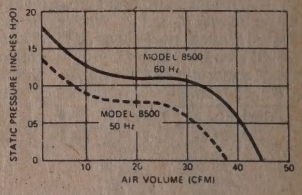


Provides the same or higher airflow at higher back pressures than the 4500P, from 15% to 25% higher pressures. Supplies the extra margin required for application in which higher package densities may be encountered, such as tightly packed computers, power supplies, process controls, airborne consoles and electronic RF/-Microwave transmission. 130 CFM airflow with SIL of 39.8 dB. Rated Life (Continuous Operation) 100,000 hrs. @ 25°C, 45,000 hrs. @ 50°C, 20,000 hrs. @ 65°C. Terminals: heavy duty plug-in (also solderable-18 AWG wire). 115 V, 50, 60 Hz. Size: 4½" x 4½" x 1½". Weight: 20 ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
57F2600	4600XP	27.85	27.55	25.50	23.90

Model 8500P Miniature Fan

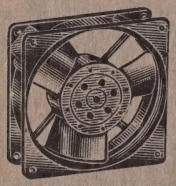


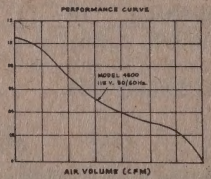


Ultra-quiet. Yields 20% more air flow in free air, and almost three times more air at moderate back pressures than comparable fans. Reduced noise level is half that of others in its class. Ideal for cooling portable equipment, standard 3½" rack applications, computer terminal equipment, medical instrumentation, audio-visual equipment, bench instruments, desk-top instruments and broadcast studio consoles. 43 CFM with SIL of 28.8 dB. Rated Life (Continuous Operation) 100,000 hrs. @ 25°C, 45,000 hrs. @ 45°C, 20,000 @ 60°C. Terminals: heavy duty 12" #24 AWG wire leads. 115 V 50, 60 Hz. 3200 RPM. 15W Size: 3⅛" x 3⅛" x 1½". Weight: 18½ ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1041	8500P	31.15	28.00	25.90	24.30

Model 4800X Shaded-Pole Miniature

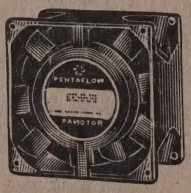


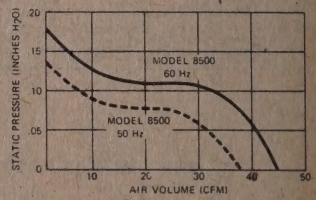


Miniature, shade-pole, axial fan. Moderate air flow, low noise fan. Less than 18 dB. SIL. 70 cfm. Ideal for Hi/Fi stereo equipment, television equipment, medical or office equipment. Fan functions as a natural heat sink, assuring cooler operation. Universal mounting, 4" all metal construction. Moisture resistant finish. Terminals are designed for use with #18 AWG wire or with a plug and cord assembly. 115V, 50, 60 Hz, 1450 RPM. 10 W. Size: 4 1/16"x4 1/16"x1 ½". Wt. 20 oz.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1028	4800X	24.75	22.30	20.65	19.30

Model 8500C Shaded-Pole Miniature





Sub-miniature, shaded pole axial fan for general cooling purposes. High air-flow ultra-quiet fan provides twenty percent more air-flow in free air than competitive fans. Half noise level. Delivers 43 cfm @ less than 28.8 dB SIL. Rated life (continuous operation); 100,000 hours @ 25°C, 20,000 hours @ 55°C. Heavy-duty, 12 inch. No. 24 AWG wire leads are standard. Built to Underwriters' Laboratories standards. 115 V, 60 Hz. 3250 RPM, 15 W. Size: 3⅛" x 3⅛" x 1½". Wt.: 15 oz.

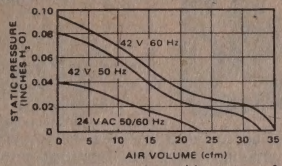
Stock No.	Type	1-9	10-24	25-49	50-99
57F1038	8500C	25.00	22.45	20.80	19.50

MAKE NEWARK YOUR DEPENDABLE SOURCE
FOR ALL ELECTRONIC PARTS AND EQUIPMENT

UL/CSA Air Cooling Fans

PAMOTOR

MODEL 900 SUB-MINIATURE INDUCTION TYPE



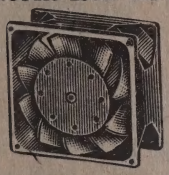
Extremely small, ultra-quiet general purpose fan. Air enters fan radially as well as axially. Induction type motor requires a 5.6 mfd. capacitor. Die-cast metal mounting base functions as a built-in heat sink. Extremely low electro-magnetic radiation. 34 CFM. 24 dB SIL. Terminals: three stranded 6" leads, #24 AWG, UL approved insulated wire. 1750 RPM. 2.5 W. 21-42 VAC, 50-60 Hz. Size: 3.129" dia. x 1.46". Wt.: 5.6 oz.

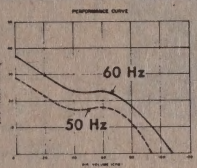
Stock No.	Type	1-9	10-24	25-49
57F2603	900	21.05	19.00	17.55

CAPACITOR FOR MODEL 900

Stk. No.	Type	Mfd.	1-9	10-24	25-99
57F2606	1011	5.6	4.15	3.75	3.50

MODELS 2500S and 2550S SHADED-POLE MINIATURE

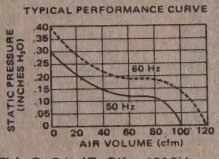




4⅞₁₆x4⅞₁₆x1 3½₂ in. Universal 4⅛ in. mounting. Stator laminations, winding, and splices are varnish treated and baked at 130°C. Moisture resistant finish prevents corrosion under extreme temp. variations and humid atmospheric conditions. Performance characteristics with variable back pressures are illustrated on adjacent graph. Noise level, 43 dB SIL. **Model 2500S:** 105-125 VAC, 50/60 Hz.; 25 watts; 3300 RPM. **Model 2550S:** 198-253 VAC, 50/60 Hz.; 31 watts; 3250 RPM. −20°C to +45°C. Wt. 2 lbs. 10 oz.

Stk. No.	Model	1-9	10-24	25-49	50-99
57F1019	2500S	41.25	37.10	34.40	32.10
57F1021	2550S	42.25	37.95	35.15	32.85

MODELS 4600X AND 4606X SHADED-POLE MINIATURE



Model 4600X provides 120 CFM @ 34 dB SIL; 4606X provides 120 CFM @ 36.6 dB SIL. 4⅛" universal mount. Over 100,000 hrs. of continuous operation in normal room temperature. Terminals; heavy duty plug-in (also solderable—#18 AWG wire), 115-125 VAC, 50, 60 Hz. 3100 RPM. 18 W. Size: 4 1⅛₁₆" x 4 1⅛₁₆" x 1½". Weight; 20 ounces.

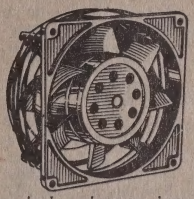
Stock No.	Type	1-9	10-24	25-49	50-99
57F2601	4600X	23.60	21.25	19.70	18.45
57F1027	4606X	43.10	35.85	36.00	33.60

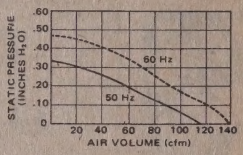
MODEL 4700 SHADED-POLE MINIATURE

For industrial control equipment, audio amplifiers, telephone systems, RF power amplifiers, etc. 100,000 hours operation at room temperature delivering 65 CFM at a noise level less than 37 dB. SIL. Measures 4½" in diameter and is designed for a universal mounting, interchangeable with similar fans. Special moisture resistant finish for humid atmospheric applications. Stator laminations, windings, and splices varnish treated and baked at 130°C. Fan speed: 2900 RPM at 115V/60 Hz. Temperature range: −20°C to +55°C. Power requirements: 105-125 VAC, 50/60 Hz.; 20 watts at 115 Volts. Wt. 1 lb.

Stock No.	Model	1-9	10-24	25-49	50-99
57F1029	4700	22.65	20.40	18.90	17.70

MODEL 5500S SHADED-POLE MINIATURE

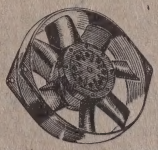


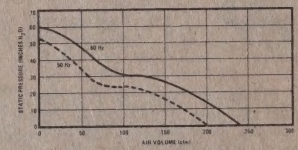


New design gives maximum efficiency at all operating points on the performance curve. Intake radially as well as axially. Moisture resistant finish. Stator laminations, windings, and splices are varnish treated and baked at 130°C. Warrantied for one year on materials and workmanship. 140 CFM. 41.8 SIL. UL accepted. Terminals: heavy duty, 12", #24 AWG wire. 105-125 VAC 50, 60 Hz. 3250 RPM. 42 W. Size: 4.685" x 4.685" x 2.17". Weight: 2 lbs. 3 ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
57F2602	5500S	47.85	43.10	39.95	37.30

MODELS 7600S AND 7650S SHADED-POLE MINIATURE





Lightweight fans for use where high air volume is essential, or to replace several smaller fans. Delivers 250 CFM at a noise level of less than 46.4 dB SIL. Unit measures 6" in diameter by 2⅜₁₆" in depth. Provides more than 2½ times the air flow of the conventional miniature fan yet weighs only one-third of the miniature types. These units are rated at 100,000 hours of continuous operation at room temperature. Model **7600S** rated at 105-125 VAC, 50/60 Hz. 40 Watts. Model **7650S** rated at 220 VAC, 50/60 Hz, 40 Watts. Operating temperature: −20°C to +50°C. Weight: 2 lbs. 6 oz.

Stock No.	Model	1-9	10-24	25-49	50-99
57F1023	7600S	41.40	37.25	34.55	32.30
57F1044	7650S				

17

Make Newark your Complete 1-Point Stock Source

At Newark—fast, efficient service always!

Quantity Prices Competitive with Manufacturer

NO NOISE

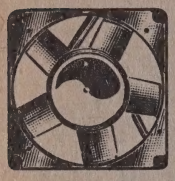
Cleans, lubricates, restores all tuners. Prevents gumming and eliminates binding in auto. turntables. Use for noisy tube sockets & wafer type tuners. Non-toxic. 6 oz. spray can.
32F269. NET.....3.50

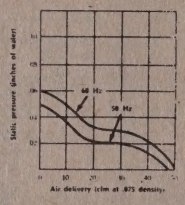
Equipment Cooling Fans

BOXER FANS

The basic fan is compact, just 4 1/16 inches square by 1 1/2 inches deep. Mounts for either intake or exhaust (flip fan over to reverse air flow) inside or outside the equipment to be cooled. Rugged all metal housing resists breakage and acts as an effective heatsink. Motors are reliable 60/50 Hz shaded pole types. Five bladed aerodynamic impeller (seven bladed in Super Boxer) is designed for high strength, light weight and maximum air delivery against high impedance. Construction and other features found only in Boxer fans are covered by three US Patents. The standard ball bearing, sleeve bearing, Super Boxer, and HiFi Boxer are all Underwriter Laboratory Approved. IMC fans are excellent for cooling all types of electronic enclosures helping to reduce the size of the system or enclosure. Effective cooling provided by IMC fans will prolong the life of electronic components and in many cases permit the use of less expensive components in instruments of systems thereby reducing the system cost while at the same time adding reliability. No other fan can offer IMC's metal housing, lubrication system, cooling power, quiet operation and long life at the same cost.

HI-FI BOXER

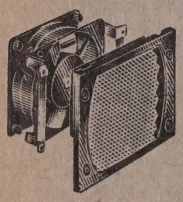


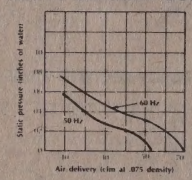


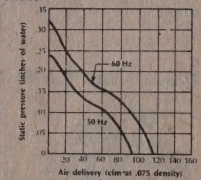
A high powered, exceptionally low-noise fan that will fit into almost any enclosure. It will remove heat quietly, efficiently and extend the life of your Hi-Fi. See page 595 for accessories which may be purchased separately. Frequency 60/50 Hertz. Air delivery; 50 CFM.

Stk. No.	Type	Volt (Vac)	Amps	1-9	10-24	25-49	50-99
60F1639	WS2107FL-9	115	.10	18.05	16.45	14.85	13.25

SLEEVE BEARING BOXER



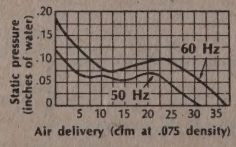




IMC's patented sleeve bearing; a unique oil recirculating design that assures positive lubrication of the entire bearing surface, provides cooler, more efficient operation, longer life than conventional designs. Rated at 10 years life under normal Oper. Temp. from −20°F to +158°F. UL Approved. 115 volts, 50/60 Hz.

Stk. No.	Type	Amps	Air Delivery (cfm)	1-9	10-24	25-49	50-99
60F1600	WS2107FL	.20	115	15.85	14.45	13.10	11.95
60F1625	WS2107FL-2	.12	70	18.05	16.45	14.85	13.25

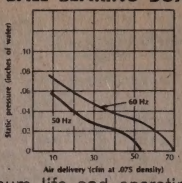
SUB-MINIATURE "PEE-WEE" BOXER

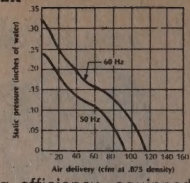


Delivers up to 36 cubic feet of air per minute. Fan measures just 3.125 inches to a side, 1.665 inches slim. Performance against back pressure, 22cfm at .10 inches, 28 cfm at .08 inches, 32 cfm at .05 inches static pressure. Two patented bearing designs, both rated at 10 years life, are available. Venturi and skeleton are die-cast of aluminum alloy. Ideally suited to use in standard 3 1/2" high relay rack panels.

Stk. No.	Type	Bearing Type	1-9	10-24	25-49	50-99
60F1585	PBS2107FL	Ball	24.70	23.50	21.65	19.10
60F1586	PWS2107FL	Sleeve	16.70	16.50	15.00	13.25

BALL BEARING BOXER

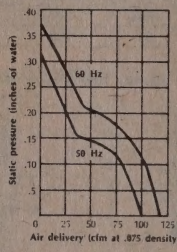




Designed for optimum life and operating efficiency, equipped with stainless steel ball bearings provide minimum 10 year life. Temp range: −25°F to +185°F. Utilizes a large capacity lubricant reservoir to insure long bearing life and lubricant cooling. For use in instruments and systems requiring long life, quiet operation and minimum maintenance. Can be mounted in either direction to give exhaust or intake. 115 Volts, 50/60 Hz.

Stk. No.	Type	Current (Amps)	Air Delivery (cfm)	1-9	10-24	25-49	50-99
62F1577	BS2107FL	.20	115	25.75	24.40	22.45	19.75
60F1628	BS2107FL-2	.12	70	26.75	25.95	24.00	21.05

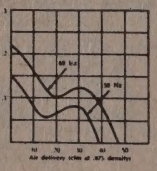
SUPER BOXER



Operating temperature range −25 to +185°F for ball bearing model, −20 to +158°F for slave bearing. Operate on 50 or 60 Hertz, 115 volts input. Air delivery 117 cubic feet/minute. Seven-blade propellor. Accept wide range of standard Boxer accessories for added flexibility. Size and styling identical to standard Boxer. Designed for efficient, economical cooling in tightly packed card racks, cabinets, and similar space critical systems enclosures. Aerodynamic impeller design provides exceptional output characteristics against high back pressure. Size: 4 1/16 inches high x 4 1/16 inches wide x 1 1/2 inches deep. UL approved.

Stk. No.	Type	Bearing	Current Amps	1-9	10-24	25-49	50-99
62F1570	BS2107F-110	Ball	.24	27.20	25.95	23.85	21.25
62F1571	WS2107F-110	Sleeve	.24	19.65	18.00	16.20	14.40

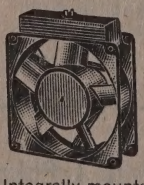
MINI BOXER



3 5/8" sq. x 1 1/2" dp. Wt. 1.6 lbs. Air delivery 46 CFM. For low profile cooling applications. Shaded pole type motor, 115 VAC, 60 Hz., 1-phase. Aerodynamic five-bladed impeller in strong fire-retardant polypropylene Venturi housing. Spider and hub die-cast of rugged zinc alloy. (No filter or screen kits available.)

Stk. No.	Type	Bearing	Amps	1-9	10-24	25-49	50-99
60F1642	MWS2107FL	Sleeve	.24	18.65	16.95	15.20	13.50

DC BOXER



- **Long life**
- **Mounts easily**
- **Versatile**
- **Solid state inverter**

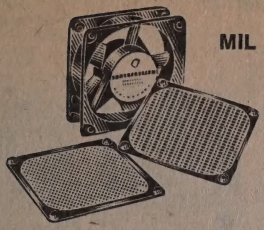
Integrally mounted solid state module converts DC input to drive the standard A.C. Boxer fan. Eliminates arcing contacts with their attendant noise and short life found in DC fans. Integrally mounted inverter means no extra connections or additional fasteners. Protected circuit; inadvertent reversal of polarity will not cause failure of inverter electronics.

Stk. No.	Type	Bearing	Input VDC	Air Delivery (cfm)	1-9	10-24
60F1647	BS2107F-12	Ball	12-16	97-118	71.50	69.95
60F1649	BS2107F-24	Ball	22-26	100-110	71.50	69.95
60F1646	WS2107F-12	Sleeve	12-16	95-100	65.55	63.70
60F1648	WS2107F-24	Sleeve	22-26	97-100	65.55	63.70

Fans

imc

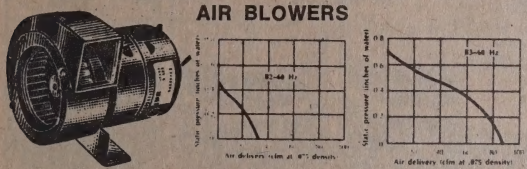
MIL SPEC BOXER



Rugged Mil Spec Boxer fans increase life and reliability of military equipment. Featuring ball bearing design, units meet 16 different mil spec tests; salt, sand, humidity, fungus, moisture, rain, temperature, vibration, shock, acceleration, radio noise finish and barometric pressure. Will operate up to +185°F. Frequency: 60/50 Hz. Air delivery 115 cfm.

Stock No.	Type	Volt. (Vac)	Amps	1-9	10-24	25-49	50-99
62F1572	BS2107F-0-1	115	.18	33.65	31.10	28.15	24.90

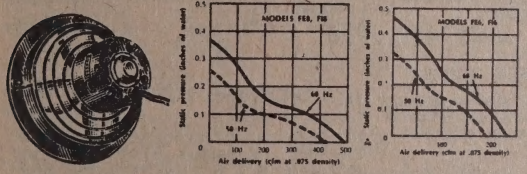
AIR BLOWERS



Designed for applications where low air flows are required at relatively high pressures. Compactly designed metal housings will not distort under heat. Continuous duty, operation, single phase shaded pole motor with bearing life of 10,000 hours at 125°F. Size B2, 3⅞"h x 4¾"w x 3½"d. B3 5⅝"h x 5⅞"w x 5"d. For operation from 115 volts, 50-60 cycles.

Stock No.	Type	CFM	Amps.	1-9	10-24	25-49	50-99
60F1617	B2	24	.72	23.65	22.30	21.30	20.70
60F1618	B3	87	.60	32.80	30.90	29.65	28.35

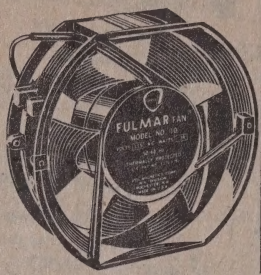
AIR FANS

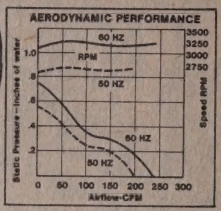


For applications where high air flow and low noise operation is required. Precision-built shaded pole motor. Flush mounting with shaft in any operating position. All single phase. Size: Model FE8, F18, 10" dia. x 2½" deep—5¹³⁄₁₆" with motor clearance. Models FE6, F16 8⅛" dia. x 2" deep—4½" with motor clearance. For operation from 115 volts, 50-60 cycles. FE Types are over the motor exhaust and FT are over the motor intake.

Stock No.	Type	CFM	Amps.	1-9	10-24	25-49	50-99
60F1613	FE-6	225	.50	24.00	22.30	20.70	19.65
60F1614	FI-6	225	.50	24.00	22.30	20.70	19.65
60F1615	FE-8	485	1.0	40.70	38.50	37.10	33.20
60F1616	FI-8	485	1.0	40.70	38.50	37.10	33.20

FULMAR 10
FULMAR 11
FULMAR 12

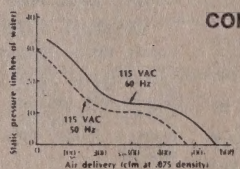


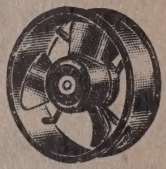


Operates at 115VAC. Typical air delivery 200 CFM. Operates on 50/60 Hz within 10% of nominal vltg. Min. life 10 yrs. Max. ambient temp. 72°C. Size: 5²⁹⁄₃₂"W x 6¾"H x 2"Dp. "Brown out" operation at 20% below nominal vltg., will still supply clg. w. 5% airflow redctn.

Stck. No.	Type	Term. Block	1-9	10-24	25-49	50-99
60F1610	10	Standard	38.40	34.95	32.20	29.60
60F1611	11	Quick disconnect				
60F1612	12	12" leads				

CONDOR





High performance Condor provide 450-575 cubic feet of air per minute for use in relay racks, transmitter packages, computers, peripheral equipment, and electronic enclosures where high volume flushing and cooling is required. Lightweight, 10 inches dia. and 3.5 inches depth design makes for easy mounting inside or outside system enclosures. Aerodynamically designed impeller is high strength polycarbonate with integral venturi and skeleton assembly of sturdy die-cast aluminum. Condor motor, equipped with long-life stainless ball bearings is matched to the impeller for maximum operating efficiency. Standard terminal block, 115 volts 50/60 Hz. Operates over temperature range from —20°F to +140°F. Noise level is held to a minimum less than 49DB (SIL).

Stock No.	Type	Description	1-9	10-24	25-49	50-99
60F1645	10	With Standard terminal block	36.40	32.45	28.50	26.50
62F1574	11	With Quick Disconnect term. block	36.60	32.65	28.70	26.70
62F1575	12	With 24" lead extension	35.85	31.80	27.90	25.85

ACCESSORIES

Type 060003 Boxer Screen Kit
Consists of screen assembly and one set of mounting brackets with screws and nuts.

Type 531000 Mounting Brackets
Cadmium plated steel, positive action mounting brackets allow quick, easy, shock and vibration proof installation. Includes screws, nuts and washers.

Type 531001 Boxer Filter Kit
Consists of filter panel, filter frame, plus one set of mounting brackets and hardware.

Type 060001 Slim Line Filter
Compact filter measures just 0.125-inch deep for applications where space is critical and systems must be protected from the environment. One piece all-aluminum design is more rugged than plastic frame filters and is alodined for RFI shielding. Supplied oil sprayed, it can be easily washed in solvent or vapor degreaser, or cleaned ultrasonically. Respray with atomized oil after cleaning. Filter may be mounted directly to a panel or to the fan with bolts or self-tapping screws.

Type 060000 Slim Line Screen
Sturdy, all-aluminum, flat screen unit, just 0.125-inch thick acts as an effective guard for fingers or other large objects. Mounts directly to the fan or to the panel. Minimal airflow impedance. May be easily removed for cleaning.

Type 055002 Finger Guard
Bright, zinc plated finger guard ⅜-inch deep, prevents accidental contact with the rotating fan impeller.

Type 432000 Plug and Cord Set
Fully insulated 24-inch cord with female connector, plugs into fan terminals.

Type 432001 Plug and Cord Set
Fully insulated 36-inch cord set with female plug. Plug can be optionally removed and wires soldered directly to the fan terminals.

Stock No.	Type	Net	Stock No.	Type	Net
60F1607	060003	2.15	60F1638	060000	1.90
60F1643	531000	.40	60F1624	055002	.85
60F1606	531001	3.95	60F1623	432000	.75
60F1637	060001	1.90	62F1576	432001	.90

17

SPC technology Paints & Chemicals

SPRAYTEC brand

FEATURING "FAN SPRAY" ADJUSTABLE VALVE
A long needed improvement in aerosol valve design, specially developed for improved spraying of thick fluids such as paint.
• Oval Spray Pattern Reduces Over-spray by as Much as 1/3
• Finer Spray Particles Yield Greater, More Uniform Coverage
• Requires Less Finger Pressure than Other Sprays
• Adjustable Nozzle Tip—Rotates 90° so that Spray Pattern Can Be Stroked Up and Down or Side to Side Without Tilting Can. Results in More Even Coverage Like Using a Wide Brush
SPRAYTEC brand
paints & chemicals
SPRAY PAINT ULTRA FLAT BLACK
DEOXIDANT Contact Cleaner
CONTACT CLEANER & LUBRICANT
TAPE HEAD CLEANER
SPC technology
CAUTION:

ULTRA FLAT BLACK SPRAY PAINT

Colors meet Federal Color Specification TTL-0048 (GSA-FSS), Federal Color Standard 595 number 37038 below. **Ozone safe.** 1 pint cans.
00Z226 .....Each **2.99**

WRINKLE FINISH BLACK SPRAY

Air drying wrinkle finish develops in two hours at 75°F and 50% humidity—or faster using oven or heat lamp for 15 minutes. For chassis, panels, racks, audio equipment. Adjustable fan spray valve. **Ozone safe.** 13 oz. can.
00Z231 .....Each **4.53**

INSULATOR SPRAY

MOISTURE AND FUNGUS-PROOF VARNISH

Meets Mil Spec. MIL-V-173B. Widely used as PC board coating. Fluorescent, the treated chassis may be checked with ultraviolet light. Produces clear, smooth surface which will not crack, splinter or remain tacky. **Ozone safe.** Diel Str. 750 V/mil. 15¾ oz. can.
00Z246. 1-11..Each **2.74** 12-23..Each **2.52** 24-47....Each **2.31** 48-Up....Each **2.10**

CRYSTAL CLEAR INSULATING ACRYLIC

MIL-TT-L-0048. For metal, electrical and electronic equipment, PC boards, chrome, brass, plastic, tools, batteries, paper, wood, leather. Weatherproof, protects against corrosion. **Ozone safe.** 1500 V/mil. dielectric strength. 15¾ oz. can.
00Z245. 1-11.... **2.99** 12-Up.... **2.70**

RED INSULATING VARNISH

Tough, flexible film with high adhesion and arc resistance, non-tracking properties. For new or old stator windings, armatures, coils, commutator end rings, frames and end shields, bus bars, switchboard parts. Air dry or bake. **Ozone safe.** Diel str. dry 100 V/mil., wet 700 V/mil.; ASTM-D-149, 13 oz. can:
00Z228. 1-11.... **2.99** 12-Up.... **2.70**

SERVICE AID CHEMICALS

CIRCUIT COOLER SPRAYS

Locate thermal-intermittent component by spraying suspected component while equipment is operating. If cooling solves intermittent problem, replace component. Use on capacitors, transistors, resistors, oxidized joints. 15¾ oz. can.
00Z247 .....Each **2.92**

TAPE HEAD CLEANER SPRAY

Cleans tape heads on audio and video recording equipment. Removes oxide and dirt. Harmless to tape. 6″ spray extension tube included. 16 oz. can.
00Z249 .....Each **3.22**

RELAY AND CONTACT CLEANER

Leaves dry surface. Non-flammable. Dissolves gummy deposits. Degreases and flushes off electronic and electrical equipment. Extension tube included for hard-to-reach places.
00Z244. 15¾ oz. can .....Each **4.26**
00Z239. 5¾ oz. can .....Each **2.31**

TUNER CLEANER AND GUARD—SAFE FOR PLASTICS

Provides non-oily film that lubricates contacts, guards against corrosion. Won't affect magnet wire coatings, paper insulation, most paints and varnishes. For tuners, switches, volume controls, rheostats, commutators, circuit breakers, motors, locks. With spray extension tube. 15¾ oz. can.
00Z241. 1-11.... **3.79** 12-Up.... **3.41**

CONTACT CLEANER AND LUBRICANT SPRAY

Cleans, lubricates and protects from corrosion. For use where spray will not come in contact with plastics. For switches, volume controls, tuners, relays, commutators, slip rings, tube pins, dials, recorders, rheostats, circuit breakers, locks, tools. With extension tube.
00Z224. 16¼ oz. can 1-11 **2.89** 12-Up **2.60**
00Z243. 5¾ oz. can .....Each **1.40**

ELECTRIC MOTOR CLEANER

Dissolves and flushes away dirt, grease. Non-flammable, non-toxic. Does not require water flush. Evaporates and leaves dry surface. Will not harm insulation or painted surface. May be harmful to plastics. With extension tube for pinpoint application. 15¾ oz. can.
00Z201. 1-11....**2.89** 12-Up....**2.60**

SILICONE LUBRICANT

For metal, plastic, rubber, wood, leather, etc. Non-freezing, non-gumming. Ideal for anti-stick, anti-squeak action in hot and cold sealer bars, windows and doors, drawers, sliding tracks, cutting equipment, conveyors, dispensing equipment, food processing machinery. Diel. str. 350 V/mil. Temp. range —40°F to +500°F. 15¾ oz. can.
00Z242. 1-11 ..... **4.00**

QUICK PENETRATING OIL

Frees up and lubricates rusted or frozen bolts, screws, nuts, chains, mufflers, bearings, hinges, linkages, and other industrial and electronic equipment. **Ozone safe.** 15¼ oz. can.
00Z200. 1-11.... **2.79** 12-Up.... **2.51**

PLASTIC AND GLASS CLEANER

Developed for heavy-duty cleaning of glass and plastic surfaces — windows, screens, safety shields. Spray on—wipe off. Will not leave dulling streaks or residue. **Ozone safe.**
00Z230. 13¾ oz. can .....Each **1.73**

ANTI-STATIC SPRAY

Neutralizes static electricity and inhibits accumulation of airborne dust on plastics, glass, tile, leather, foil, textiles, metal, photo transparencies, negatives, TV screens, and other surfaces. **Ozone safe.**
00Z222. 15¼ oz. can .....Each **3.54**

16

Chemicals, Adhesives, P.C., and Service Aids

GC ELECTRONICS

ALL GC AEROSOLS, EXCEPT AS NOTED, CONTAIN NO ECOLOGY-DAMAGING FLUOROCARBONS

10-800 MAGIC VISTA
Foam tuner cleaner polishes and lubricates color or black and white tuner contacts. Will not run off or evaporate. 8 oz. aerosol can.
00Z225. NET 2.40

5555 NUVI-TRAN
Non-conductive, non-toxic cleaner for nuvistor and transistor tuners. Will not detune neutralizing circuit or induce drift. Safe for plastics. 8 oz. aerosol.
00Z202. NET 2.70

10-901 TUNER BATH
Cleanses and degreases dust, grime, and foreign matter in tuners. Safe for plastics. Will not detune. 16 oz. aerosol.
00Z233. NET 3.40

8666-16 SPRA KLEEN
Eliminates noise due to dust, dirt, and corrosion on contacts. Cleans and lubricates contacts. 16 oz. aerosol can.
00Z240. NET 2.77

10-916 PRESSURIZED LUBE
High grade light machine oil reaches into smallest areas. No spilling; no waste. for any piece of equipment. 6 oz. aerosol.
00Z215. NET 1.31

345 CEMENT-SOLVENT KIT
Comprehensive selection of most used cement and solvents. 13-2 oz. bottles.
32F257. NET 14.52

43-2 GC BOND CEMENT
All purpose adhesive. Bonds practically any surface. 2 oz. bottle.
00Z031. NET 1.28

10-302 RADIO TV SERVICE CEMENT
For radio-TV speaker repair and general shop use. 2 oz.
00Z011. NET ..... .92
10-304; 4 oz.
00Z315. NET 1.21

10-318 RADIO SERVICE SOLVENT
Fast acting solvent for speaker repair. 8 oz. bottle.
00Z019. NET 1.54

347 EPOXY GLUE
Exceptionally hard and strong bond. 2 oz. tubes-res. & hard.
35F3378. NET 4.17

213-16 CHLORO-KLEEN
Powerful solvent, all purpose cleaning. 16 oz. bottle.
00Z034. NET 2.63
00Z316. 213-G. 1 gal.....12.22

26-2 STRIP-X
Enamel stripping compound for wire insulation coatings. 2 oz. bottle.
32F255. NET 1.16

13-2 SILICONE SOLVENT FOR P.C. BOARDS
2 oz. bottle.
00Z030. NET ..... .95

175-6 GLASS TREATMENT COMPOUND
Degreases, removes static, and waterproofs glass and plastic. 6 oz. bottle.
32F201. NET 1.41

677 E.I.A. COLOR CODING KIT
All 10 E.I.A. colors w/brush and chart.
32F350. NET 9.02

10-608 INSUL-VOLT
Positive protection against high voltage leaks, arcing, and corona shorts. Acid resistant. Meets MIL-V-1137A, grade BA. 1500V dielectric strength. 4¾ fl. oz.
00Z207. NET 2.66

50-12 RED-X
Red silicone compound prevents corona shorts in high voltage circuits. Fast drying. 12¾ fl. oz.
00Z209. NET 3.57
50-2; 2 oz. bottle.
00Z311. NET 1.17

19-6 DE-OX-ID
Most powerful all-purpose TV/radio cleaner. Highly concentrated, restores noise free operation instantaneously. 6 oz. aerosol.
00Z204. NET 2.63
19-2; 2 oz. bottle.
35F3381. NET 1.54

10-702 SUPER FREEZE MIST
Locates bad components by cooling to −50°C (−58°F). 15 oz. aerosol.
00Z251. NET 2.98

8667 ZERO MIST
Locates intermittence by cooling components to −40°F. 16 oz. areosol can.
00Z213. NET 2.98

99-06 ACTION
Electronic silicone contact cleaner. Long lasting. Will not harm plastics; non-flammable. 6 oz. aerosol.
00Z219. NET 1.38

10-322 B-K BAKELITE CEMENT
Non-brittle, strong bond on thermosetting plastics. 2 oz.
00Z020. NET 1.41

58-2 VINYLITE CEMENT
Clear flexible adhesive. 2 oz.
00Z021. NET ..... .92

10-352 RUBBER-TO-METAL CEMENT
2 oz. bottle.
00Z033. NET ..... .92

40-2 ACRYLIC CEMENT
Mending acrylic materials. 2 oz.
00Z016. NET ..... .84

10-324 PLASTIC CEMENT
2 oz. bottle.
32F217. NET ..... .92

47-2 CORONA DOPE
Prevention corona and arcing shorts. 2 oz. bottle.
00Z025. NET 1.17

37-4 POLYSTYRENE Q-DOPE
For RF, UHF, and VHF protection. 4 oz. bottle.
00Z001. NET 1.21
00Z017. 37-2; 2 oz..... .84

41-4 POLYSTYRENE Q-DOPE THIN.
Thinning polystyrene dopes and cements. 4 oz. bottle.
00Z002. NET 1.21

90-2 INSULATING VARNISH
Alkyd base compound for insulation and protection. 2 oz.
00Z012. NET 1.21

21-1 SILVER PRINT
Draw or repair printed circuits. Pure silver. ½ troy oz. bottle.
00Z024. NET 9.49

20-2 COPPER PRINT
Same as above except copper. 2 oz. bottle.
00Z023. NET 2.97

10-804 LIQUI-KLEEN
Non-aerosol, non-flammable silicone electrical contact cleaner. Will not harm plastics. 24 oz.
00Z312. NET 4.82
10-806; 16 oz. refill
00Z313. NET 2.82
10-808; 1 gal. refill
00Z314. NET 10.85

8670-6 JIF
Siliconized contact-control cleaner lubricates contacts and controls. Non-flammable. 6 oz. aerosol can.
00Z218. NET 2.13

8669 DRY-KLEEN
Excellent degreaser and general solvent for inks and gummy deposits on contacts, relays, and other electronic devices. Non-flammable. 16 oz. aerosol.
00Z232. NET 2.73

14-6 SILICONE RESIN LACQUER
Provides tough protective coat on printed circuit. Insulates, protects, and prevents arcing. 6 oz. aerosol.
00Z032. NET 3.36

10-135 MIRACLE ADHESIVE KIT
Surface adtivator/cleaner with Cyanoacrylate adhesive.
32F337. NET 5.23

10-120 PERMABOND
Cyanoacrylate adhesive. Resists acids. Non-toxic. 2 ton tensile strength. 3 gram tube.
32F341. NET 2.42
10-122; ⅓ oz. vial
32F344. NET 4.58
10-123; 1 oz. bottle
32F345. NET 9.77

9400 OIL ASSORTMENT
6 refined lubricants in dispenser vials for any oil need.
32F364. NET 5.89

984 PEN OILER
Non-gumming instrument oil. Meets MIL-L-6085A. ½ oz. vial.
00Z026. NET 1.12

46-975 PLASTIC REPAIR KIT
Contains plastic powder and liquid for repairing most materials.
32F333. NET 3.62

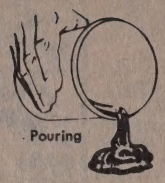
8109-S SILICONE HEAT SINK COMP.
Excellent heat transfer; 1 oz.
35F3389. NET 3.15

8101-S SILICONE COMPOUND
Rubber and plastic lubricant. Dielectric and water protective coat. 1 oz. tube.
32F365. NET 3.56

16

General Electric Silicones

Mixing


Pouring

Stk. No. 1 lb. Container	Type	Color	Each	2-11	12-47
57F053	RTV-11	White	12.60	10.50	8.90
57F054	RTV-21	Pink	12.60	10.50	8.90
57F056	RTV-41	White	12.60	10.50	8.90
57F057	RTV-60	Red	12.60	10.50	8.90
57F058	RTV-77	White	13.48	11.24	9.52
57F059	RTV-88	Red	13.48	11.24	9.52
57F060	RTV-90	Red	13.48	11.24	9.52
57F049	RTV-615	Clear	17.65	15.50	13.65
57F204	RTV-616	Black	14.45	12.30	10.45
57F061	RTV-630	Blue	15.00	12.85	11.20

TWO PART SYSTEMS

RTV-11. A low viscosity, white electrical potting compound which cures at room temperature to a resilient silicone rubber. Protects delicate electrical components from shock and vibration over temperatures from −75 to +500°F.

RTV-21. A pink, pourable electrical potting compound. Viscosity, poises: 250. Shelf life of six months.

RTV-41. White, medium viscosity silicone rubber base that cures readily in deep sections to high durometer, high strength rubber.

RTV-60. Red, medium viscosity silicone rubber base that cures readily in deep sections to a high durometer, high strength rubber. Has excellent high temperature resistance—usable for short periods up to 600°F.

RTV-77. An easy to spread potting paste which cures the same as the low viscosity compounds to form a tough, resilient silicone rubber.

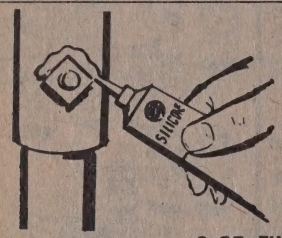
RTV-88. Red sealing and bonding compound. For use in high and extremely high temperature uses including aerospace.

RTV-90. Red sealing and bonding compound. Heat resistant up to 500°F.

RTV-615. Low viscosity, clear electrical potting compound. Used to protect circuits when a transparent encapsulant is required. Can be easily cut open to repair failures and patches with fresh material.

RTV-616. A black sealing and bonding compound. Used widely in aerospace applications. Short time, up to 500°F.

RTV-630. A blue, medium viscosity compound which cures to an extremely tough, durable rubber. Best for prototype molds or other applications where extreme strength is required.



ONE PART SYSTEMS

One package silicone rubber adhesive/sealants for an unlimited number of industrial applications. Packaged in collapsible aluminum tubes and standard caulking cartridges. Cures to tough resilient rubber at room temperature. Will withstand temperatures of 400 to 500°F and remain flexible at −75°F. Resists moisture, aging, ozone weathering. Will bond to most substrates without primer. Ideal for instant insulation, repairing low pressure leaks, gasketing, bonding, encapsulating, sealing, etc.

3 OZ. TUBE

Stk. No.	Type	Description	1-11	12-47	48-Up
57F039	RTV-102	White Paste	3.15	2.36	1.77
57F040	RTV-103	Black Paste	3.15	2.36	1.77
57F043	RTV-106	Red Paste	4.42	3.25	2.75
57F041	RTV-108	Clear Paste	3.15	2.36	1.77
57F042	RTV-109	Alum. Paste	3.15	2.36	1.77
57F044	RTV-112	White Liquid	4.42	3.25	2.75
57F029	RTV-116	Red Liquid	4.42	3.25	2.75
57F030	RTV-118	Clear Liquid	4.42	3.25	2.75
57F200	RTV-157	Grey Hi-Strength Paste	6.60	4.50	3.98
57F201	RTV-159	Red Hi-Strength Paste	6.60	4.50	3.98
57F203	RTV-158	Clear Hi-Strength Paste	6.60	4.50	3.98
57F065	RTV-162	White Paste	4.22	3.08	2.38

12 OZ. TUBES and (*Caulking Cartridges)

Stk. No.	Type	Description	1-11	12-47	48-Up
57F031	RTV-102	White Paste	11.74	7.12	6.79
57F032	RTV-103	Black Paste	11.74	7.12	6.79
57F035	RTV-106	Red Paste	14.34	9.28	8.94
57F033	RTV-108	Clear Paste	11.74	7.12	6.79
57F034	RTV-109	Alum. Paste	11.74	7.12	6.79
57F036	RTV-112	White Liquid	14.34	9.28	8.94
57F037	RTV-116	Red Liquid	14.34	9.28	8.94
57F038	RTV-118	Clear Liquid	14.34	9.28	8.94
			1-11	12-23	24-Up
57F045	RTV-102*	White Paste	5.22	3.74	3.25
57F046	RTV-108*	Clear Paste	5.22	3.74	3.25
57F202	RTV-103*	Black Paste	5.22	3.74	3.25
57F066	RTV-162*	White Paste	11.10	7.65	5.70

Stock No.	Type	Package Size	1-9
57F062	G-300	3 oz. Tube	4.13
57F206	G-300	8 oz. Tube	8.24
57F063	G-322L	3 oz. Tube	2.45
57F208	G-322L	8 oz. Tube	4.97
57F064	G-623	3 oz. Tube	2.63
57F212	G-623	8 oz. Tube	5.20

SILICONE GREASES AND COMPOUNDS

Fit a wide variety of industrial and maintenance applications. Offer superior lubrication, dielectric properties, heat transfer, water repellancy, corrosion protection. Withstand temperatures from −100 to 450°F.

WIDE TEMPERATURE METAL LUBRICANT

Type G-300. Offers excellent metal-metal lubrication over −100 to +450°F.

ALUMINUM/STEEL LUBRICANT

Type G-322L. One of the finest available lubricants for aluminum steel. Prevents galling and corrosion. Also excellent for plastic-metal. Available in 3 or 8 oz. tubes.

GENERAL PURPOSE COMPOUND

Type G-623. An all-around dielectric grease which offers superior protection from shorts due to moisture. Ideal for cable connectors. Also excellent rubber lubricant for seals, gaskets, etc.

ATTENTION QUANTITY BUYERS

Newark Electronics also can supply these GE silicone products in package sizes up to five gallon pails. Write, phone or wire your nearest Newark Electronics office to discuss volume prices and delivery. Depend on Newark Electronics for the latest in silicone products at the lowest prices, fastest delivery. Stocking warehouses from coast-to-coast.

RECHARGE BATTERY SYSTEM

Recharges AA, C or D battery pack in just 16 hours. Provides the most cost efficient source of portable energy available today. Delivers lower cost per hour of operation than "throw-away" battery types. Extends effective use up to a thousand times longer than "throwaway" types. AA size nicad cells used in a calculator are estimated to have a life of 6000 hours (based on a lifetime of 1000 discharge/charge cycles). Mini-charger unit plugs directly into wall socket. Battery modules utilize AA, C or D batteries. Strong durable construction. Consistent performance. Excel in high drain applications. Spare batteries can be left on charge for an indefinite period of time without harm to either batteries or charger. Useful in calculators, cameras, tape recorders, radios, toys and other types of battery-powered devices.

Type BC-3. Mini-Charger for Nicad battery modules.
48F239. NET 2.79

Type MA-21. AA Module for BC-3, with 2 AA rechargeable batteries.
48F240. NET 5.79

Type MC-22. C Module for BC-3, with 2 C rechargeable batteries.
48F241. NET 6.12

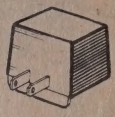
Type MD-23. D Module for BC-3, with 2 D rechargeable batteries.
48F242. NET 6.27

Type M-919. Module for BC-3 with 9 volt rechargeable battery.
49F1250. NET 6.35

MA-21. AA

MC-22. C

MD-23. D


Type BC-3. Mini-Charger

M919

RECHARGEABLE SEALED NICKEL-CADMIUM CELLS

Battery system includes rechargeable sealed nickel-cadmium cells and chargers. Nickel cadmium cells rated 1.25 volts can be recharged up to 1000 times or more. Home consumer uses these cells along with Model BC-1 charger to replace ordinary throw-away batteries.

Stk. No.	GE Type	Description	Net
49F990	2GC-1	AA Size 0.5 AH Twin Pack	**4.60**
49F991	2GC-2	C Size 1.0 AH Twin Pack	**4.90**
49F992	2GC-3	D Size 1.2 AH Twin Pack	**5.04**
49F942	HD1000	D Size 4.0 AH Single Unit	**5.95**
49F993	BC-1	Charger for 2 or 4 GC-1, GC-2, or GC-3 Cells and two 9V	**10.45**
49F1252	GC-9B	9 Volt Size	**6.02**

PERMA-CELL

Model BC-1

41B901BD16-1
41B901CD18-1

DIP-TYPE BATTERIES FOR STANDBY POWER IN DIRECT CIRCUIT BOARD MOUNTING APPLICATIONS

Stock No.	Type	Cell Type	VDC	Capacity Amp-Hr. 1 Hr.	Capacity Amp-Hr. 5 Hr.	Max. Overcharge Rate mA	Maximum Dimensions Length in.	Length mm.	Height in.	Height mm.	Width in.	Width mm.	Each
49F939	41B901BD16-1	μP-80	2.4	.065	.070	7	1.67	42.4	.60	15.2	.67	17	**5.50**
49F940	41B901CD18-1	μP-80	3.6	.065	.070	7	1.67	42.4	.60	15.2	.82	20.8	**8.25**

SEALED CYLINDRICAL CELL BATTERIES

Sealed cylindrical cells and batteries are preferred for most applications requiring long, trouble-free life, high rates of discharge or charge current, complete portability, and safety. Micro-valve resealable pressure relief vent provides this safety by relieving excessive pressure when battery is misapplied or misused. After safely relieving abnormal pressure, vent then reseals and maintains sealed integrity of cell. Edge-welded construction permits very high discharge currents without overheating. Cells with this feature can be operated in ambient temperatures up to 40° C, provided that cell temperature never exceeds 50° C. They are designed for charging at constant current ten-hour of 0.1C rate. Furnished with insulating sleeve and solder tabs.

STANDARD RATINGS AND DIMENSIONS—CYLINDRICAL BATTERIES

Stock No.	New Type	Old Type	Cell Type	DC Volts	Capacity Ampere Hour 1 Hr.	Capacity Ampere Hour 5 Hr.	Maximum Overcharge Rate in mA	Maximum Dimensions Diameter Inches	Diameter mm	Height Inches	Height mm	1-99
48F222	K01A113AA-SD1	GCF100ST	⅓ AA	1.2	.100	.110	10	.588	15.0	.705	17.9	**2.88**
49F941	41B901CD05-1	47B901CD05	⅓ AA	3.6	.100	.110	10	.610	15.5	2.06	52.3	**8.00**
48F113	K01A112AA-SD1	GCF250ST	½ AA	1.2	.250	.275	25	.574	14.6	1.28	32.5	**3.13**
48F224	K01A213AF-SD1	GCL450ST	⅔ Af	1.2	.450	.490	40	.673	17.1	1.12	28.4	**3.70**
48F114	K01A111AA-SD1	GCF500ST	AA	1.2	.500	.550	50	.574	14.6	1.952	49.6	**3.28**
48F225	K01A112CS-SD1	GCR550ST	½ sub C	1.2	.500	.550	55	.900	22.9	1.045	26.5	**3.43**
48F117	K01A111CS-SD1	GCR1.0ST	sub C	1.2	1.0	1.1	100	.900	22.9	1.645	41.8	**3.93**
***48F125**	41B002AD10-1	GCT1.5SB	C	1.2	1.8	2.0	150	1.028	26.1	1.952	49.6	**6.68**
48F119	K01A111C-SD1	GCT1.5ST	C	1.2	1.8	2.0	150	1.028	26.1	1.85	47.1	**6.68**
48F120	K01A112D-SD1	GCW2.0ST	½ D	1.2	2.0	2.2	200	1.29	32.8	1.464	26.9	**7.48**
***48F126**	41B004AD07-6	GCW3.5SB	D	1.2	3.5	4.0	350	1.29	32.8	2.41	61.2	**11.35**
48F121	K01A111D-SD1	GCW3.5ST	D	1.2	3.5	4.0	350	1.29	32.8	2.311	59.6	**11.35**
49F1251	K01A111F-GT1	.....	F	1.2	5.60	6.05	560	1.303	33.1	3.488	88.6	**21.70**

(*) With positive button

MAKE NEWARK ELECTRONICS YOUR ONE STOP SOURCE FOR INDUSTRIAL ELECTRONICS EQUIPMENT

EVEREADY®

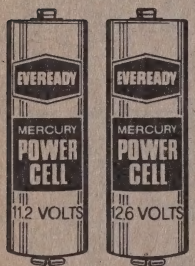
Batteries

All the batteries listed below are guaranteed fresh when they leave our stock and carry additional manufacturers' guarantees. Made to high standards and fully inspected, these batteries are of the highest quality. Equivalent NEDA numbers are included in tables for your convenience.

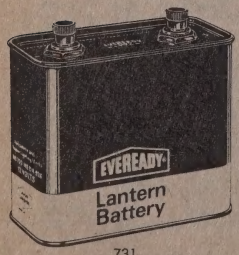
509

1461

386BP



E431BP E304116BP



731

Stock No.	Eveready Type	NEDA No.	Volts	Each	Dimensions	Replaces	Common Use
49F1049	IS6	905	1½	2.33	2⅝x6⅝	6 Ign.	Ignition
49F1051	IF6	905FC	1½	2.33	2⅝x6¾	6-Tel.	Ignition
48F931	HS6	911	1½	2.30	2⅝x6⅝	6 Ind.	Industry
49F1200	EPX13BP	1114MP	1.35	1.03	.615x.238	PX13	Photo
49F1163	S76BP	1107SO	1½	.79	.455x.200	S76	Photo
49F1201	E146X	1604M	8.4	2.03	1.031x.66x1¾	TR146X	Electric
49F1202	E164	1404M	5.6	2.50	.662x1.767	TR164	Electric
49F1040	206	1611	9	1.13	¾x2	M1611	Trans. Radio
49F340	228	1810	12	2.33	1x2 1/16	PM8	Trans. Radio
49F1029	226	1600	9	1.40	1x1 5/16	P6	Trans. Radio
49F1025	246	1602	9	2.47	1⅜x1⅜x2¾	2N6	Trans. Radio
49F1036	266	1605	9	2.07	1 3/16x1 3/16x2 7/16	M1605	Trans. Radio
49F1026	276	1603	9	3.13	2 3/16x2x3 3/32	D6	Trans. Radio
49F1203	333	1306A	4.5	1.22	.662x1.965	.....	Trans. Radio
49F1204	303BP	.....	1½	1.03	Button Cell	RW22	Watch
49F1205	323BP	.....	1.35	1.10	Button Cell	RW58	Watch
49F1253	301BP	.....	1.35	1.03	Button Cell	30313P	Watch
49F1254	389BP	.....	1½	1.10	Button Cell	386BP	Watch
49F1206	343BP	.....	1½	1.10	Button Cell	RW56	Watch
49F1207	357BP	.....	1½	1.10	Button Cell	RW42	Watch
49F1067	386BP	.....	1½	1.10	Button Cell	RW44	Watch
49F1208	392BP	.....	1½	1.10	Button Cell	RW47	Watch
49F1209	393BP	.....	1½	1.10	Button Cell	RW48	Watch
49F1015	W353	11	1½	2.73	2 1/32x1 3/8x4 5/32	2F	Port. Radio
49F1056	W356	703	3	8.87	2⅝x2⅝x4 7/16	2F2H	Trans. Radio
49F1210	E401E-2	910M	1.4	1.36	.455x1.130	RM401	Hearing Aid
49F1211	EP401E-2	1118M	1.4	1.50	.453x1.140	MP401	Port. Dev.
49F1061	411	208	15	1.20	1 1/32x⅜x1 29/64	U10	Inst.
49F1063	412	215	22½	1.51	1 1/32x⅝x2	U15	Inst.
49F1078	413	210	30	1.60	1 1/32x⅝x2 9/16	U20	Inst.
49F1001	415	213	45	2.53	1 3/64x⅝x3 1/16	U30	Inst.
49F1009	416	217	67½	2.67	1 21/64x 45/64x3½	UX45	Inst.
49F1080	417	224	15	5.93	1 5/16x3 1/32x1 7/16	K10	Inst.
49F1081	420	225	22½	7.33	1 5/16x3 1/32x2 9/16	K15	Inst.
49F1039	425P	.....	22½	7.27	1 23/64x1 1/32x3 1/16	XX15	Inst.
49F1092	455	201	45	5.33	2 1/32x1x3 1/16	XX30	B Radio
49F1004	457	203	67½	8.00	3 1/16x1 3/8x2½	K45	B Radio
49F1002	467	200	67½	7.00	2 1/16x1 3/8x3 45/64	XX45	B Radio
49F1008	479	214	90	7.27	1 5/64x1 1/16x7 1/32	P60	B Radio
49F1091	482	202	45	8.60	3 1/32x1 27/32x5½	M30	B Radio
49F1090	484	207	45	9.93	3 21/32x2 1/32x5 5/16	B30	Flour. Lant.
49F1136	489	728	225	21.27	4 1/32x2 1/16x4 3/16	XX150	Photo
49F1006	490	204	90	8.60	3 23/32x1 3/8x3 45/64	V60	Photo
49F1138	491	729	240	9.93	2 1/32x1 5/16x4½	U160	Photo
49F1089	493	722	300	12.60	2 1/16x2 7/32x3 29/32	U200	Geiger Cntr.
49F1212	496	740	450	53.27	6¾x3x5	PF496	Photo
49F1139	497	741	U320	17.77	3x1 19/32x5⅝	U320	Photo
49F1062	504	220	15	1.30	39/64x1 3/32x1⅜	Y10	Inst.
49F1064	505	221	22½	1.60	1 3/32x1 3/32x1.975	Y15	Inst.
49F1125	509	908	6	1.58	2⅝x2⅝x4⅜	F4M	Lant.
49F1213	538	1313P	4.5	1.99	1.6x.670x.450	7R31	Photo
49F1214	539BP	1412A	6	1.66	1.4x.355x1.898	7K67	Photo
49F1215	544BP	140650	6	3.30	.510x.990	PX28	Photo
49F1216	EPX625BP	1124MP	1.35	1.03	.615x.238	PX625	Photo
49F1217	EPX640BP	1126MP	1.35	1.10	.625x.440	PX640	Photo
49F1218	EPX675BP	1123MP	1.35	1.03	.455x.210	PX675	Photo
49F1219	646	914D	69	10.60	2 1/16x2⅛x8 7/64	Z46HD	Lant.
49F1045	706	902	6	9.67	8 1/16x2 1/16x6 7/16	4F4H	Emergency
49F1053	711	700	1½	2.87	2⅝x1 5/16x4 1/32	2FH	Glo-Plug
49F1046	715	903	7½	10.60	7¼ x4 1/16x6 7/16	4FSH	Emergency
49F1047	716	904	9	10.60	8 7/16x4 1/16x6 7/16	4F6H	Emergency
49F1019	717	9	7.5	3.27	2 5/32x1 1/16x3 1/32	C5	Emergency
49F1017	724	2	6	2.26	1 7/32x1 7/32x2 1/32	Z4	Emergency
49F1126	731	918	6	4.33	5⅜x2⅞ x4 1/16	TW1	Lantern
49F1127	732	926	12	5.93	5⅜x2⅞ x4 1/16	TW2	Lantern
49F1043	735	900	1½	1.85	2⅝x2⅝x4 1/16	4FM	Glo-Plug
49F1020	736	3	4½	4.20	3 1/16x1 9/16x4	F3	Glo-Plug
49F1054	742	4	1½	2.44	2⅝x2⅝x3 27/32	4F	"B" Radio
49F1021	744	.....	6	2.19	2⅝x2⅝x3 27/32	F4PI	"A" Radio
49F933	750	704	3	2.26	1 7/32x⅞x2 21/32	422	Instrument
49F1064	763	710	22½	5.27	3½x2 25/32x3 1/16	4156	Instrument
49F1050	1461	907	6	8.67	10 7/16x2 23/32x7 7/32	5461	Fence
49F932	1463	922	12	14.60	10 7/16x2 23/32x7 7/32	2G8H	Fence
49F1033	2356N	1612	9	5.67	2 5/16x1 1/32x6 1/16	C6X	Trans. Radio
49F1220	E431BP	.....	11.2	4.66	1x3¾	TR431S	Smoke Alarm
49F1221	E304116BP	.....	12.6	4.66	1x2.875	304116	Smoke Alarm

GENERAL PURPOSE CARBON-ZINC BATTERIES

Long-life carbon-zinc batteries are most popular for portable power. Available in most standard sizes. For use in industrial, electronic, transistor, and many other applications. Specially sealed to provide protection in handling and against corrosive leakage. Sturdy construction. Long dependable service, even over a wide range of temperatures, plus peak performance at all times.

Stock No.	Eveready Type	NEDA No.	Volts	Each	Dimensions	Replaces	Common Use
49F1023	904	910F	1.5	.13	N .445x1.180	310	Gen. Purpose
49F1123	912	24F	1.5	.20	AAA 1 3/32x1 3/4	7	Gen. Purpose
49F1122	915	15F	1.5	.20	AA 9/16x1 31/32	910	Gen. Purpose
49F1014	935	14F	1.5	.27	C 1 1/32x1 1/2	1	Gen. Purpose
49F1118	950	13F	1.5	.27	D 1 1/32x2 1/32	2	Gen. Purpose

18

Batteries

EVEREADY®

1015 (AA)

1035 (C)

1222
Heavy Duty

1209
Heavy Duty

522
Alkaline

CARBON ZINC TRANSISTOR BATTERIES

Stock No.	Type	NEDA	Volts	Dimensions	Replaces	Common Use	Each
49F1035	1015	15	1.5	(AA) $^{9}/_{16}$ x $1^{3}/_{32}$	15	Tran. Radio	.22
49F1034	1035	14	1.5	(C) $1^{1}/_{32}$ x $1^{15}/_{16}$	14	Tran. Radio	.28
49F1030	1050	13	1.5	(D) $1^{11}/_{32}$ x $2^{13}/_{32}$	13	Tran. Radio	.28
49F1028	216	1604	9	$1^{1}/_{32}$ x $2^{1}/_{32}$ x $1^{29}/_{32}$	1604	Tran. Radio	.61

HEAVY DUTY (ZINC-CHLORIDE) BATTERIES

Stock No.	Type	NEDA	Volts	Dimensions	Replaces	Common Use	Each
48F909	1215	15D	1.5	(AA) $^{9}/_{16}$ x $1^{1}/_{32}$	5AA	HD Gen. Purpose	.28
49F1041	1222	1604D	9	$1^{1}/_{32}$ x $1^{1}/_{16}$ x $1^{15}/_{16}$	D1604	HD Gen. Purpose	.87
48F910	1235-2	14D	1.5	$1^{1}/_{32}$ x $1^{15}/_{16}$	4C	HD Gen. Purpose	.68
48F911	1250-2	13D	1.5	$1^{11}/_{32}$ x $2^{13}/_{32}$	6D	HD Gen. Purpose	.68
49F1222	1209	908D	6	$2^{5}/_{8}$ x $2^{5}/_{8}$ x $4^{13}/_{32}$	944	HD Gen. Purpose	1.99

ALKALINE BATTERIES

Stock No.	Type	NEDA	Volts	Dimensions	Replaces	Common Use	Each
49F1168	E90	910A	1.5	.455 x 1.13	MN9100	Photo-Calc.	.52
49F1169	E91	15A	1.5	$^{9}/_{16}$ x $1^{3}/_{32}$	MN1500	Photo-Gen.	.52
49F1170	E92	24A	1.5	.405 x 1.745	MN2400	Photo-Calc.	.52
49F1171	E93	14A	1.5	$1^{1}/_{32}$ x $1^{15}/_{16}$	MN1400	Instrument	.59
49F1173	E95	13A	1.5	$1^{11}/_{32}$ x $2^{13}/_{32}$	MN1300	Instrument	.65
48F917	522	1604A	9	$1^{1}/_{32}$ x $1^{1}/_{16}$ x $1^{15}/_{16}$	MN1604	Smoke Alarm	1.22
49F1174	523	1306A	4.5	.662 x 1.965	PX21	Photo Smoke	1.53
48F918	531	1307A	4.5	.662 x 2.290	PX19	Photo	1.53
48F919	532	1308A	3	.664 x 1.670	PX24	Photo	1.34

INDUSTRIAL BATTERIES

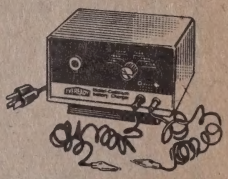
Designed for industry's maximum service demands. Long-life service on heavy-duty drain and long periods of consistent use. Industrial batteries are guaranteed and power-sealed.

INDUSTRIAL BATTERIES

Stock No.	Type	NEDA	Volts	Description	Replaces	Common Use	Each
48F912	HS15	.....	1.5	(AA) Penlite	500	Industry	.18
48F913	HS35	.....	1.5	(C) Flash Batt.	700	Industry	.24
48F914	HS50	.....	1.5	(D) Flash Batt.	800	Industry	.24
48F915	HS95	.....	1.5	(D) Alkaline Batt.	.....	Industry	.66
48F916	HS150	.....	1.5	(D) HD Flash Batt.	1200	Industry	.28
49F1223	HS90	.....	6	Lant. Batt.	F4H IND	Industry	1.62

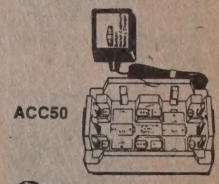
RECHARGEABLE NICKEL-CADMIUM BATTERIES AND CHARGERS

Batteries can be stored charged or uncharged. Capacity of Nickel-Cadmium batteries is expressed in average ampere hours, and stays relatively fixed over a wide range of discharge currents. Rechargeable batteries actually cost less to use per ampere hour than throw away batteries. Nominal cycle life is 1000 cycles except for Type N88 8.4 volt Ni-cad batteries can be recharged up to 300 cycles. End of cycle life is considered to be the point where the battery no longer provides 80% of rated capacity.



ACC100

Stock No.	Type	Size	Volts	Capacity	Dimensions	Replaces	Each
49F1180	CF15	AA	1.2	500 mAh	.553 x 1.969	.....	2.60
49F1224	CF15T	AA	1.2	500 mAh	.553 x 1.981	.....	2.85
49F1147	CH15	AA	1.2	500 mAh	.553 x 1.969	GC3	2.11
49F1225	CH15T	AA	1.2	500 mAh	.553 x 1.981	GC3T	2.36
49F1181	CH35	C	1.2	1.2 Ah	$1^{1}/_{32}$ x $1^{31}/_{32}$	GC2	2.26
49F1182	CH50	D	1.2	1.2 Ah	$1^{11}/_{32}$ x $2^{27}/_{64}$	GC1	2.33
49F1226	*CH225	1.2	1.2	225 mAh	.675 x .646	225SC	2.02
49F1227	*CH450	1.2	1.2	450 mAh	.675 x 1.116	450SC	2.82
49F1228	*CH1	Short C	1.2	1 Ah	1.043 x 1.161	GCT1.0	3.16
49F1229	*CH1.2	Sub C	1.2	1.2 Ah	.900 x 1.679	GCR1.0	3.44
49F1230	CH1.8	C	1.2	1.8 Ah	1.031 x 1.969	GCT1.5	9.55
49F1231	CH2.2	½D	1.2	2.2 Ah	1.344 x 1.508	GCW2.	11.78
49F1150	*CH4	D	1.2	4 Ah	1.305 x 2.310	GCW3.	6.32
49F1232	CH22	7.2	7.2	80 mAh	.....	.....	5.55
49F1183	N88	8.4	8.4	90 mAh	$1^{7}/_{64}$ x $3^{9}/_{64}$ x $1^{15}/_{16}$	GC9	5.55
49F1233	ACC22BP	8.4	Charger	.....		.....	5.32
49F1234	ACC50	.....	.....	Charger: 4AA, 2C or 2D.		.....	5.32
49F1184	ACC75	.....	.....	Charger: 6AA, C or D.		.....	13.32
49F1235	ACC100	.....	.....	Professional Charger For All		.....	26.66



ACC50

N88
Rechargeable

*Available with solder tabs or fast charge at additional cost.

RECHARGEABLE ALKALINE BATTERIES

Stock No.	Eveready Type	Nom. Capacity	Volts	Dimensions	Common Use	Each
49F1236	560	2.5 AH	7.5	$2^{21}/_{32}$ x $1^{17}/_{32}$ x $7^{5}/_{32}$	Elect. Device	11.72
49F1237	561	5 AH	15	$8^{5}/_{16}$ x $2^{13}/_{16}$ x $5^{7}/_{8}$	Elect. Device	28.12
49F1238	563	2.5 AH	4.5	$1^{23}/_{64}$ x $7^{5}/_{32}$	TV.	6.92
49F1239	564	5 AH	13.5	$8^{5}/_{16}$ x $2^{13}/_{16}$ x $5^{7}/_{8}$	TV.	25.22
49F1240	565	5 AH	6	$2^{25}/_{32}$ x $2^{25}/_{32}$ x $5^{11}/_{32}$	Toy Car	14.82

AA
Rechargeable

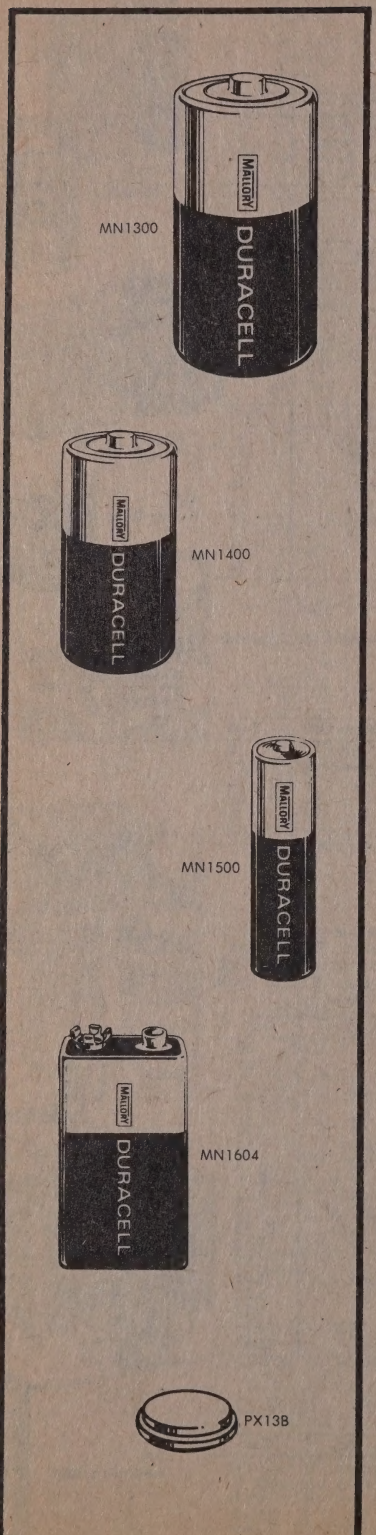
MALLORY

Duracell® Batteries

ALKALINE BATTERIES

Stk. No.	Mallory Type	Eveready Type	Volts or Size	Each
49F1173	MN1300	E95	1.5/D	.64
49F1171	MN1400	E93	1.5/C	.64
49F1169	MN1500	E91	1.5/AA	.58
49F1175	MN1604	216	9	1.16
49F1170	MN2400	E92	1.5/AAA	.51
49F1168	MN9100	E90	1.5/N	.51

For devices that require a long lasting power source that delivers high energy, such as movie cameras, cassette players, electronic flash units, etc. Alkaline cells can last up to 6 times as long as carbon cells.



MERCURY BATTERIES

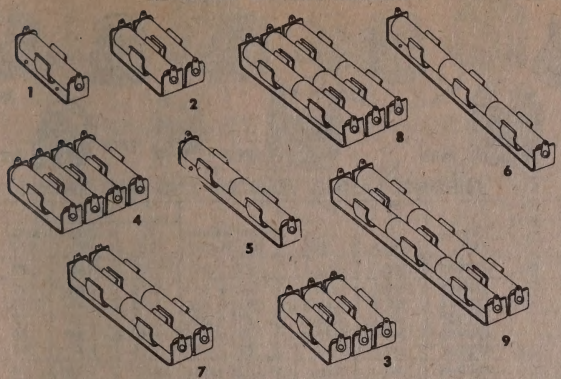
Mercury batteries offer more power per unit of volume than any other type making them ideal for use in electronic circuits. Mercury batteries are widely used in electronic instruments, photographic equipment, hearing aids, paging equipment, and radios.

Stock No.	Type	Replaces Eveready	NEDA	* B.P.	Std. Pkg.	† S.P.	Volts	Common Use
48F017	MP401	EP401	1118M	1.19	24	1.08	1.4	Paging
49F563	RM1	E1	1100M	1.10	20	1.00	1.4	Phys. Hndcp.
49F500	RM1R	E1N	1109M	1.29	40	1.17	1.35	Electronic
49F565	RM1RT2	E1NT2	. . .	1.51	40	1.37	1.35	Electronic
49F501	RM3R	E3	1111M	2.04	20	1.85	1.35	Electronic
49F502	RM4R	E4	. . .	2.62	20	2.38	1.35	Electronic
49F532	RM12	E12	1101M	1.90	10	1.72	1.35	Tape Rcdr.
49F505	RM12R	E12N	1113M	2.04	10	1.85	1.35	Tachometer
49F567	RM12RT2	E12NT2	. . .	2.26	10	2.05	1.35	Electronic
49F506	RM42R	E42N	1115M	5.76	10	5.23	1.35	Elec. "D"
49F507	RM42RT	E42NT1	. . .	5.87	10	5.33	1.35	Elec. "D"
49F568	RM42RT2	E42NT2	. . .	5.98	10	5.43	1.35	Elec. "D"
49F425	RM312	E312	. . .	.31	60	.28	1.4	Radio
49F513	RM400	E400	1106M	.87	30	.79	1.35	Phys. Hndcp.
49F514	RM401	E401	. . .	1.10	72	1.00	1.4	Paging
49F444	RM401R	E401N	1117M	1.29	20	1.17	1.35	Electronics
49F550	RM411	. . .	. . .	2.58	12	2.34	14.0	Electronics
49F551	RM412	. . .	. . .	3.44	12	3.12	22.4	Electronics
49F451	RM413	. . .	. . .	4.29	12	3.90	28.0	Electronics
49F553	RM415	. . .	. . .	6.44	6	5.85	42.0	Electronics
49F554	RM450R	E450	. . .	1.29	24	1.17	1.35	Electronics
49F427	RM502R	E502	1119M	1.82	10	1.65	1.35	Electronics
49F555	RM601R	E601	1121M	1.73	20	1.57	1.35	Medical
49F447	RM625	E625	1122M	1.04	40	.94	1.4	Phys. Hndcp.
49F556	RM625R	E625N	1123M	1.15	40	1.04	1.35	Electronics
49F575	RM625RT2	E625NT1	. . .	1.37	40	1.24	1.35	Electronics
49F559	RM640	640	1105M	1.04	20	.94	1.35	Electronics
49F561	RM675	E67	1127M	.54	60	.49	1.4	Electronics
48F021	TR112	. . .	. . .	2.22	20	2.02	2.8	Electronics
49F534	TR114R	E114	. . .	3.10	10	2.81	5.4	Electronics
49F535	TR115R	E115N	1504M	3.88	10	3.52	6.75	Electronics
49F450	TR118	. . .	. . .	3.99	10	3.62	11.2	Medical
49F570	TR126	E126	. . .	2.68	24	2.43	8.4	Radio
49F431	TR132	E132	1200M	2.20	10	2.00	2.8	Paging
49F508	TR132R	E132N	1203M	2.29	10	2.08	2.7	Electronic
49F536	TR133	E133	1306M	2.75	24	2.50	4.2	Radio, Paging
49F571	TR133R	E133N	1314M	2.92	10	2.65	4.05	Radio, Paging
49F510	TR134R	E134N	1409M	3.52	10	3.20	5.4	Electronic
49F537	TR135R	E135N	1505M	4.15	10	3.77	6.75	Electronic
49F538	TR136R	E136N	1616M	4.71	10	4.28	8.1	Electronic
49F435	TR137R	E137N	1702M	5.23	12	4.75	9.45	Electronic
49F511	TR146X	E146X	1604M	1.98	24	1.80	8.4	Electronic
49F542	TR163	E163	1305M	3.00	10	2.72	4.2	Electronic
49F544	TR164	E164	1404M	2.68	24	2.43	5.6	Phys. Hndcp.
49F439	TR164R	E164N	1410M	3.57	10	3.24	5.4	Electronic
49F546	TR165	E165	1500M	3.39	10	3.08	7.0	Electronic
49F438	TR165R	E165N	1506M	3.87	10	3.51	6.75	Electronic
49F426	TR169	E169	1901M	5.76	10	5.23	12.6	Electronic
49F548	TR175	E175	1501M	2.35	10	2.13	7.0	Microphone
49F549	TR177	E177	1606M	2.37	24	2.15	9.8	Radio
49F512	TR233	E233	1300M	4.71	10	4.28	4.2	Radio
49F440	TR233R	E233N	1315M	5.23	10	4.75	4.05	Radio
49F441	TR234	E234	. . .	6.26	10	5.69	5.6	Electronic
49F424	TR234R	E234N	1411M	6.78	10	6.16	5.4	Electronic
49F527	TR235R	E235N	. . .	8.38	10	7.61	6.75	Electronic
49F442	TR236R	E236N	1618M	9.93	5	9.02	8.1	Electronic
49F573	TR286	E286	1600M	2.68	6	2.43	8.4	Radio
49F574	TR289	228	1810M	5.28	6	4.80	12.6	Electronic
48F018	PX13B	EPX13	1114MP	1.10	24	1.00	1.35	Photo
49F411	PX28B	544	1406SO	2.71	24	2.46	6.0	Photo
49F412	PX30B	EPX30	1202A	1.43	24	1.30	3.0	Photo
48F020	PX675B	EPX675	1128MP	1.10	24	1.00	1.35	Photo
49F413	MS76B	576	1107SO	.71	24	.64	1.5	Photo
49F414	RM400RB	. . .	1116M	1.10	24	1.00	1.35	Photo
49F415	5K65	. . .	1617M	2.12	24	1.92	9.0	Calculator
49F416	7K67	539	1412A	1.64	24	1.49	6.0	Photo
49F530	ZM9	E9	15M	1.20	48	1.09	1.4	Radio "AA"
48F023	4R82	. . .	. . .	2.85	15	2.59	8.1	Paging
48F025	9R81	. . .	. . .	1.28	20	1.16	1.4	Paging
49F417	MS13	. . .	. . .	.43	60	.39	1.56	Electronic
49F418	MS41	. . .	. . .	.43	60	.39	1.56	Electronic
49F419	302478	. . .	. . .	10.96	1	9.96	9.8	Electronic
49F420	303858	. . .	. . .	16.24	1	14.76	16.8	Electronic
49F421	TR112R	E112N	. . .	2.67	10	2.42	2.7	Photo
49F422	TR115	E115	1503M	3.63	10	3.30	7.0	Dictating
48F022	TR431S	E431	1801M	4.99	12	4.53	11.2	Smoke Alarm
48F027	304116	. . .	1902M	5.08	12	4.61	12.6	Smoke Alarm

*Indicates broken package. †Indicates standard package.

Keystone Battery Holders, Plugs, Sockets

ALUMINUM BATTERY HOLDERS



Frame and clip made of 2020 ST4 Aluminum for light weight and strength. Spring loaded battery holders feature cadmium-plated copper lugs and fibre insulators which are moisture-proofed.

PENCELL HOLDERS

All Batteries listed below fit all sizes of Type No's.	Stock No.	Type	Cell	Fig.	1-19	20-99	100-249
Burgess CD6, 9R, Z	35F1589	139	1	1	.29	.25	.23
HG9, HG12R, H133,	35F1590	140	2	2	.51	.45	.42
HG502R, 920, 930	35F1591	171	3	3	.64	.58	.51
Eveready: E9, E12	35F1592	182	4	4	.81	.72	.65
E91, E133, 333, E502,	35F1593	189	2	5	.58	.46	.42
515, 915, 1015, N46	35F1595	192	4	7	.81	.68	.65
	35F1596	193	6	8	1.12	1.00	.95

"C" CELL HOLDERS

	35F1597	173	1	1	.39	.34	.30
Burgess: 1, P6, 120,	35F1598	174	2	2	.50	.45	.42
130, H233, 302599	35F1599	187	3	3	.75	.72	.64
Eveready: 226, E233,	35F1600	185	2	5	.58	.46	.42
635, 935, 1035, E93	35F1602	196	4	7	.81	.68	.65
	35F1603	197	6	8	1.12	1.00	.95

"D" CELL HOLDERS

	35F1604	175	1	1	.39	.34	.30
Burgess: 2, 2R, CD7,	35F1605	176	2	2	.58	.51	.47
210, 230	35F1606	190	3	3	.83	.78	.70
Eveready: E42, N56,	35F1607	186	2	5	.58	.46	.42
E95, D99, A100,	35F1609	200	4	7	.84	.70	.66
950, 1050	35F1610	201	6	8	1.15	1.05	.95
	35F1611	205	6	9	1.05	.94	.86

NICKEL PLATED STEEL BATTERY HOLDERS

- MADE OF SAE 1065 CARBON STEEL
- MEETS MIL SPEC. 17919
- STAINLESS STEEL EYELET

STANDARD ALL STEEL BATTERY HOLDERS

Ideal for Nickel Cadmium Alkaline, mercury, and carbon zinc cells. Made of SAE 1065. Carbon Steel to MIL Spec. 17919, heat treated to spring temper and nickel plated .0002 thick. Stainless steel eyelet, moisture proof vulcoid washers and a coated copper solder lug compose the contact assembly. 2 mounting holes (**) Side by side clips mounted on phenolic 1/16" thick MIL Spec. 3115B. † End to end insulating tubes furnished.

PENCELL HOLDERS—ALL CONTACTS INSULATED

All Batteries listed below fit all sizes of Type No's.	Stock No.	Type	Cells	1-19	20-99	100-249
Eveready: E9, E12,	35F1550	2139	1	.36	.32	.29
E91, E133, E502, N46,	35F1551	2140*	2**	.55	.52	.44
515, 915, 1015, BA58	35F1552	2171*	3**	.85	.79	.67
Burgess: Z, HG9,	35F1553	2182*	4**	.97	.91	.79
CD6, 9R, HG12R,	35F1554	2189†	2	1.03	.97	.91
H133, HG502R	35F1555	2191†	3	.55	.48	.46
920, 830	35F1556	2194†	4	.67	.61	.57

"C" CELL HOLDERS

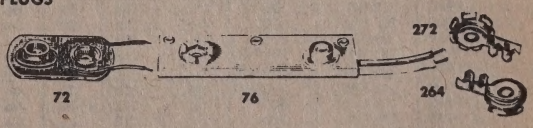
	35F1557	2173	1	.85	.79	.67
Burgess: 1, P6, 120,	35F1558	2174*	2**	.68	.62	.59
130, H233, 302599	35F1559	2187*	3**	.97	.91	.85
Eveready: E93, 226,	35F1560	2188*	4**	1.27	1.15	1.04
E233, 635, 935,	35F1561	2185†	2	.64	.59	.52
1035, BA42	35F1562	2195†	3	.67	.61	.57
	35F1563	2198†	4	.73	.69	.64

"D" CELL HOLDERS

	35F1564	2175	1	.43	.41	.37
Burgess: 2, 2R, CD7,	35F1565	2176*	2**	.68	.62	.59
210, 230	35F1566	2190*	3**	1.03	.97	.91
Eveready: BA30,	35F1567	2192*	4**	1.27	1.15	1.04
E42, N56, E95, D99,	35F1568	2186†	2	.64	.59	.52
A100, 950, 1050	35F1569	2199†	3	.75	.71	.66
	35F1570	2162†	4	.79	.75	.67

BATTERY PLUGS

Stk. No.	Type	For Use With	1-19	20-99	100-249
39F839	272	67½ B"	.09	.08	.06
39F840	264	67½ B"	.09	.08	.06
35F1681	72	9-volt	.27	.25	.19
35F1683	74	67½ B"	.30	.26	.24
35F1684	77	90 B"	.35	.30	.28
35F1682	76	67½ B"	.35	.28	.26

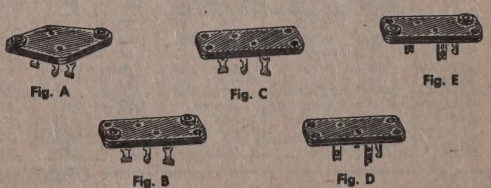


Plated brass pin mounted on laminated bakelite.

POWER TRANSISTOR AND SILICON CONTROL RECTIFIER SOCKETS

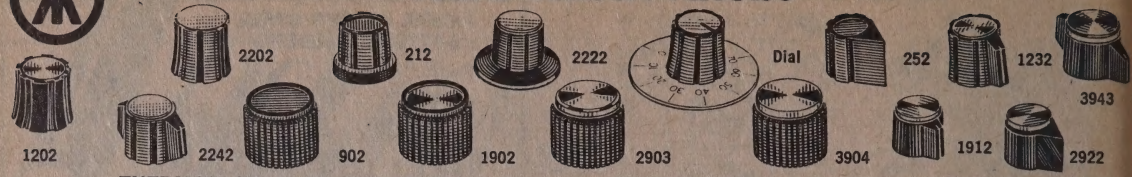
Standardized power transistor sockets for TO-3 case. Low cost. Corrosion resistant and cadmium plated for better solderability. Meets EIA solderability Spec RS178A. Spring brass contacts provide contact immediately upon insertion. Hard steel collector plates with 6-20 threaded formings to hold secure with maximum torque of 9 lbs.

Sockets for TO-66 case or SCR. Pre-assembled to chassis by either eyelets or rivets permit installation of semiconductor at later stage of assembly. Eliminates need of washers or bushings.



Stk. No.	Type	Case	Material	Fig.	Base Heights	Color	1-19	20-99	100-249
35F1170	4601	TO-3	Nylon top, Phenolic base	A	.090	Natural	.24	.22	.17
35F1171	4607	TO-3	Nylon top, Phenolic base	B	.030	Black	.25	.23	.17
35F1172	4608	TO-3	Nylon top, Phenolic base	B	.045	Natural	.25	.23	.17
35F1173	4609	TO-3	Nylon top, Phenolic base	B	.060	Blue	.25	.23	.17
35F1174	4610	TO-3	Nylon top, Phenolic base	B	.090	Green	.25	.23	.17
35F1175	4618	TO-3	Nylon top, Phenolic base	B	.125	Red	.25	.23	.17
35F1176	4606	TO-3	All Phenolic	C	....	.....	.23	.21	.15
35F1177	4603	TO-3	Nylon top, Phenolic base	B	.030	Green	.24	.22	.17
35F1178	4602	TO-3	Nylon top, Phenolic base	B	.045	Blue	.24	.22	.17
35F1179	4615	TO-66	Nylon top,	D	...	.....	.30	.26	.20
35F1180	4625	TO-66	Phenolic base	E	.080	.....	.30	.28	.20

Kurz-Kasch Knobs



THERMOPLASTIC ROUND KNOBS

Stock No.	Type	Top	Dimensions W x H (In.)	EACH 1-99	100-499	500-999
47F900	202-3	molded	.520 x .656	1.52	1.04	.67
47F901	203-3	molded	.710 x .656	1.54	1.06	.68
47F902	204-3	molded	.900 x .656	1.57	1.08	.69
47F903	205-3	molded	1.188 x .656	1.95	1.34	.86
47F904	206-3	molded	1.860 x .656	2.03	1.40	.89
47F905	1202-3	inlay	.520 x .656	1.84	1.27	.81
47F906	1203-3	inlay	.710 x .656	1.87	1.29	.82
47F907	1204-3	inlay	.900 x .656	1.90	1.31	.83
47F908	1205-3	inlay	1.188 x .656	2.30	1.58	1.01
47F909	1206-3	inlay	1.860 x .656	2.38	1.64	1.04
47F910	2202-3	color cap	5.20 x .656	1.85	1.28	.81
47F911	2203-3	color cap	.710 x .656	1.88	1.29	.82
47F912	2204-3	color cap	.900 x .656	1.91	1.31	.84

THERMOPLASTIC SKIRTED KNOBS

Stock No.	Type	Top	Dimensions W x H (In.)	EACH 1-99	100-499	500-999
47F913	212-3	molded	.620 x .656	1.68	1.16	.74
47F914	213-3	molded	.840 x .656	1.71	1.18	.75
47F915	214-3	molded	1.050 x .656	1.74	1.20	.76
47F916	1212-3	inlay	.620 x .656	2.01	1.39	.88
47F917	1213-3	inlay	.840 x .656	2.04	1.40	.89
47F818	1214-3	inlay	1.050 x .656	2.07	1.42	.91
47F919	2212-3	color cap	.620 x .656	2.02	1.39	.89
47F920	2213-3	color cap	.840 x .656	2.04	1.41	.90
47F921	2214-3	color cap	1.050 x .656	2.08	1.43	.91
47F922	222-3	molded	.875 x .656	1.68	1.16	.74
47F923	223-3	molded	1.125 x .656	1.71	1.18	.75
47F924	224-3	molded	1.500 x .656	1.74	1.20	.76
47F925	1222-3	inlay	.875 x .656	2.01	1.39	.88
47F926	1223-3	inlay	1.125 x .656	2.04	1.40	.89
47F927	1224-3	inlay	1.500 x .656	2.07	1.42	.91
47F928	2222-3	color cap	.875 x .656	2.02	1.39	.89
47F929	2223-3	color cap	1.125 x .656	2.04	1.41	.90
47F930	2224-3	color cap	1.500 x .656	2.08	1.43	.91

CLEAR LEXAN DIAL STYLES

Stock No.	Type	Center	Dia.*	EACH 1-99	100-499	500-999
47F987	200 (1")	.520"	1"	.13	.09	.06
47F988	200 (1⅛")	.520"	1⅛"	.13	.09	.06
47F989	200 (1¼")	.520"	1¼"	.13	.09	.06
47F990	200 (1⅜")	.710"	1⅜"	.13	.09	.06
47F991	200 (1½")	.710"	1½"	.13	.09	.06
47F992	200 (1⅝")	.710"	1⅝	.13	.09	.06
47F993	200 (1¾")	.900"	1¾"	.13	.09	.06
47F995	200 (2")	.900	2	.13	.09	.06
47F996	200 (2½")	.900	2½	.13	.09	.06

*Match to Round Knob diameter "W" dimension.

THERMOPLASTIC POINTER AND BAR KNOBS

Stock No.	Type	Top	Dimensions W x H (In.)	EACH 1-99	100-499	500-999
47F933	252-3	molded	.760 x .656	1.52	1.04	.67
47F934	253-3	molded	1.065 x .656	1.54	1.06	.68
475935	1252-3	inlay	.76 x .656	1.84	1.27	.81
47F936	1253-3	inlay	1.065 x .656	1.87	1.29	.82
47F937	2252-3	color cap	.760 x .656	1.85	1.28	.81
47F938	2253-3	color cap	1.065 x .656	1.88	1.29	.82
47F939	232-3L	molded	.610 x .656	1.76	1.21	.77
47F940	233-3L	molded	.830 x .656	1.79	1.23	.82
47F941	1232-3L	inlay	.610 x .656	2.08	1.43	.91

THERMOPLASTIC POINTER AND BAR KNOBS

Stock No.	Type	Top	Dimensions W x H (In.)	EACH 1-99	100-499	500-999
475942	1233-3L	inlay	.830 x .656	2.11	1.45	.93
47F943	2232-3L	color cap	.610 x .656	2.10	1.45	.92
47F944	2233-3L	color cap	.830 x .656	2.12	1.46	.93
47F945	242-3L	molded	.875 x .656	1.76	1.21	.77
47F946	243-3L	molded	1.125 x .656	1.82	1.25	.80
47F947	1242-3L	inlay	.875 x .656	2.08	1.43	.91
47F948	1243-3L	inlay	1.125 x .656	2.15	1.48	.94
47F949	2242-3L	color cap	.875 x .656	2.10	1.45	.92
47F950	2243-3L	color cap	1.125 x .656	2.16	1.48	.95

DESIGNER ROUND, POINTER AND BAR KNOBS

Stock No.	Type	Top	Dimensions W x H (In.)	EACH 1-99	100-499	500-999
47F951	901-203	molded	9/32 x ⅝	.84	.60	.36
35F3201	902-21	molded	½ x ⅝	.86	.61	.37
47F952	911-1	molded	9/16 x ⅝	.87	.62	.37
35F3202	903-1	molded	¾ x ⅝	.77	.55	.33
35F3204	904-1	molded	⅞ x ⅝	.77	.55	.33
35F3206	905-1	molded	1⅛ x 11/16	1.10	.78	.47
35F3208	906-1	molded	1⅜ x ¾	1.33	.95	.57
35F3210	907-1	molded	1¾ x 13/16	1.40	1.00	.60
35F3213	1902-21L	inlay	½ x ⅝	1.38	.98	.59
47F953	1911-1L	inlay	9/16 x ⅝	1.38	.98	.59
35F3214	1903-1L	inlay	¾ x ⅝	1.30	.93	.56
35F3216	1904-1L	inlay	⅞ x ⅝	1.30	.93	.56
35F3218	1905-1L	inlay	1⅛ x 11/16	1.60	1.14	.69
35F3220	1906-1L	inlay	1⅜ x ¾	1.95	1.39	.84
35F3222	1907-1L	inlay	1¾ x 13/16	2.06	1.47	.88
35F3225	2902-21L	cap	½ x ⅝	1.38	.99	.60
47F954	2911-1L	cap	9/16 x ⅝	1.38	.99	.60
35F3226	2903-1L	cap	¾ x ⅝	1.35	.96	.58
35F3228	2904-1L	cap	⅞ x ⅝	1.34	.96	.58
35F3230	2905-1L	cap	1⅛ x 11/16	1.61	1.15	.69
35F3232	2906-1L	cap	1⅜ x ¾	1.98	1.41	.85
35F3234	2907-1L	cap	1¾ x 13/16	2.05	1.46	.88
47F955	3902-21L	bevel	½ x ⅝	1.87	1.34	.81
47F956	3911-	bevel	9/16 x ⅝	1.79	1.28	.77
47F957	3903-1	bevel	¾ x ⅝	1.71	1.22	.74
47F958	3904-1	bevel	⅞ x ⅝	1.73	1.23	.74
47F959	3905-1	bevel	1⅛ x 11/16	1.99	1.42	.85
47F962	912-1L	molded	21/32 x ⅝	1.03	.73	.44
47F963	913-1L	molded	⅞ x ⅝	.92	.66	.40
47F964	922-1	molded	29/32 x ⅝	.98	.70	.42
47F965	923-1	molded	1⅛ x ⅝	1.17	.84	.51
47F966	943-3L-BB	molded	1⅛ x ⅝	2.00	1.43	.86
47F967	953-3L-BB	molded	1½ x ⅝	2.30	1.64	.99
47F968	1912-1L	inlay	21/32 x ⅝	1.36	.97	.59
47F969	1913-1L	inlay	⅞ x ⅝	1.25	.89	.54
47F970	1922-1	inlay	29/32 x ⅝	1.31	.93	.56
47F971	1923-1	inlay	1⅛ x ⅝	1.50	1.07	.65
47F972	1943-3L-BB	inlay	1⅛ x ⅝	2.34	1.67	1.00
47F973	1953-3L-BB	inlay	1½ x ⅝	2.63	1.88	1.13
47F974	2912-1L	cap	21/32 x ⅝	1.43	1.02	.62
47F975	2913-1L	cap	⅞ x ⅝	1.33	.95	.57
47F977	2922-1	cap	29/32 x ⅝	1.38	.98	.59
47F978	2923-1	cap	1⅛ x ⅝	1.58	1.13	.68
47F979	2943-3L-BB	cap	1⅛ x ⅝	2.41	1.72	1.04
47F980	2953-3L-BB	cap	1½ x ⅝	2.73	1.95	1.17
47F981	3912-1L	bevel	21/32 x ⅝	1.97	1.41	.85
47F982	3913-1L	bevel	⅞ x ⅝	1.86	1.33	.80
47F983	3922-1	bevel	29/32 x ⅝	1.92	1.37	.82
47F984	3923-1	bevel	1⅛ x ⅝	2.11	1.51	.91
47F985	3943-3L-BB	bevel	1⅛ x ⅝	2.94	2.10	1.26
47F986	3953-3L-BB	bevel	1½ x ⅝	3.25	2.32	1.40

ORDERING INFORMATION

Thermoplastic Shaft Holes

Suffix Code:
Standard —
—1 = Molded hole to fit ¼" shaft
—3 = Flush brass insert to fit ¼" shaft*
—21 = Molded hole to fit ⅛" shaft
Special Order —
—5 = Flush brass insert to fit ⅛" shaft*
—35 = Push-on molded hole to fit nylon serrated shafts
—214 = ¼" wraparound spring flatted to .156"

L = Indicator line on cap or inlay
DL = Indicator dot on cap
*All knobs ordered with brass inserts are furnished with 2 socket head type black oxide setscrews as standard.
All knobs are also available with a single setscrew.
Standard Cap Color:
R = Flame red
Available on Special Order: B = Robin's egg blue
G = Jet gray M = Moss green Y = Sunlight yellow

Kurz-Kasch Knobs

32013

32113

33013

33113

36013

37013

38013

38113

SMALL FLUTED ALUMINUM KNOBS

Stock No.	Type	Dimensions Dia. x H (In.)	Color	1-99	100-249	250-499
47F1004	32013	½ x ⅝	Silver	.94	.84	.78
47F1005	32019	¾ x ⅝	Silver	1.05	.94	.88
47F1006	32022	⅞ x ⅝	Silver	1.27	1.13	1.06
47F1007	32025	1 x ⅝	Silver	1.44	1.29	1.20
47F1008	32113	½ x ⅝	Black	1.00	.89	.84
47F1009	32119	¾ x ⅝	Black	1.13	1.00	.93
47F1010	32122	⅞ x ⅝	Black	1.34	1.19	1.12
47F1011	32125	1 x ⅝	Black	1.55	1.38	1.30

FULL KNURLED ALUMINUM KNOBS

Stock No.	Type	Dimensions Dia. x H (In.)	Color	1-99	100-249	250-499
47F1012	33013	½ x ⅝	Silver	.84	.74	.70
47F1013	33019	¾ x ⅝	Silver	.93	.83	.78
47F1014	33022	⅞ x ⅝	Silver	1.11	.99	.92
47F1015	33025	1 x ⅝	Silver	1.32	1.17	1.11
47F1016	33113	½ x ⅝	Black	.88	.78	.74
47F1017	33119	¾ x ⅝	Black	1.00	.89	.84
47F1018	33122	⅞ x ⅝	Black	1.20	1.07	1.01
47F1019	33125	1 x ⅝	Black	1.28	1.23	1.15

SMOOTH BODY ALUMINUM KNOBS

Stock No.	Type	Dimensions Dia. x H (In.)	Color	1-99	100-249	250 499
47F1020	36013	½ x ⅝	Sil./Blk.	.86	.76	.72
47F1021	36019	¾ x ⅝	Sil./Blk.	.96	.86	.80
47F1022	36022	⅞ x ⅝	Sil./Blk.	1.15	1.02	.96
47F1023	36025	1 x ⅝	Sil./Blk.	1.33	1.18	1.11
47F1024	37013	½ x ⅝	Blk./Sil.	.84	.78	.70
47F1025	37019	¾ x ⅝	Blk./Sil.	.93	.83	.78
47F1026	37022	⅞ x ⅝	Blk./Sil.	1.08	.97	.91
47F1027	37025	1 x ⅝	Blk./Sil.	1.25	1.11	1.04
47F1028	38013	½ x ⅝	Silver	.78	.70	.65
47F1029	38019	¾ x ⅝	Silver	.89	.79	.75
47F1030	38022	⅞ x ⅝	Silver	1.05	.94	.88
47F1031	38025	1 x ⅝	Silver	1.25	1.11	1.04
47F1032	38113	½ x ⅝	Black	.79	.71	.66
47F1033	38119	¾ x ⅝	Black	.96	.86	.80
47F1034	38122	⅞ x ⅝	Black	1.13	1.00	.93
47F1035	38125	1 x ⅝	Black	1.34	1.20	1.13

ORDERING INFORMATION

Designer Series—Suffix Data: -1 Molded hole to fit ¼" shaft. -3 Flush brass insert to fit ¼" shaft. Other shaft hole sizes available. Last two digits of type no. indicate knob diameter in millimeters.

Shaft holes standard for ¼". Shaft hole reducers for ⅛" shaft may be purchased separately.

Contact Newark for full color catalog of knobs.

HARRY DAVIES

AA

BB

A

B

C

D

E

F

G

H

I

J

POINTER KNOBS

Black phenolic knobs for volume and tone controls. All have white indicator lines. Will fit ¼" shaft. *Brass insert. †2 oz. ‡1 oz.

Stock No.	Type	Fig.	Size In.	1-99	100-499	500-999
26F100	2300	AA‡	1¼	.20	.13	.11
26F101	2300*	AA‡	1¼	.35	.24	.20
26F102	2350*	BB‡	2	.47	.32	.27
26F103	2350	BB‡	2	.33	.22	.19
26F107	2150	A†	1¼	.26	.18	.15
26F115	1550	B†	1⅛	.25	.17	.14
26F116	1550*	B†	1⅛	.41	.27	.23
26F117	1500	C†	1⅛	.27	.18	.16
26F214	1510	C†	¾	.34	.23	.20

KNOBS WITH SKIRTS

For use on ¼" shaft.

Stock No.	Type	Fig.	Dia. Skirt	1-99	100-499	500-999
26F022	4108	J	2 1/16"	1.44	.96	.82
26F024	4104	J	1½"	1.25	.84	.72

CONTROL KNOBS

Black phenolic knobs for all control and indicating uses. For ¼" shaft. Set screw furnished. Types 1470 and 1400 have molded pointers. Type 1610 has paint filled indicator lines on skirt. Wt. 1 oz.

Stock No.	Type	Fig.	Bot. Dia.	Hole Depth	1-99	100-499	500-999
26F110	1470	D	1"	7/16"	.32	.21	.18
26F109	1475	E	1"	7/16"	.25	.17	.14
26F123	1450	E	1 1/16"	11/32"	.17	.12	.10
26F122	1400	D	1 1/16"	11/32"	.17	.12	.10
26F120	1610	G	29/32"	7/16"	.30	.20	.18

FINGER GRIP KNOBS

Finger Grip Knobs. Are Black phenolic fluted knobs for use on ¼" shafts. Set screw mounting. *Brass insert. Shpg. Wt., 1 oz.

Stock No.	Type	Fig.	Knob Size Dia.	Ht.	Hole Size	1-99	100-499	500-999
26F126	1910	G	¾"	½"	¼"	.35	.24	.20
26F127	1910*	G	¾"	½"	¼"	.71	.48	.41
26F140	1914*	F	¾"	½"	¼"	.78	.52	.45
26F135	1919	H	1¼"	5/8"	¼"	.48	.32	.28
26F136	1919*	H	1¼"	5/8"	¼"	.66	.44	.38

INSTRUMENT KNOBS

Black phenolic finger grip knobs for use on ¼" shafts. Complete with brass insert and set screw. Shpg. Wt., 3 oz.

Stock No.	Type	Fig.	Dia. Knob	1-99	100-499	500-999
26F014	4102	I	1⅝	.69	.46	.40
26F016	4100	I	1⅛	.61	.41	.35

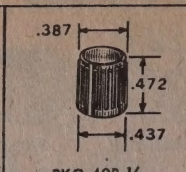
LEVER KNOBS

K

Black phenolic lever knobs for any lever application. Fit ¼" shaft. Furnished with set screw. *Brass insert. Meets Mil specs. Wt., 2 oz.

Stock No.	Type	Fig.	Size	1-99	100-499	500-999
26F111	2100*	K	2½"	.48	.32	.28
26F112	2100	K	2½"	.34	.23	.20
26F113	2110*	K	1⅝"	.49	.33	.28
26F114	2110	K	1⅝"	.34	.23	.19

Plastic Knobs



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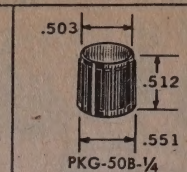

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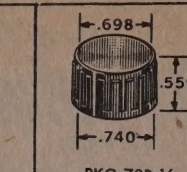

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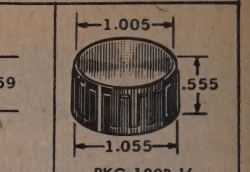

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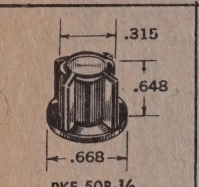

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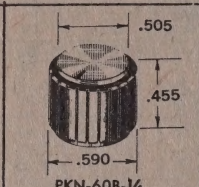

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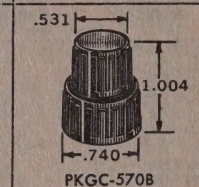

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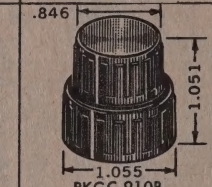

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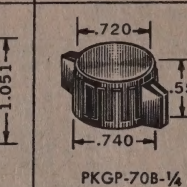

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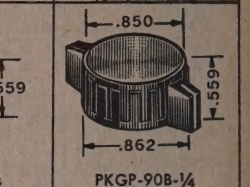

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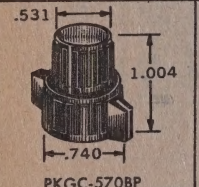

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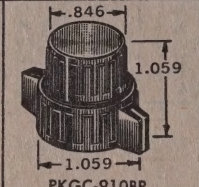

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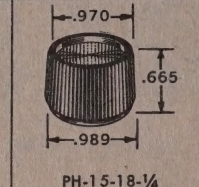

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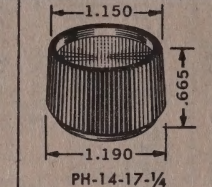

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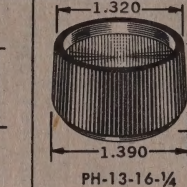

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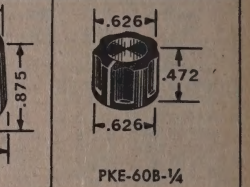

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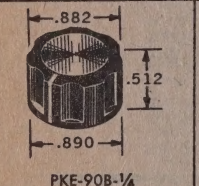

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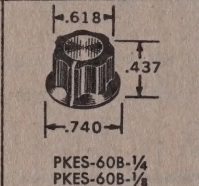

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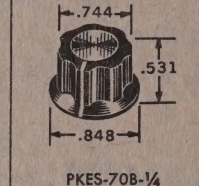
PKES-60B-⅛



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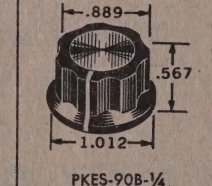

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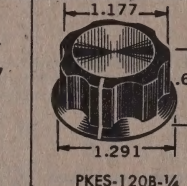

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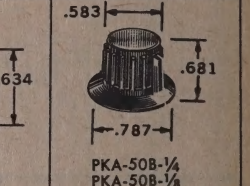
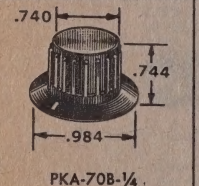


PKA-50B-¼
PKA-50B-⅛



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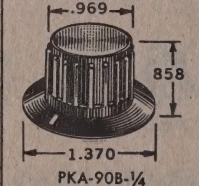

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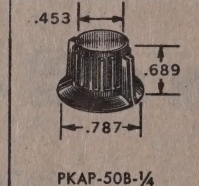

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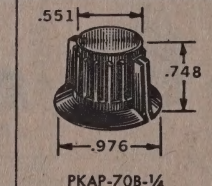

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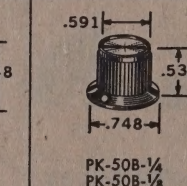
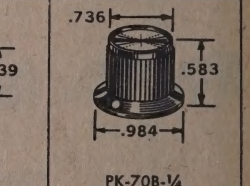


PK-50B-¼
PK-50B-⅛



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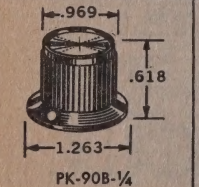

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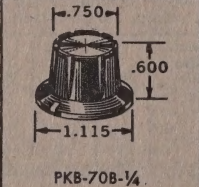

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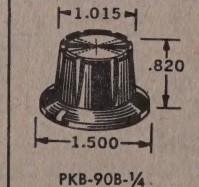

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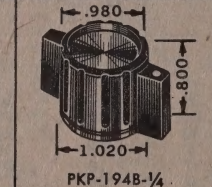

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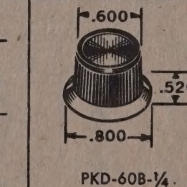

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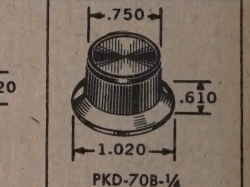

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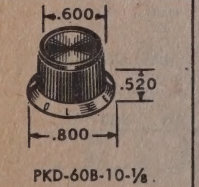

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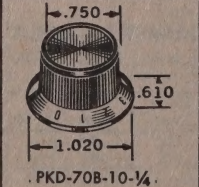

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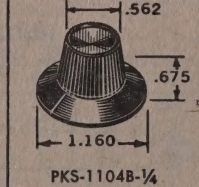

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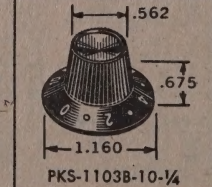

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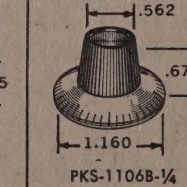

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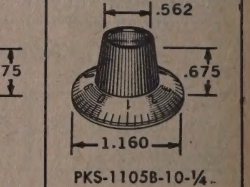

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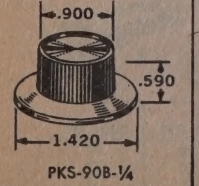

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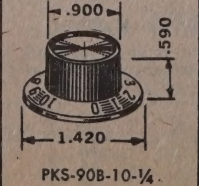

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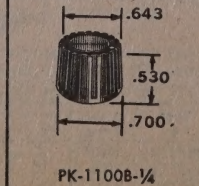

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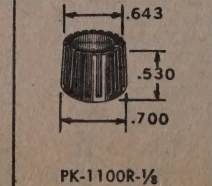

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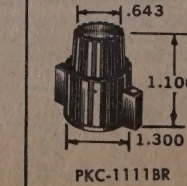


PKC-1111BR

FOR ORDERING INFORMATION SEE PAGE 672

Aluminum Knobs

ALCO

FOR ORDERING INFORMATION SEE PAGE 672

Knobs

PLASTIC KNOBS WITH ALUMINUM INLAYS

Stock No.	Type* No.	Description	1-99	100-249	250-499	500-999
57F2368	PKG-40B-⅛	Straight Knurl	.55	.50	.47	.44
57F2370	PKG-50B-¼	Straight Knurl	.60	.54	.51	.48
57F2369	PKG-50B-⅛	Straight Knurl	.60	.54	.51	.48
57F2371	PKG-70B-¼	Straight Knurl	.65	.59	.55	.52
57F2372	PKG-100B-¼	Straight Knurl	.95	.86	.81	.76
57F2376	PKGC-570B†	Straight Knurl	1.25	1.13	1.06	1.00
57F2375	PKGC-910B†	Straight Knurl	1.55	1.40	1.32	1.24
20F957	PKNT-60B-⅛	Straight Knurl	.70	.63	.60	.56
20F958	PKNT-60B-¼	Straight Knurl	.70	.63	.60	.56
20F959	PKNT-70B-¼	Straight Knurl	.75	.68	.64	.60
20F960	PKNT-90B-¼	Straight Knurl	.85	.77	.72	.68
57F2374	PKGP-70B-¼	Strght. w/Pntr.	.80	.72	.68	.64
57F2377	PKGP-90B-¼	Strght. w/Pntr.	.90	.81	.77	.72
57F2378	PKGC-570BP†	Strgth. w/Pntr.	1.30	1.17	1.11	1.04
57F2350	PH-15-18¼	Tuning Knob	.40	.36	.34	.32
57F2351	PH-14-17¼	Tuning Knob	.45	.41	.38	.36
57F2352	PH-13-16¼	Tuning Knob	.50	.45	.43	.40
57F2343	PKE-60B-¼	Fluted Knob	.50	.45	.43	.40
57F2344	PKE-90B-¼	Fluted Knob	.65	.59	.55	.52
57F2346	PKES-60B-¼	Fluted w/Skirt	.55	.50	.47	.44
57F2345	PKES-60B-⅛	Fluted w/Skirt	.55	.50	.47	.44
57F2347	PKES-70B-¼	Fluted w/Skirt	.65	.59	.55	.52
57F2348	PKES-90B-¼	Fluted w/Skirt	.70	.63	.60	.56
57F2349	PKES-120B-¼	Fluted w/Skirt	.85	.77	.72	.68
57F2357	PKA-50B-¼	Ribbed w/Skirt	.55	.50	.47	.44
57F2356	PKA-50B-⅛	Ribbed w/Skirt	.55	.50	.47	.44
57F2358	PKA-70B-¼	Ribbed w/Skirt	.65	.59	.55	.52
57F2435	PKN-60B-¼	Ribbed w/Pointer	.65	.59	.55	.52

(*) R=red. B=black. ¼, ⅛ =shaft dia./inches.
(†) Concentric-¼" shaft bottom, ⅛" shaft top.

Stock No.	Type* No.	Description	1-99	100-249	250-499	500-999
57F2436	PKN-70B-¼	Ribbed w/Pointer	.70	.63	.60	.56
57F2359	PKA-90B-¼	Ribbed w/Skirt	.96	.86	.81	.75
57F2373	PKAP-50B-¼	Ribbed w/Pntrs.	.65	.59	.55	.52
57F2360	PKAP-70B-¼	Ribbed w/Pntrs.	.85	.77	.72	.68
57F2334	PK-50B-¼	Strght. w/Skirt	.45	.41	.38	.36
57F2333	PK-50B-⅛	Strght. w/Skirt	.45	.41	.38	.36
57F2335	PK-70B-¼	Strght. w/Skirt	.50	.45	.43	.40
57F2336	PK-90B-¼	Strght. w/Skirt	.55	.50	.47	.44
57F2341	PKB-70B-¼	Fluted w/Skirt	.50	.45	.43	.40
57F2342	PKB-90B-¼	Fluted w/Skirt	.65	.59	.55	.52
57F2361	PKP-194B-¼	Bar Pointer	.85	.77	.72	.68
57F2337	PKD-60B-¼	Alum. Skirt	.55	.50	.47	.44
57F2338	PKD-70B-¼	Alum. Skirt	.60	.54	.51	.48
57F2339	PKD-60B-10⅛	0-10 Alum. Dial	.55	.50	.47	.44
57F2340	PKD-70B-10¼	0-10 Alum. Dial	.60	.54	.51	.48
57F2364	PKS-1104B-¼	Alum. Skirt	.55	.50	.47	.44
57F2365	PKS-1103B-10¼	0-10 Alum. Dial	.55	.50	.47	.44
57F2366	PKS-1106B-¼	Alum. Skirt	.65	.59	.55	.52
57F2367	PKS-1105B-10¼	0-10 Alum. Dial	.65	.59	.55	.52
57F2362	PKS-90B-¼	Alum. Skirt	.65	.59	.55	.52
57F2363	PKS-90B-10¼	0-10 Alum. Dial	.65	.59	.55	.52
57F2354	PK-1100B-¼	Control Knob	.45	.41	.38	.36
57F2353	PK-1100R-⅛	Control Knob	.45	.41	.38	.36
57F2355	PKC-1111BR†	Control Knob	1.00	.90	.85	.80
57F2424	PKF-50B-⅛	Smoothw/Indicator	.55	.50	.47	.44
57F2426	PKF-70B-¼	Ribbed w/Indicator	.60	.54	.51	.48
57F2427	PKF-70BP-¼	Ribbed w/Indicator	.70	.63	.60	.56
20F955	PKFC-57B	Concen. w/Pointer	1.15	1.04	.98	.92
20F956	PKFC-57BP	Inner-⅛ Outer-¼	1.25	1.13	1.09	1.00

ANODIZED ALUMINUM KNOBS

Stock No.	Type* No.	Description	1-99	100-249	250-499	500-999
61F1176	KN-500A-¼	Straight Knurl	1.05	.95	.89	.84
57F2288	KN-500B-¼	Straight Knurl	1.05	.95	.89	.84
61F1177	KN-500A-⅛	Straight Knurl	1.05	.95	.89	.84
57F2287	KN-500B-⅛	Straight Knurl	1.05	.95	.89	.84
61F1178	KN-700A-¼	Straight Knurl	1.10	.99	.94	.88
57F2289	KN-700B-¼	Straight Knurl	1.10	.99	.94	.88
61F1179	KN-900A-¼	Straight Knurl	1.30	1.17	1.11	1.04
57F2290	KN-900B-¼	Straight Knurl	1.30	1.17	1.11	1.04
61F1180	KN-1250A-¼	Straight Knurl	1.85	1.67	1.57	1.48
57F2292	KN-1250B-¼	Straight Knurl	1.85	1.67	1.57	1.48
57F2410	KN-1251A-¼	less hairline	1.80	1.62	1.53	1.44
57F2411	KN-1251B-¼	less hairline	1.80	1.62	1.53	1.44
57F2295	KN-1751AS-¼	less hairline	3.35	3.02	2.85	2.68
57F2296	KN-1751BS-¼	less hairline	3.35	3.02	2.85	2.68
61F1181	KN-500AB-¼	Straight Knurl	1.30	1.17	1.11	1.04
57F2412	KN-500BA-¼	Straight Knurl	1.30	1.17	1.11	1.04
57F2297	KN-500AB-⅛	Straight Knurl	1.30	1.17	1.11	1.04
57F2298	KN-500BA-⅛	Straight Knurl	1.30	1.17	1.11	1.04
61F1182	KN-700AB-¼	Straight Knurl	1.40	1.26	1.19	1.12
57F2413	KN-700BA-¼	Straight Knurl	1.40	1.26	1.19	1.12
61F1183	KN-900AB-¼	Straight Knurl	1.60	1.44	1.36	1.28
57F2300	KN-900BA-¼	Straight Knurl	1.60	1.44	1.36	1.28
57F2301	KN-1250AB-¼	Straight Knurl	2.10	1.89	1.79	1.68
57F2302	KN-1250BA-¼	Straight Knurl	2.10	1.89	1.79	1.68
57F2416	KN-1751ABS-¼	less hairline	3.45	3.11	2.93	2.76
57F2417	KN-1751BAS-¼	less hairline	3.45	3.11	2.93	2.76
57F2418	KN-501BA-¼	w/Arrowhead	1.30	1.17	1.11	1.04
57F2307	KN-501BA-⅛	w/Arrowhead	1.30	1.17	1.11	1.04
57F2309	KN-701BA-¼	w/Arrowhead	1.35	1.22	1.15	1.08
57F2308	KN-701BA-⅛	w/Arrowhead	1.35	1.22	1.15	1.08
57F2313	KPN-500A-¼	w/Pointer	2.30	2.07	1.96	1.84
57F2314	KPN-500B-¼	w/Pointer	2.30	2.07	1.96	1.84
57F2319	KPN-900B-¼	w/Pointer	3.05	2.75	2.59	2.44
57F2305	KN-5700A†	Straight Knurl	2.30	2.07	1.96	1.84
57F2306	KN-5700B†	Straight Knurl	2.30	2.07	1.96	1.84
57F2311	KNS-501BA-¼	Skirt w/Arrowhd.	1.55	1.40	1.32	1.24
57F2310	KNS-501BA-⅛	Skirt w/Arrowhd.	1.55	1.40	1.32	1.24
57F2312	KNS-701BA-¼	Skirt w/Arrowhd.	1.70	1.53	1.45	1.36
57F2315	KPN-700A-¼	w/Pointer	2.45	2.21	2.08	1.96
57F2316	KPN-700B-¼	w/Pointer	2.45	2.21	2.08	1.96
57F2317	KPN-700AB-¼	w/Pointer	2.75	2.48	2.34	2.20
57F2318	KPN-700BA-¼	w/Pointer	2.75	2.48	2.34	2.20
57F2320	KPN-900BA-¼	w/Pointer	3.35	3.02	2.85	2.68

(*) A=Aluminum, black indicator. B=Black, white ind. G=Gold, red ind. AB=Nat. body, black top and ind. BA=Black body, nat. top, white ind. (†) Concentric, ¼" shaft bottom, ⅛" top. S=spinner

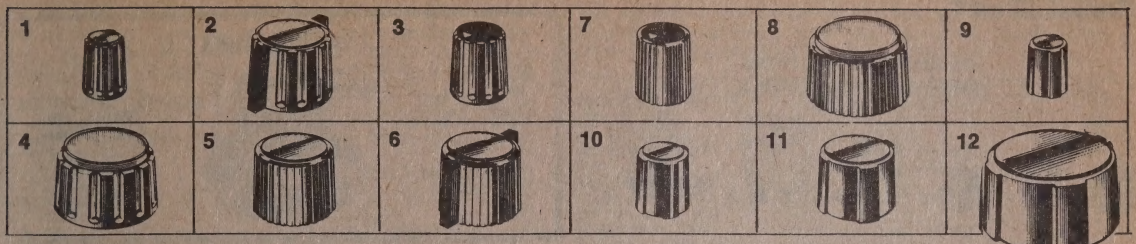
Stock No.	Type* No.	Description	1-99	100-249	250-499	500-999
57F2322	KB-500A-¼	Contrl. w/Knurl	1.05	.95	.89	.84
57F2419	KB-500B-¼	Contrl w/Knurl	1.05	.95	.89	.84
57F2321	KB-500A-⅛	Contrl. w/Knurl	1.05	.95	.89	.84
57F2323	KB-500B-⅛	Contrl. w/Knurl	1.05	.95	.89	.84
61F920	KS-500A-¼	w/Skirt	1.25	1.13	1.06	1.00
61F921	KS-500B-¼	w/Skirt	1.25	1.13	1.06	1.00
57F2272	KS-500A-⅛	w/Skirt	1.25	1.13	1.06	1.00
57F2273	KS-500B-⅛	w/Skirt	1.25	1.13	1.06	1.00
61F941	KS-700A-¼	w/Skirt	1.50	1.35	1.28	1.20
61F942	KS-700B-¼	w/Skirt	1.50	1.35	1.28	1.20
57F2406	KS-900A-¼	w/Skirt	1.85	1.67	1.57	1.48
57F2407	KS-900B-¼	w/Skirt	1.85	1.67	1.57	1.48
61F922	KSP-700A-¼	w/Acrylic Skirt	1.35	1.22	1.15	1.08
61F923	KSP-700B-¼	w/Acrylic Skirt	1.35	1.22	1.15	1.08
61F943	KSP-900A-¼	w/Acrylic Skirt	1.55	1.40	1.32	1.24
61F918	K-500B-¼	Industrial Use	.95	.86	.81	.76
57F2265	K-500A-⅛	Industrial Use	.95	.86	.81	.76
57F2266	K-500B-⅛	Industrial Use	.95	.86	.81	.76
61F937	K-700A-¼	Industrial Use	1.05	.95	.89	.84
61F938	K-700B-¼	Industrial Use	1.05	.95	.89	.84
61F939	K-900A-¼	Industrial Use	1.20	1.08	1.02	.96
57F2267	K-1250A-¼	Industrial Use	1.70	1.53	1.45	1.36
57F2269	K-1251AS-¼	less hairline	2.25	2.03	1.91	1.80
61F1171	KD-500A-¼	Diamond Knurl	1.05	.95	.89	.84
57F2284	KD-500B-¼	Diamond Knurl	1.05	.95	.89	.84
61F1172	KD-500A-⅛	Diamond Knurl	1.05	.95	.89	.84
57F2423	KD-500B-⅛	Diamond Knurl	1.05	.95	.89	.84
61F1173	KD-700A-¼	Diamond Knurl	1.10	.99	.94	.88
57F2285	KD-700B-¼	Diamond Knurl	1.10	.99	.94	.88
61F1174	KD-900A-¼	Diamond Knurl	1.30	1.17	1.11	1.04
57F2422	KD-900B-¼	Diamond Knurl	1.30	1.17	1.11	1.04
61F1175	KD-1250A-¼	Diamond Knurl	1.75	1.58	1.49	1.40
57F2286	KD-1250B-¼	Diamond Knurl	1.75	1.58	1.49	1.40
57F2270	K-5700A	Concentric	2.05	1.85	1.74	1.64
57F2271	K-5700B	Concentric	2.05	1.85	1.74	1.64
57F2276	KHF-500A-¼	Hi-Fi Knob	.90	.81	.77	.72
57F2278	KHF-700A-¼	Hi-Fi Knob	1.00	.90	.85	.80
57F2279	KHF-700G-¼	Hi-Fi Knob	1.00	.90	.85	.80
57F2280	KHF-900A-¼	Hi-Fi Knob	1.15	1.04	.98	.92
57F2281	KHF-900G-¼	Hi-Fi Knob	1.15	1.04	.98	.92
57F2282	KHF-1250A-¼	Hi-Fi Knob	1.55	1.40	1.32	1.24
57F2283	KHF-1250G-¼	Hi-Fi Knob	1.55	1.40	1.32	1.24
57F2324	KBS-500A-¼	w/Skirt	1.45	1.31	1.23	1.16
57F2325	KBS-500A-10¼	w/Dial Face	1.70	1.53	1.45	1.36
57F2326	KBS-500B-10¼	w/Dial Face	1.70	1.53	1.45	1.36
20F947	KLN-500A-¼	Hi-Fi Knob	1.05	.95	.89	.84
20F948	KLN-500B-¼	Hi-Fi Knob	1.05	.95	.89	.84
20F949	KLN-700A-¼	Hi-Fi Knob	1.15	1.04	.98	.92
20F950	KLN-700B-¼	Hi-Fi Knob	1.15	1.04	.98	.92
20F951	KLN-900A-¼	Hi-Fi Knob	1.35	1.22	1.15	1.08
20F952	KLN-900B-¼	Hi-Fi Knob	1.35	1.22	1.15	1.08
20F953	KLN-1250A-¼	Hi-Fi Knob	1.90	1.71	1.62	1.52
20F954	KLN-1250B-¼	Hi-Fi Knob	1.90	1.71	1.62	1.52

KNOB ACCESSORIES

Stock No.	Type No.	Description	1-99	100-249	250-499	500-999
57F2329	KR-1	¼" to ⅛" reducer	.15	.14	.13	.12
57F2330	KR-2	¼" to 3/16" reducer	.15	.14	.13	.12

Collet Design Knobs

ALCO



Inner collet design, concealed by snap in cover, provides firm attachment to ¼" shaft without use of exposed set-screws offering protection from shock hazards.

STYLES

A—Plain fluted
B—Fluted with protruding pointer
C—Plain serrated
D—Serrated with protruding pointer
E—Plain modern
F—Modern with indicator line

CAPS

A—Lustrous modern styled
B—Black dome with indicator arrow
C—Flat matte aluminum inlay

Stk. No.	Fig.	Type	Dia. (In.)	CAPS	Mod.	1-99	100-249	250-499	500-999
20F842	1	AR1-352-W2-302	.591	A	A	.65	.59	.55	.52
20F843	1	AR1-452-W2-402	.827	A	A	.75	.68	.64	.60
20F844	1	AR1-552-W2-502	1.100	A	A	.90	.81	.77	.72
20F845	1	AR1-652-W2-602	1.420	A	A	1.p5	.95	.89	.84
20F846	2	AR4-352-W2-302	.591	A	B	.80	.72	.68	.64
20F847	2	AR4-452-W2-432	.827	A	B	.90	.81	.77	.72
20F848	2	AR4-552-W2-532	1.100	A	B	1.05	.95	.89	.84
20F849	3	AR1-352-W1-312	.591	B	A	.70	.63	.60	.56
20F850	3	AR1-452-W1-412	.827	B	A	.80	.72	.68	.64
20F851	3	AR1-552-W1-512	1.100	B	A	.95	.86	.81	.76
20F852	3	AR1-652-W1-612	1.420	B	A	1.10	.99	.94	.88
20F853	4	AR1-352-W2-302	.591	C	A	.75	.68	.64	.40
20F854	4	AR1-452-W3-402	.827	C	A	.90	.81	.77	.72
20F855	4	AR1-552-W3-502	1.100	C	A	1.05	.95	.89	.84
20F856	4	AR1-652-W3-602	1.420	C	A	1.25	1.13	1.06	1.00
20F857	5	AS1-352-W2-302	.591	A	C	.65	.59	.55	.52
20F858	5	AS1-452-W2-402	.827	A	C	.75	.68	.64	.60
20F859	5	AS1-552-W2-502	1.100	A	C	.90	.81	.77	.62
20F860	5	AS1-652-W2-602	1.420	A	C	1.05	.95	.89	.84
20F861	6	AS4-352-W2-302	.591	A	D	.80	.72	.68	.64
20F862	6	AS4-452-W2-432	.827	A	D	.90	.81	.77	.72

Stk. No.	Fig.	Type	Dia. (In.)	CAPS	Mod.	1-99	100-249	250-499	500-999
20F863	7	AS1-352-W1-312	.591	B	G	.70	.63	.60	.56
20F864	7	AS1-452-W1-412	.827	B	C	.80	.72	.68	.64
20F865	7	AS1-552-W1-512	1.100	B	C	.95	.86	.81	.76
20F866	7	AS1-652-W1-612	1.420	B	C	1.10	.99	.94	.88
20F867	8	AS1-352-W3-302	.591	C	C	.75	.68	.64	.60
20F868	8	AS1-452-W3-402	.827	C	C	.90	.81	.77	.72
20F869	8	AS1-552-W2-502	1.100	C	C	1.05	.95	.89	.84
20F870	8	AS1-652-W3-602	1.420	C	C	1.25	1.13	1.06	1.00
20F871	9	AT1-352-W2-302	.591	A	E	.70	.63	.60	.56
20F872	9	AT1-452-W2-402	.827	A	E	.80	.72	.68	.64
20F873	9	AT1-552-W2-502	1.100	A	E	.95	.86	.81	.76
20F874	9	AT1-652-W2-602	1.420	A	E	1.10	.99	.94	.88
20F875	10	AT2-352-W2-302	.591	A	F	.75	.68	.64	.60
20F876	10	AT2-452-W2-402	.827	A	F	.85	.77	.72	.68
20F877	10	AT2-552-W2-502	1.100	A	F	1.00	.90	.85	.80
20F878	10	AT2-652-W2-602	1.420	A	F	1.15	1.04	.98	.92
20F879	11	AT1-357-W2-307	.591	A	E	.75	.68	.64	.60
20F880	11	AT1-457-W2-407	.827	A	E	.85	.77	.72	.68
20F881	11	AT1-557-W2-507	1.100	A	E	1.00	.90	.85	.80
20F882	11	AT1-657-W2-607	1.420	A	E	1.15	1.04	.98	.92
20F883	12	AT2-357-W2-307	.591	A	F	.80	.72	.68	.64
20F884	12	AT2-457-W2-407	.827	A	F	.90	.81	.77	.72
20F885	12	AT2-557-W2-507	1.100	A	F	1.05	.95	.89	.84
20F886	12	AT2-657-W2-607	1.420	A	F	1.20	1.08	1.02	.96

Control Knobs, Jacks

RAYTHEON

DESIGNER SERIES 400 CONTROL KNOBS

A B C D

High impact acrylonitrile-styrene (ABS), with lustreless black, finish. Supplied with metal bushings and two set screws.

407 SERIES — ⅛" SHAFTS — .720 DIA.

Stk. No.	Type	Description	Fig.	1-99	100-199
26F671	407R1K1	Round	A	.57	.51
26F672	407D1K1	Round dial skirted	C	.61	.53

407 SERIES — ¼" SHAFTS — .720 DIA.

26F675	407R2K1	Round	A	.54	.48
26F676	407D2K1	Round dial skirted	C	.57	.51
26F678	407PD2K1	Bar pointer dial skirted	D	.72	.64

409 SERIES — ¼" SHAFTS — .875 DIA.

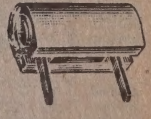
26F682	409R2K1	Round	A	.54	.48
26F683	409D2K1	Round dial skirted	C	.63	.56
26F685	409P2K1	Bar pointer	B	1.01	.89
26F687	409PF2K1	Bar pointer dial skirted	D	.72	.64

412 SERIES — ¼" SHAFTS — 1.25 DIA.

Stk. No.	Type	Description	Fig.	1-99	100-199
26F690	412R2K1	Round	A	.61	.53
26F692	412D2K1	Round dial skirted	C	.89	.79
26F695	412P2K1	Bar pointer	B	.58	.52
26F697	412PD2K1	Bar pointer dial skirted	D	.63	.56

RIGHT ANGLE PRINTED CIRCUIT TEST JACKS

Model MC123. Single .080" contact for use with closely spaced printed circuit boards. .3" mtg. centers. Rated: 5 amps. Oper. volts: 2000 RMS @ sea level. All metal surfaces are heavy gold over silver plating. Size: .231 x .48 x .449" Shpg. wt. 3 oz.



Stock No.	Type	Color	1-249	250-499	500-999	1000-2499
26F948	TJ201Y	Yellow	.35	.30	.28	.20
26F992	TJ203R	Red				
26F993	TJ2040R	Orange				
26F995	TJ206GN	Green				
26F996	TJ207MB	Marine Bl.				
26F997	TJ2085W	White				
26F294	TJ255BL	Black				
26F297	TJ258W	White				

PANEL BRACKETS

Formed from .090" cold-rolled carbon steel, the bracket is available in four sizes to accommodate panels ranging in width from 1⅜-3⅞". A pair of brackets will mount either one or two panels. Meet the requirements of MIL-E-16400A (ships). MIL-E-5400 and MIL-P-11268B (Sig. C) Cadmium plated. Shpg. wt. 3 oz.

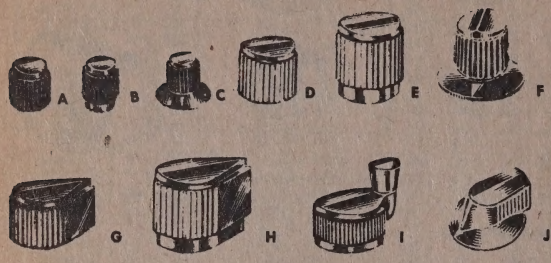
Stk. No.	Type	Wide Range	1-99	100-199	200-499
26F316	MB-125	1¾-1 15/16	.40	.34	.32
26F317	MB-126	2-2 1/16	.40	.34	.32
26F318	MB-127	2½-2 5/16	.43	.36	.34
26F319	MB-128	3-3 1/16	.67	.39	.34

17

RAYTHEON

Control Knobs

STANDARD CONTROL KNOBS
MEETS MS91528 REV C. SPECS.



Molded plastic knobs fitted with an aluminum insert. Two Allen head set screws fasten to the control shaft. * after type number indicates mirror finish for commercial equipment. G after type number indicates a non-reflecting "matte" finish, which conforms to military specifications. Ave. shpg. wt. 3 oz.

50 Series—.45" Dia. For ⅛" shafts

Stk. No.	Type	Description	Fig.	1-199	200-999	100-4999
26F194	50-1-1*	Unskirted knob	A	.83	.66	.62
26F195	50-1-1G	Unskirted knob	A	1.01	.81	.76
26F196	50-2-1*	Skirted knob	B	.83	.66	.62
26F197	50-2-1G	Skirted knob	B	1.17	.94	.88
26F198	50-3-1*	Dil. Skt. Rd. w/pt.	C	1.08	.86	.81
26F199	50-3-1G	Dil. Skt. Rd. w/pt.	C	1.21	.97	.91

70 Series—.72" Dia. ⅛" Shaft Knobs

26F339	70-1-1*	Round	D	.90	.73	.68
26F341	70-1-1G	Round	D	1.17	.94	.88
26F342	70-2-1G	Skirted Round	E	1.29	1.03	.97
26F343	70-3-1G	Dil. Skt. Rd. w/pt.	F	1.62	1.30	1.21
26F344	70-5-1*	Skirted Pointer	H	.90	.73	.68
26F345	70-4-1G	Pointer	G	1.17	.94	.88
26F346	70-5-1G	Skirted Pointer	H	1.28	1.02	.96

70 Series—.72" Dia. For ¼" shafts

26F150	70-1-2*	Round	D	1.19	.95	.89
26F151	70-1-2G	Round	D	1.35	1.08	1.01
26F152	70-2-2*	Skirted Round	E	1.24	.99	.94
26F153	70-2-2G	Skirted Round	E	1.40	1.12	1.05
26F154	70-3-2*	Dil. Skt. Rd. w/pt.	F	1.51	1.21	1.13
26F155	70-3-2G	Dil. Skt. Rd, w/pt.	F	1.54	1.23	1.16
26F156	70-4-2*	Pointer	G	1.10	.88	.83
26F157	70-4-2G	Pointer	G	1.24	.99	.94
26F158	70-5-2*	Skirted Pointer	H	1.24	.99	.94
26F159	70-5-2G	Skirted Pointer	H	1.40	1.12	1.05
26F673	70-8WL-2	Dil. Skt. Bar Pt.	J	2.06	1.65	1.54
26F674	70-8WL-2G	Dil. Skt. Bar Pt.	J	1.60	1.28	1.20

90 Series—.928" Dia. For ¼" shafts

26F160	90-1-2*	Round	D	1.10	.88	.83
26F161	90-1-2G	Round	D	1.32	1.06	.99
26F163	90-2-2G	Skirted Round	E	1.28	1.02	.96
26F164	90-3-2*	Dil. Skt. Rd. w/pt.	F	1.35	1.08	1.01
26F165	90-3-2G	Dil. Skt. Rd. w/pt.	F	1.61	1.29	1.21
26F166	90-4-2*	Pointer	G	1.24	.99	.94
26F167	90-4-2G	Pointer	G	1.42	1.13	1.07
26F168	90-5-2*	Skirted Pointer	H	.97	.77	.73
26F169	90-5-2G	Skirted Pointer	H	1.54	1.23	1.16

125 Series—1.269" Dia. For ¼" shafts

26F170	125-1-2	Round	D	1.18	.95	.88
26F174	125-3-2*	Dil. Skt. Rd. w/pt.	F	1.55	1.24	1.17
26F175	125-3-2G	Dil. Skt. Rd. w/pt.	F	1.68	1.34	1.27
26F176	125-6-2*	Crank	I	2.83	2.27	2.12
26F177	125-6-2G	Crank	I	3.30	2.64	2.48

125 Series—2.516" Dia. For ¼" shafts—No skirt

26F338	125-7-2G	Bar Pointer	...	1.85	1.47	1.39

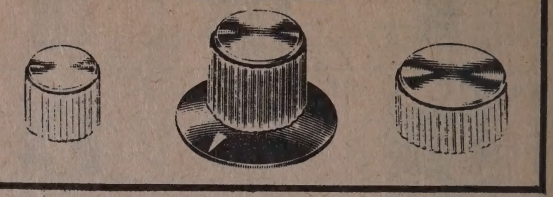
175 Series—1.772" Dia. For ¼" shafts

26F182	175-3-2*	Dil. Skt. Rd. w/pt.	E	1.96	1.56	1.47
26F183	175-3-2G	Dil. Skt. Rd. w/pt.	F	1.98	1.58	1.49
26F184	175-6-2*	Crank	I	3.10	2.49	2.33
26F185	175-6-2G	Crank	I	3.65	2.93	2.74

225 Series—2.272" Dia. For ¼" shafts

26F186	225-1-2*	Round	D	1.93	1.54	1.45
26F190	225-3-2*	Dil. Skt. Rd. w/pt.	F	2.35	1.88	1.77
26F191	225-3-2G	Dil. Skt. Rd. w/pt.	F	2.22	1.78	1.67
26F192	225-6-2*	Crank	I	4.13	3.30	3.09
26F193	225-6-2G	Crank	I	3.75	3.00	2.82

"DESIGNER" SERIES



Molded black plastic knobs with spun aluminum cap inserts. Knobs withstand 25 in/lbs. of torque. Temperature: –55°C to 125°C. Av. shp. wt. 3 oz.

70 Series—.252 Shafts

Stk. No.	Type	Description	1-199	200-999	1000-4999
26F464	DS 70-1BD-2	Rd. No Skt. Dot	1.44	1.15	1.08
26F465	DS 70-1BD-2G	Rd. No Skt. Dot	1.46	1.18	1.10
26F466	DS 70-1-2	Rd. No Skt.	1.28	1.03	.96
26F467	DS 70-1 2G	Rd. No Skt.	1.30	1.04	.98
26F468	DS 70-2-2	Rd. Pln. Skt.	1.49	1.19	1.12
26F469	DS 70-2-2G	Rd. Pln. Skt.	1.56	1.25	1.18
26F470	DS 70-2BD-2	Rd. Pln. Skt. Dot	1.64	1.32	1.24
26F471	DS 70-2BD-2G	Rd. Pln. Skt. Dot	1.72	1.37	1.28
26F472	DS 70-3-2	DL. Skt. Rd. w/pt.	1.52	1.22	1.14
26F473	DS 70-3-2G	DL. Skt. Rd. w/pt.	1.56	1.25	1.18
26F474	DS 70-4-2	Pt. No Skt.	1.54	1.22	1.15
26F475	DS 70-4-2G	Pt. No Skt.	1.58	1.27	1.19

70 Series—.190 Shafts

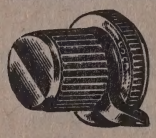
26F478	DS 70-1-3	Rd. No Skt.	1.44	1.15	1.08

90 Series—.252 Shafts

26F485	DS 90-1-2G	Rd. No Skt.	1.40	1.13	1.06
26F487	DS 90-1BD-2G	Rd. No Skt. Dot.	1.74	1.39	1.31
26F488	DS 90-2-2	Rd. Pln. Skt.	1.54	1.24	1.16
26F492	DS 90-3-2	Rd. Dl. Skt. w/pt.	1.72	1.37	1.28
26F493	DS 90-3-2G	Dl. Skt. Rd. w/pt.	1.75	1.40	1.32
26F495	DS 90-4-2G	Pt. No Skt.	1.86	1.49	1.39

125 Series—.252 Shafts

26F444	DS 125-1-2	Rd. No. Skt.	1.97	1.57	1.48
26F445	DS 125-1-2G	Rd. No. Skt.	1.99	1.60	1.50
26F448	DS 125-3-2	Dl. Skt. Rd. w/pt.	2.20	1.76	1.65



SPECIAL POINTER KNOB

With knob lock listed below. Knob features pointer arm which curves over skirt at lock toward chassis to increase accuracy. For ¼" shafts. Shpg. wt. 2 oz.

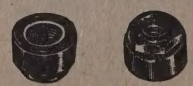
26F302	70-1LK-2	Mirror Finish	1.23	.99	.92
26F303	70-1LK-2G	Matte Finish	1.64	1.31	1.23
26F307	125-1LK-2G	Matte Finish	1.75	1.40	1.31

KNOB LOCKS

For standard control knobs. Holds precise or critical control settings under shock or vibration. Use with 70, 90, and 125 round standard control knobs. Mirror finish except * Matte. 6-32 thread. Shpg. wt. 2 oz.

Stk. No.	Type	Series & Dia.	1-199	200-499
26F308	KL701	Series: 70 1" dia.	1.49	1.19
26F309	KL701G*	Series: 70 1" dia.	1.54	1.23
26F310	KL901	Series: 90 1⅛" dia.	1.93	1.54
26F311	KL901G*	Series: 90 1⅛" dia.	1.98	1.58
26F312	KL1251	Series: 125 1⅜" dia.	1.93	1.54
26F313	KL1251G*	Series: 125 1⅜" dia.	1.98	1.58

SHAFT LOCKS



Mounted on the control bushing in place of the nut and washer, the shaft lock fits snugly around the control shaft, providing a constant drag which resists rotation caused by accidental contact, vibrations, etc., but which permits smooth adjustment. Shpg. wt. 1 oz.

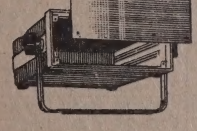
Stock No.	Type	Shaft	Thread NEF2	1-99	100-199	200-499
26F314	SL-100B	¼"	3-32	.51	.44	.39
26F937	SL-101R	¼"	...	.55	.47	.42
26F315	SL-105B	⅛"	¼-32	.44	.37	.33
26F938	SL-110B	¼"	...	.40	.34	.31

BUD INDEX

Newark stocks a complete line of Bud products available for immediate delivery. Consult us about your special enclosure problems. We are an extension of the Bud factory's engineering department and can recommend the proper design and size for your equipment. Our advice will save you time and money. Our long years of experience assure you that we can readily understand your problems and solve them economically.

Type	Description	Page
AC-400 and AC-1400 Series	Aluminum Chassis	690
AC-1610 to -1613	Universal Sloping Panel Cabinets	681
AGC-9267/-9280, -367/-380	Classic Cabinets and Door	676
AGD-932 to -936	Classic II Doors	676
AGR-9302 to -9306	Classic II Cabinet Racks	676
AS-5000 Series	Chassis Sides	681
ASE-2084 to -2086	Add-A-Rack Enclosures	677
AU-1000 Series	Aluminum Utility Cabinets	688
AVS-500	Video-Tape Recording System Cabinet	679
BAS-5100 to -5103	Mounting Bracket	681
BB-1800 to -1809	Showcase Enclosures	685
BBC-1821 to -1825	Aluminum "Showcase" Chassis	685
BF-24 to -28; BF-53 and -55	Trans-Aire Filters	686
BPA-1500 Series	Aluminum Bottom Plates	690
B-23A, B-25A, B-27A, B-50, B-52, B-54	Trans-Aire Blowers	686
C1440 to -1442	Prestige Cabinets	687
C-1500 Series	Sloping Panel Cabinets	688
C-1550/-1552, C-1555/1557	Prestige Cabinets	687
C-1606 to -1609	Universal Sloping Panel Cabinets	681
C-1793 to -1798	Miniature Utility Cabinets	688
C-1800 Series	Sloping Panel Cabinets	688
C-20901 to -20916	Edge Connectors	684
CB-1370 to -1377	Vertical Panel Chassis	682
CB-1976 to -1977	Rack Shelves	689
CB-21401 to -21408	Circuit Boards	684
CBH-21501 Series	Sub-Unit Kits	684
CC-1091 to -1100	Carrying Case	687
CD-1480 to -1485	Streamlined Cabinets	687
CD-16000 Series	Modular Work Station	680
CEF-21001	Connector End Feet	684
CM-1935, CMA-1930, 1936	Universal Meter Cases	687
CMR-21201	Connector Mounting Rails	683
CR-1700 Series	Metal Cabinet Racks with Panels	688
CR1771 to 1774, 2071 to 2074	Relay Racks	681
CR-2280 to -2282	Prestige Relay Cabinet Racks	681
CU-123, 124, 234, 247, 347	Die-Cast Utility Boxes	682
CU-341, -452, -482	Converta-Boxes	682
CU-463, -465, -585, -587	Contour Utility Cabinets	690
CU-592, -622, -712	Converta-Boxes	682
CU-700, -800, -1000 Series	Steel Utility Cabinets	688
CU-2100 Series	Miniboxes	688
CU-7125 to -7127	Contour Utility Cabinets	690
DB-1680 to -1683	Contempo Small Cabinets	679
DT-2960 and -2962	Desk Tops	677
DW-3230 to -3233	Contempo Small Cabinets	679
E-2000 Series	Upright Cabinet Racks	677
FL-22700	Floating Locks	683
G-20601 and -20602	Guides	683
H3360	Lever Type Door Handles	691
H-9100, H-9347	Handles	691
HB-1621 and -1622	Steel Handy Boxes	682
HC-14100 to -14109	Valu/Line Cabinets	686
HL3361	Lever Type Door Handles	691
JB-1650 to -1655	Contempo Small Cabinets	679
JL-22800	Jacking Locks	684
JW-3200 to -3205	Contempo Small Cabinets	679
LB-1660 to -1665	Contempo Small Cabinets	679
LW-3210 to -3215	Contempo Small Cabinets	679
MB-400 Series	Chassis Mounting Brackets	689
MB-1200 Series	Triangular Brackets	689
MB-1670 to -1675	Contempo Small Cabinets	679
MD-1 to -3	"Grand Prix" Cabinets	685
MD-1960 to -1965	"Futura" Cabinets	685
MS-2150 and -3050 Series	Minislides	682
MT-214, -219, -224	Mark-T Cabinets	687
MW-3220 to -3225	Contempo Small Cabinets	679
N-9233, N-9234, 9226	Nut and Guides	683
NAS-5110	Bar Nut	681
OFP-21101, 21102, 21103	Overall Front Panels	683
PA-1100, PA-3100	Aluminum Rack Panels	689
PBU Series	Hardware for PC Boards	684
PC-1700 to -1704	Prestige Versa Cabinets	687
POS 4, 7, 9, 11	Power Outlet Strips	681
PS-1200 Series	Steel Rack Panels	689
RC-7756, -7758, 7760	Casters	680, 691
RC-11100 and -11101	Linear Enclosures	685
RDP-21301 to -21306	Divider Panels	683
RL-7765 to -7767	Levelers	680, 691
RR-1248 and -1249	Desk Type Open Relay Racks	682
RR1263/1265, 1363/1369	Open Type Relay Racks	682
RR-7756, RR-7758	Swivel Truck Casters	691
S-30 -2064 to -2066	Extra Deep Cabinet Racks	677
S-1600	Stylist Cabinets	675
S-9089	Screw	683
SA-1349 and -1350	Chassis Supporting Angles	689
SA-1719 and -1720	Shelf Assemblies	689
SB-2140 to -2143	Shadow Cabinets	690
SC-2130 to -2133	Cowl Type Miniboxes	681
SC-3030 to -3033	Cowl Type Miniboxes	681
SC-12100 -12101	Slope Enclosure	685
SC-13100 -13101	Compucab Cabinets	686
SD-500	Front Doors for Stylist Cabinet	675
SD-1717	Sliding Drawer Assembly	682
SE-2064 to -2066	Cabinet Racks	677
SFA-1800 and -3100	"Surface Shield" Rack Panels	689
SMP-23101 to -23103	Socket Mounting Panels	684
SR-20101 to 20108	Sub-Racks	683
SU-22100 Series	Sub-Unit Kits	684
TBC-20801, 20802	Top or Bottom Covers	683
TC-300 to -304	Transicase—Portable Instrument Case	686
TP-1718	Sliding Drawer Assembly	682
TR-6100	Enclosures	675
TR-6100	Chassis for TR Series	675
TS-15	"Tem-Star" Temperature Control	681
TV2155-2157	Tilt-A-View Cabinets	681
UCP-22900 Series	Sub-Unit Cover Panels	684
UDP-22500 Series	Deck Plates	684
UH-70A, -71A	Aluminum Handles	691
USP-23000 Series	Screen Plates	684
W-9556	Washer	683
WA-1540 to -1544	Portacabs	690
30-2000 Series	Extra Deep Upright Cabinet Racks	677
30-2300	Upright Panel Cabinet Racks	678
30-2330	Inclined Panel Cabinet Racks	678
60-2300, -2500	Series 60	678

TR SERIES ENCLOSURES



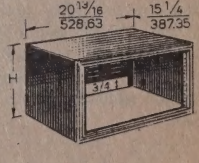
Can be used as desk top instrument cases, in systems, or as portable enclosures. The TR series is designed to accommodate an accessory chassis, or 1/16" thick printed circuit boards. Top and bottom of instrument enclosures are .050" aluminum; front panel .090" aluminum. Top and bottom can be removed. Carrying handle is also used as tilting bail. Finished in mar-resistant, durable easy to clean Nextel. In two colors, type number suffix: BLN, blue and white; BRN, brown and white. Enclosure includes front panel, rubber feet and carrying handle. Weight TR-6100, 4½ lbs.; TR-6101, 5½ lbs.; TR-6102, 7 lbs.; TR-6103, 9½ lbs.

BLN Stk. No.	BRN Stk. No.	Type	Size, In. W	D	H	Panel Space, In.	Each 1-4	5-9
86F918	86F917	TR-6100	8 5/16	10¾	3½	3¼ x 8¾	77.00	69.30
86F920	86F919	TR-6101	8 5/16	13¼	5¼	5 x 8¾	82.40	74.15
86F922	86F921	TR-6102	11 1/16	13¼	7	6¾ x 10 53/64	90.25	81.25
86F936	86F923	TR-6103	12	18¾	8	7¾ x 11¾	97.45	87.70

CHASSIS FOR TR SERIES

Stk. No.	Type	Size, In. Lgth.	Width	Height	Wt. LOs.	Fits Cabinet	Each Each	2-4
86F937	TRC-610	10½	7¾	1¼	¼	TR-6100	7.65	6.95
86F938	TRC-611	12⅝	7¾	1¾	1	TR-6101	8.00	7.25
86F939	TRC-612	12⅝	10½	1¾	1¼	TR-6102	9.00	8.20
86F940	TRC-613	18½	11 1/16	1¾	1¾	TR-6103	11.30	10.25

STYLIST CABINET



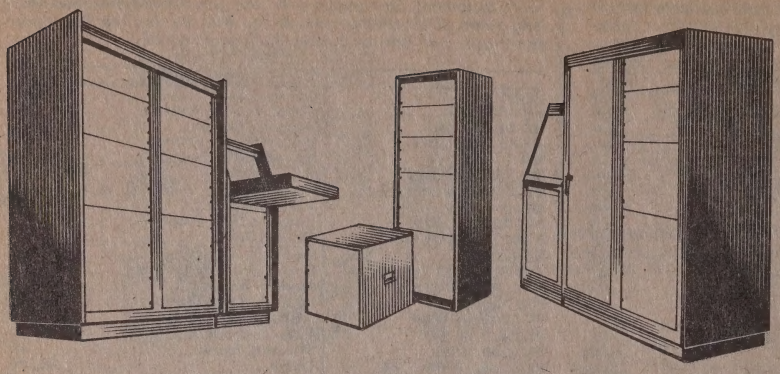
Square corner design, aluminum extrusion framing of front. Full width flanges along top and bottom of cabinet add strength. No tilt, no sway when cabinet is loaded, capacity of 500 lbs. Self-supporting 16 gauge cold rolled steel, no internal framework. Louvered rear panel, 1¾" high opening for cable accessories. Front and rear openings meet E.I.A. standards, accept either 19" panels or Stylist Series doors. Rubber feet furnished. RB, royal blue; HG, hammertone gray. Size: 20 13/16" width by 15¼" depth, overall.

RB Stk. No.	HG Stk. No.	Type	Size, In. Height	Panel	Wt. Lbs.	Each 1-4	5-9	10-14
86F925	86F924	S-1640	8 13/16	7	26¾	94.00	84.60	75.20
86F927	86F926	S-1641	10 5/16	8¾	29	98.45	88.60	78.75
91F024	91F025	S-1642	12 5/16	10½	31	103.70	93.35	82.95
91F026	86F928	S-1643	14 1/16	12¼	33	107.95	97.15	86.35
91F027	86F929	S-1644	15 13/16	14	35¼	112.65	101.40	90.10
86F931	86F930	S-1645	17 9/16	15¾	37¼	124.90	112.40	99.90

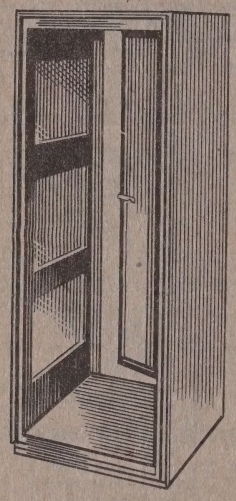
FRONT DOORS FOR STYLIST CABINETS

RB Stk. No.	HG Stk. No.	Type	Height in.	Wt. Lbs.	Fits Cabinet	Each Each	2-4	5-9
86F933	86F932	SD-540	7	4¾	S-1640	20.55	18.70	16.85
86F935	86F934	SD-541	8¾	5½	S-1641	22.05	20.05	18.05
86F913	86F912	SD-542	10½	6¼	S-1642	23.05	20.95	18.85
91F028	86F914	SD-543	12¼	7	S-1643	23.80	21.65	19.50
91F029	86F915	SD-544	14	7¾	S-1644	25.35	23.05	20.75
86F941	86F916	SD-545	15¾	8½	S-1645	26.85	24.40	21.95

Designers' Group



Designers' Group sets the pace for contemporary-styled enclosures. These are the enclosures with that custom-made look, but far from a custom-made price. Yet, there's more to the Designers' Group than appearance. Here's the quality line designed and built by Bud, the industry's leading manufacturer of cabinets, racks, enclosures and accessories. That means proven craftsmanship; enclosures produced to meet Bud's high-quality standards and yours. And regardless of the style or size enclosure you need, you're assured of immediate delivery. Assured of value.



CLASSIC II CABINET RACKS

Front framed with double-rimmed brushed aluminum extrusion. All steel. 14 ga. frame; 16 ga. top, bottom; 18 ga. sides. Takes 19" panels. Front rails tapped 10-32 with W.E. spacing. Pierced rear rails. Rails adjustable along support braces. Drilled for Bud RC-7758 casters. Gray and royal blue textured enamel. Select white panels. Comes assembled, including rear door.

CLASSIC II CABINET RACK

Gray Stk. No.	R. Blue Stk. No.	Type No.	W.	D.	Ht.	Panel Ht.	Lbs.	1-2	3-4	5-7
99F1032	99F1033	AGR-9302	22"	22"	47 5/16"	42"	126	269.10	242.20	215.30
99F1034	99F1035	AGR-9303	22"	22"	57 13/16"	52 1/2"	146	298.90	269.00	239.10
99F1036	99F1037	AGR-9304	22"	22"	66 5/16"	61 1/4"	162	332.20	299.00	265.75
99F1038	99F1039	AGR-9306	22"	22"	82 5/16"	77"	181	380.40	342.35	304.30

FRONT DOOR FOR CLASSIC II RACKS

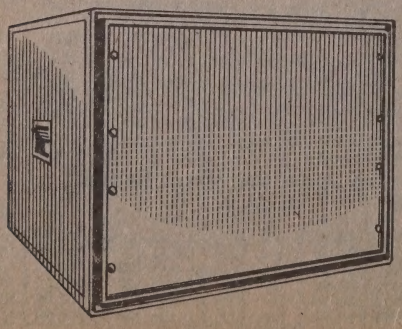
Gray Stk. No.	R. Blue Stk. No.	Type	Fits Rack	Lbs.	1-2	3-4	5-7
99F1040	99F1041	AGD-932	AGR-9302	19	61.45	55.30	49.15
99F1042	99F1043	AGD-933	AGR-9303	23	65.40	58.85	52.30
99F1044	99F1045	AGD-934	AGR-9304	26	68.95	62.05	55.15
99F1046	99F1047	AGD-936	AGR-9306	31	75.55	68.00	60.45

CLASSIC II CABINETS

Double-rimmed brushed aluminum extrusion frames front. Recessed chrome handles attached to two steel flanges extending along interior, provide carrying safety and support. Clear inside depth, 20 9/16"; overall depth, 21 7/16"; overall width, 20 13/16". Takes 19" panels. Made of .060 aluminum; frame, 6063-TS aluminum extrusions. Front and rear mounting rails tapped 10-32 W.E. spacing. Two 16 ga. vertically adjustable chassis supports. B-50, 52 and 54 blowers fit cabinets. For gray textured (GT) or royal blue (RB) cabinets use white door; for gold, use sand. Comes assembled with two aluminum handles and four feet.

DOORS (19" WIDE)

Sand Stk. No.	White Stk. No.	Type AGD	Height	Lbs.	Each	2-4	5-9	10-14
91F1451	91F1466	367	5 1/4"	1 3/4	21.50	17.95	16.15	14.35
91F1452	91F1467	368	7"	2	25.90	21.15	19.05	16.90
91F1453	91F1468	369	8 3/4"	2 3/4	28.00	23.40	21.05	18.70
91F1454	91F1469	370	10 1/2"	3	29.20	25.40	22.85	20.30
91F1455	91F1470	371	12 1/4"	3 1/2	30.05	27.30	24.55	21.85
91F1456	91F1471	372	14"	4	30.60	27.80	25.00	22.25
91F1457	91F1472	373	15 3/4"	4 3/4	31.40	31.40	28.25	25.10
91F1458	91F1473	374	17 1/2"	5	34.00	34.00	30.60	27.20
91F1459	91F1474	375	19 1/4"	5 1/2	36.40	36.40	32.75	29.10
91F1460	91F1475	376	21"	6 1/4	38.75	38.75	34.90	31.00
91F1461	91F1476	377	22 3/4"	6 3/4	40.60	40.60	36.55	32.50
91F1462	91F1477	378	24 1/2"	7 1/4	42.50	42.50	31.30	27.80
91F1463	91F1478	379	26 1/4"	7 1/2	45.00	45.00	33.10	29.40
91F1464	91F1479	380	28"	8	48.10	48.10	35.35	31.45

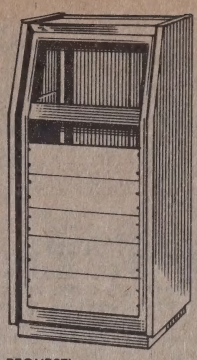


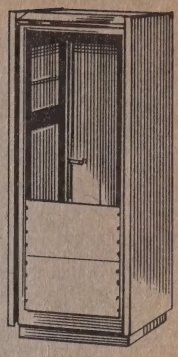
CABINETS

Gold Stk. No.	GT Stk. No.	RB Stk. No.	Type AGC	Height Inches	Wt. Lbs.	Panel Ht., In.	1-2	3-4	5-7
80W688	80W689	91F1684	9267	7 1/16	29 1/2	5 5/16	167.10	150.40	133.70
80W690	80W691	91F1685	9268	8 3/16	30 1/2	7 1/16	171.60	154.45	137.30
80W692	80W693	91F1686	9269	10 3/16	32 1/4	8 13/16	176.05	158.45	140.85
80W694	80W695	91F1687	9270	12 5/16	33 1/4	10 3/16	176.70	159.05	141.35
80W696	80W697	91F1688	9271	14 1/16	34 1/4	12 5/16	182.65	164.40	146.10
80W698	80W699	91F1689	9272	15 13/16	35	14 1/16	186.90	168.20	149.50
80W700	80W701	91F1690	9273	17 3/16	36	15 13/16	190.60	171.55	152.50
80W702	80W703	91F1691	9274	19 5/16	36 3/4	17 3/16	194.65	175.20	155.70
80W704	80W705	91F1692	9275	21 1/16	37 3/4	19 5/16	196.60	176.95	157.30
80W706	80W707	91F1693	9276	22 13/16	38 1/2	21 1/16	199.65	179.70	159.70
80W680	80W681	91F1694	9277	24 5/16	39 1/2	22 13/16	209.70	188.75	167.75
80W682	80W683	91F1695	9278	26 5/16	40 1/4	24 5/16	212.20	191.00	169.75
80W684	80W685	91F1696	9279	28 1/16	41 1/4	26 5/16	215.05	193.55	172.05
80W686	80W687	91F1697	9280	29 13/16	42	28 1/16	219.45	197.50	175.55

Series 2000 Cabinet Racks

Frame is all-welded. 14 ga. steel members; 18 ga. steel door, sides, and top. "U" braces welded to sides of frame augment strength, rigidity; act as mounting for vertical rails which can be adjusted horizontally. Front and rear panel mounting rails tapped 10-32. Base drilled for Bud RC-7758 casters. Standard finishes: royal blue (RB) or gray textured (GT) enamel with clear anodized aluminum extrusion, and gold textured (GD) with gold anodized aluminum extrusion.





INCLINED PANEL AND EXTRA-DEEP CABINET RACKS

Inclined panel positioned 20° off vertical. Panel mounting rails in the front vertical section, inclined panel section and rear are adjustable front to rear. Ht. 51¼"; wid. 24$^{3}/_{16}$"; outside dep. 23⅞"; inside dep. 20½"; wgt. 173 lbs.

Extra-deep cabinet rack has 32⅝" outside depth. 14 ga. steel welded frame; doors, sides, tops 18 ga. Front and rear panel mounting rails tapped 10-32. Drilled for Bud RC-7758 casters. Wgt. 223 lbs.

PLAIN SIDES AND DOOR (LOUVRED SIDES & DOOR UPON REQUEST)

R. Blue Stk. No.	Gray Stk. No.	Gold Stk. No.	Type	Height	Width	Outside Depth	Clear Ins. Dep.	Inclined Panel	Vertical Panel	1-2	3-4	5-7
80W650	80W512	80W651	SE-2064	51¼"	24$^{3}/_{16}$"	23⅞"	20½"	10½"	29¾"	331.90	298.70	265.50
80W513	80W652	80W653	SE-2065	51¼"	24$^{3}/_{16}$"	23⅞"	20½"	15¾"	24½"	349.75	314.80	279.80
80W654	80W514	80W655	SE-2066	51¼"	24$^{3}/_{16}$"	23⅞"	20½"	17½"	22¾"	349.75	314.80	279.80

SERIES 30-2000 EXTRA DEEP

99F1055	99F1058	99F1061	S-30-2064	51¼"	24$^{3}/_{16}$"	32⅝"	29¼"	10½"	29¾"	372.00	334.80	297.60
99F1056	99F1059	99F1062	S-30-2065	51¼"	24$^{3}/_{16}$"	32⅝"	29¼"	15¾"	24½"	394.35	354.90	315.50
99F1057	99F1060	99F1063	S-30-2066	51¼"	24$^{3}/_{16}$"	32⅝"	29¼"	17½"	22¾"	394.35	354.90	315.50

ADD-A-RACK ENCLOSURES

R. Blue Stk. No.	Gray Stk. No.	Gold Stk. No.	Type	To Add A-Rack To	Wt. Lbs.	1-2	3-4	5-7
80W662	80W663	80W664	ASE-2084	SE-2064	115	293.80	264.40	235.05
80W665	80W666	80W667	ASE-2085	SE-2065	115	311.40	280.25	249.10
80W668	80W669	80W670	ASE-2086	SE-2066	120	311.40	280.25	249.10

UPRIGHT CABINET RACKS

Series below include plain sides, rear door and solid top. Louvered sides and doors upon request. Width, 24$^{3}/_{16}$"; outside depth 23⅞" for 20½" inside depth; 27⅜" for 24" inside depth. Take 19" panels.

PLAIN SIDES AND DOORS (LOUVRED SIDES AND DOOR UPON REQUEST)

R. Blue Stk. No.	Gray Stk. No.	Gold Stk. No.	Type	Ht.	Clear Ins. Dept.	Panel Space	Wt. Lbs.	1-2	3-4	5-7
80W500	80W638	80W639	E-2000	30¼"	20½"	21"	125	271.90	244.70	217.50
80W640	80W501	80W641	E-2001	40¾"	20½"	31½"	150	298.35	268.50	238.70
80W502	80W503	80W642	E-2002	44¼"	20½"	35"	155	304.30	273.85	243.45
80W643	80W644	80W645	E-2003	51¼"	20½"	42"	167	334.90	301.40	267.90
80W646	80W647	80W648	E-2004	61¾"	20½"	52½"	205	378.45	340.60	302.75
80W649	80W625	80W504	E-2005	70½"	20½"	61¼"	219	404.40	363.95	323.50
80W621	80W622	80W623	E-2006	79¼"	20½"	70"	240	445.45	400.90	356.35
80W624	80W505	80W626	E-2007	88"	20½"	78¾"	262	464.95	418.45	371.95
80W627	80W628	80W629	E-2008	30¼"	24"	21"	135	279.95	251.95	223.95
80W630	80W631	80W632	E-2009	40¾"	24"	31½"	160	314.35	282.90	251.50
80W633	80W634	80W635	E-2010	44¼"	24"	35"	165	322.35	290.10	257.90
80W506	80W636	80W637	E-2011	51¼"	24"	42"	187	360.40	324.35	288.30
80W604	80W605	80W606	E-2012	61¾"	24"	52½"	222	386.35	347.70	309.10
80W607	80W507	80W608	E-2013	70½"	24"	61¼"	235	436.35	392.70	349.10
80W609	80W610	80W611	E-2014	79¼"	24"	70"	265	479.10	431.20	383.30
80W612	80W613	80W614	E-2015	88"	24"	78¾"	280	507.40	456.65	405.90

SERIES 30-2000 (EXTRA DEEP) UPRIGHT CABINET RACKS

R. Blue Stk. No.	Gray Stk. No.	Gold Stk. No.	Type	Height	Width	Outside Depth	Clear Ins. Dep.	Panel Space	Wt. Lbs.	1-2	3-4	5-7
99F1064	99F1072	99F1080	E-30-2000	30¼"	24$^{3}/_{16}$"	32⅝"	29¼"	21"	150	318.25	286.45	254.60
99F1065	99F1073	99F1081	E-30-2001	40¾"	24$^{3}/_{16}$"	32⅝"	29¼"	31½"	175	348.00	313.20	278.40
99F1066	99F1074	99F1082	E-30-2002	44¼"	24$^{3}/_{16}$"	32⅝"	29¼"	35"	180	370.05	333.05	296.05
99F1067	99F1075	99F1083	E-30-2003	51¼"	24$^{3}/_{16}$"	32⅝"	29¼"	42"	217	400.45	360.40	320.35
99F1068	99F1076	99F1084	E-30-2004	61¾"	24$^{3}/_{16}$"	32⅝"	29¼"	52½"	248	442.65	398.40	354.10
99F1069	99F1077	99F1085	E-30-2005	70½"	24$^{3}/_{16}$"	32⅝"	29¼"	61¼"	259	485.40	436.85	388.30
99F1070	99F1078	99F1086	E-30-2006	79¼"	24$^{3}/_{16}$"	32⅝"	29¼"	70"	303	537.60	483.85	430.10
99F1071	99F1079	99F1087	E-30-2007	88"	24$^{3}/_{16}$"	32⅝"	29¼"	78¾"	307	562.50	506.25	450.00

DESK TOPS

For Series 2000 racks only. Two pre-slotted supporting channels quickly bolted to rails. White Formica. Dimensions: 24$^{3}/_{16}$" x 19½" x 3$^{1}/_{16}$". Supports in excess of 200 lbs.

RB	GT	GD	Type	Fits. Ser. 2000	Supp. Channel	Wt.	1-2	3-4	5-7
78F002	78F000	78F001	DT-2960	with 23⅞" d.	21¼"	22 lbs.	74.70	67.25	59.75
78F003	78F004	78F005	DT-2962	with 27⅜" d.	24¾"	23 lbs.	77.20	69.50	61.75

Series 60 Cabinet Racks

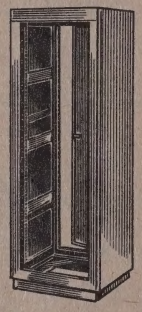
Stock No. Gray	Ht.	Panel Space	Wt. Lbs.	With Plain Sides & Door—OD 22"—Net Each, Lots of Type	1-2	3-4	5-7
92F900	29⅝"	21"	118	60-2300	250.60	225.55	200.50
92F901	40⅛"	31½"	156	60-2301	275.80	248.20	220.65
92F902	50⅝"	42"	173	60-2302	308.25	277.45	246.60
92F903	61⅛"	52½"	197	60-2303	361.00	324.90	288.80
92F904	69⅞"	61¼"	220	60-2304	392.80	353.50	314.25
92F905	78⅝"	70"	235	60-2305	432.00	388.80	345.60
92F906	87⅜"	78¾"	265	60-2306	444.45	400.00	355.55

Stock No. Gray	Ht.	Panel Space	Wt. Lbs.	With Plain Sides & Door—OD 25½"—Net Each, Lots of Type	1-2	3-4	5-7
92F907	29⅝"	21"	156	60-2307	259.90	233.90	207.90
92F908	40⅛"	31½"	176	60-2308	289.60	231.70	217.20
92F909	50⅝"	42"	185	60-2309	331.95	298.75	265.55
92F910	61⅛"	52½"	211	60-2310	371.80	334.60	297.45
92F911	69⅞"	61¼"	240	60-2311	416.70	375.05	333.35
92F912	78⅝"	70"	256	60-2312	442.00	397.80	353.60
92F913	87⅜"	78¾"	267	60-2313	460.45	414.40	368.35

All-welded frame; 14 ga. cold-rolled steel channels. Sides "U" braced with perforated channels for fastening vertical mounting rails and to support brackets, shelves, slides, etc. Sides and rear door, 18 ga. steel. 4" wide vertical channel welded to door. Two pairs of fully adjustable panel mounting rails. Front and rear rails drilled and tapped 10-32 W.E. spacing. Desk tops, turrets, drawers, slides, sloping panel supports, front door easily installed. Relay rack panels in light gray and light blue. Available with louvered door and side, louvered door, plain side; plain door, louvered side.

UPRIGHT CABINET RACKS

Dimensions: width, 24 1/16"; inside depth, 20½" clear on units with 22" outside depth, 24" on all others; top opening, 18 5/16" wide x 17" deep on units with 22" depth; top opening on all others, 18 5/16" wide, 20½" deep.



INCLINED PANEL CABINET RACKS

Dimensions: height, 50⅝"; width, 24 1/16"; depth, 22"; clear inside depth, 20½"; weight, 165 lbs. Gray textured finish.

Stk. No.	Type	Indine Panel Hgt.	Vert. Panel Hgt.	Top Opening W.xD.	Plain Sides and Door Net Each, Lots of 1-2	3-4	5-7
93F023	60-2330	10½"	29¾"	18 5/16"x11 53/64"	321.75	289.60	257.40
93F024	60-2331	15¾"	24½"	18 5/16"x10 1/32"	340.95	306.85	272.75
93F025	60-2332	17½"	22¾"	18 5/16"x9 27/64"	340.95	340.95	306.85

Stock No.	Type	Top Opening—W.xD.	Incl. Panel	Vert. Panel	1-2	3-4	5-7
99F1029	30-2330	18 5/16"x20 9/16"	10½"	29¾"	386.20	347.60	308.95
99F1030	30-2331	18 5/16"x18¾"	15¾"	24½"	409.05	368.15	327.25
99F1031	30-2332	18 5/16"x18 3/16"	17½"	22¾"	409.05	368.15	327.25

SERIES 30 (EXTRA DEEP) UPRIGHT PANEL CABINET RACKS

Width, 24 3/16"; clear inside depth, 29¼".

Stk. No.	Type	Ht.	Wid.	Panel Space	Wt. Lbs.	1-2	3-4	5-7
99F1022	30-2300	29⅝"	24 1/16"	21"	154	291.45	262.30	233.15
99F1023	30-2301	40⅛"	24 1/16"	31½"	174	338.40	304.55	270.70
99F1024	30-2302	50⅝"	24 1/16"	42"	202	376.20	328.60	300.95
99F1025	30-2303	61⅛"	24 1/16"	52½"	225	417.60	375.85	334.10
99F1026	30-2304	69⅞"	24 1/16"	61¼"	245	463.95	417.55	371.15
99F1027	30-2305	78⅝"	24 1/16"	70"	268	504.25	453.85	403.40
99F1028	30-2306	87⅜"	24 1/16"	78¾"	294	549.55	494.60	439.65

SERIES 60 DESK TOP

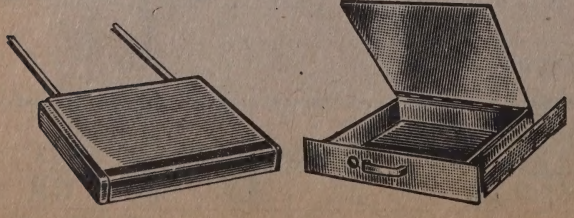
Two pre-drilled full-length supporting channels are quickly bolted to panel mounting rails. Antique white Formica 24 1/16" x 19½" x 3 1/16". Supports 200 lbs. Color: gray.

Stk. No.	Type	Fits "60" Series	Sup. Channel	Lbs.	1-2	3-4	5-7
93F016	60-2360	W/22" d.	21¼"	22	84.40	75.95	67.50
93F039	60-2362	W/25½" d.	24¾"	23	87.10	78.40	69.70

SERIES 60 DESK TOP DRAWERS

Front panel, 3½" x 19". Piano type hinged desk top is Formica bonded to aluminum. Latch on front panel locks and releases drawer, as well as releasing top. Hardware included. Gray textured finish.

Stk.No.	Type	Size Inside	Lbs.	1-2	3-4	5-7
93F050	60-2363	16 11/16x3¼x15"	19	118.15	106.35	94.50



ADD-A-RACK SERIES

Each assembly consists of frame, top, bottom, rear door and cowlings. Use as add-on to join Series 60 enclosures into a bank of two or more for optimum width and efficiency. One standard rack, plus Add-A-Racks. Gray textured finish.

Stock No.	Type	Wt. Lbs.	Plain Doors For Add-on to Rack No. 60-	Net Each, Lots of 1-2	3-4	5-7
93F077	60-2500	92	2300,	213.10	191.80	170.50
93F078	60-2501	113	2301,	222.10	199.90	177.70
93F079	60-2502	115	2302,	244.50	220.05	195.60
93F080	60-2503	145	2303,	266.65	240.00	213.30
93F081	60-2504	148	2304,	298.35	268.50	238.70
93F082	60 2505	152	2305,	332.35	299.10	265.90
93F083	60-2506	158	2306,	357.10	321.40	285.70
93F084	60-2507	120	2307,	238.60	214.75	190.90
93F085	60-2508	132	2308,	249.75	224.80	199.80

Stock No.	Type	Wt. Lbs.	Plain Doors For Add-on to Rack No. 60-	Net Each, Lots of 1-2	3-4	5-7
93F086	60-2509	138	2309,	272.70	245.45	218.15
93F087	60-2510	142	2310,	297.85	268.05	238.30
93F088	60-2511	164	2311,	332.95	299.65	266.35
93F089	60-2512	168	2312,	370.65	333.60	296.50
93F090	60-2513	172	2313,	410.20	369.20	328.15
93F091	60-2530	119	2330,	260.50	234.45	208.40
93F092	60-2531	119	2331,	277.75	250.00	222.20
93F093	60-2532	125	2332,	277.75	250.00	222.20

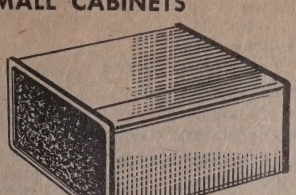
17

Contempo Enclosures

BUD

CONTEMPO SMALL CABINETS

Model III



Model I

Body constructed of .062" aluminum with end panels of 5/16" molded Cycolac plastic. Letter "B" designates black pebble end panels with smooth gray body. Letter "W" designates wood-grain finish on end panels and top with eggshell white on front, rear panels and body.

Model I. Height: 2 1/8" inside, 2 7/16" outside. Depth: 5 5/8" inside, 5 13/16" outside. **Model II.** Height: 3" inside, 3 1/4" outside. Depth: 6 3/4" inside, 7" outside. **Model III.** Height: 4 3/16" inside, 4 7/16" outside. Depth: 6 5/16" inside, 6 9/16" outside. **Model IV.** Height: 4 3/16" inside, 4 7/16" outside. Depth: 10 9/32" inside, 10 1/2" outside.

CONTEMPO SERIES MODEL I

Stock No.	Type	Inside Width	Outside Width	Wgt. Ozs.	EACH
99F1747	JB-1650	3 3/8"	4 1/8"	11	7.10
99F1748	JB-1651	4 13/16"	5 7/16"	13	7.60
99F1749	JB-1652	5 13/16"	6 7/16"	15	8.05
99F1750	JB-1653	6 13/16"	7 7/16"	16	8.55
99F1751	JB-1654	8"	8 1/4"	18	9.55
99F1752	JB-1655	10 1/8"	10 3/8"	21	12.15
99F1753	JW-3200	3 3/8"	4 1/8"	11	7.60
99F1754	JW-3201	4 13/16"	5 7/16"	13	8.05
99F1755	JW-3202	5 13/16"	6 7/16"	15	8.50
99F1756	JW-3203	6 13/16"	7 7/16"	16	9.55
99F1757	JW-3204	8"	8 1/4"	18	10.75
99F1758	JW-3205	10 1/8"	10 3/8"	21	13.85

CONTEMPO SERIES MODEL II

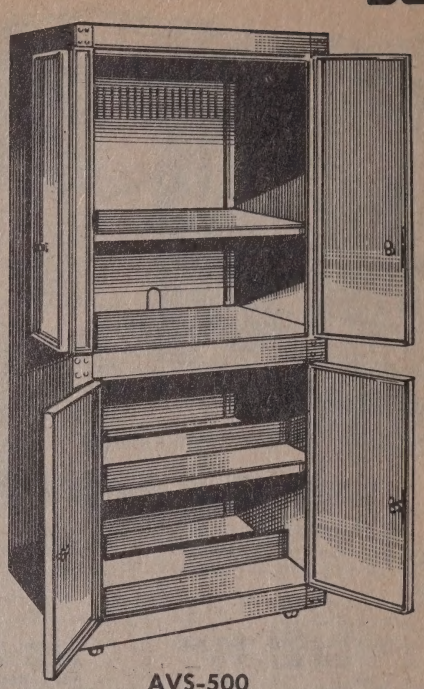
Stock No.	Type	Inside Width	Outside Width	Wgt. Qzs.	EACH
99F1767	LB-1660	3 3/8"	4 1/8"	13	7.70
99F1768	LB-1661	4 13/16"	5 7/16"	14	8.05
99F1769	LB-1662	5 13/16"	6 7/16"	15	8.85
99F1770	LB-1663	6 13/16"	7 7/16"	17	10.20
99F1771	LB-1664	8"	8 1/4"	19	11.40
99F1772	LB-1665	10 1/8"	10 3/8"	24	14.30
99F1773	LW-3210	3 3/8"	4 1/8"	13	8.00
99F1774	LW-3211	4 13/16"	5 7/16"	14	8.85
99F1775	LW-3212	5 13/16"	6 7/16"	15	10.15
99F1776	LW-3213	6 13/16"	7 7/16"	17	11.40
99F1777	LW-3214	8"	8 1/4"	19	13.10
99F1778	LW-3215	10 1/8"	10 3/8"	24	15.70

CONTEMPO SERIES MODEL III

Stock No.	Type	Inside Width	Outside Width	Wgt. Ozs.	EACH
99F1779	MB-1670	4 13/16"	5 1/4"	16	8.10
99F1780	MB-1671	5 13/16"	6 7/16"	18	8.75
99F1781	MB-1672	6 13/16"	7 7/16"	20	10.05
99F1782	MB-1673	8"	8 1/4"	22	11.40
99F1783	MB-1674	10 1/8"	10 3/8"	27	14.30
99F1784	MB-1675	12 1/8"	12 3/8"	32	17.75
99F1785	MW-3220	4 13/16"	5 1/4"	16	8.75
99F1786	MW-3221	5 13/16"	6 7/16"	18	10.05
99F1787	MW-3222	6 13/16"	7 7/16"	20	11.40
99F1788	MW-3223	8"	8 1/4"	22	13.05
99F1789	MW-3224	10 1/8"	10 3/8"	27	15.70
99F1790	MW-3225	12 1/8"	12 3/8"	32	18.75

CONTEMPO SERIES MODEL IV

Stock No.	Type	Inside Width	Outside Width	Wgt. Ozs.	EACH
99F1759	DB-1680	8"	8 1/32"	32	20.25
99F1760	DB-1681	10"	10 1/32"	37	21.55
99F1761	DB-1682	12"	12 1/32"	44	23.60
99F1762	DB-1683	14"	14 1/32"	48	25.50
99F1763	DW-3230	8"	8 1/32"	32	21.55
99F1764	DW-3231	10"	10 1/32"	37	23.60
99F1765	DW-3232	12"	12 1/32"	44	26.15
99F1766	DW-3233	14"	14 1/32"	48	27.45



AVS-500
VIDEO TAPE RECORDING SYSTEM CABINET

For housing complete VTR systems. Compact, easily movable AVS-500 provides a convenient, one-station VTR center for a range of AV applications, including: training and orientation programs, sales/marketing seminars, point-of-purchase. Securely houses any audio visual system. Shelves in upper section are reinforced to support a television monitor and video tape deck. Front doors are designed to bi-fold to a 270 degree opening so that maximum viewing area is afforded when a VTR system is in operation. Flush-mounted cam locks on all doors assure tamper-proof storage and positive security when a system is not in use. Color: tawny brown enamel; doors have a textured sand finish. Four heavy-duty casters and hardware furnished; unit comes fully assembled.

DESIGN FEATURES

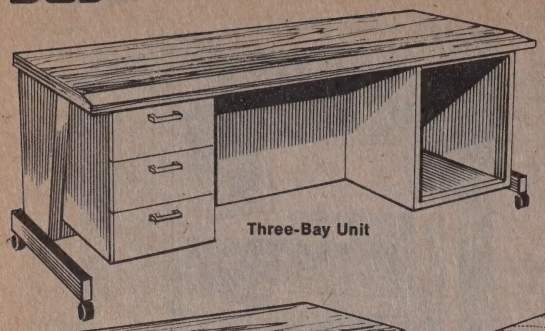
Upper Section: Houses video tape recording and play-back equipment. Top shelf for TV monitor. Clear inside dimensions of top shelf are 18 1/2" high, 25 1/2" wide, 22" deep. Lower shelf holds video tape deck. Lower shelf clear inside dimensions are 11" high, 25 1/2" wide, 22" deep. Louvered rear panel is notched at base for power cable entry.

Lower Section: Deep, two-shelf storage for video tape cassettes. Shelf dividers are set at 7 7/16" depth. Space behind dividers can be utilized for additional storage. Sides, top, bottom dividers and shelf assemblies are 16 gauge steel. Door assemblies and rear panels are 18 gauge steel.

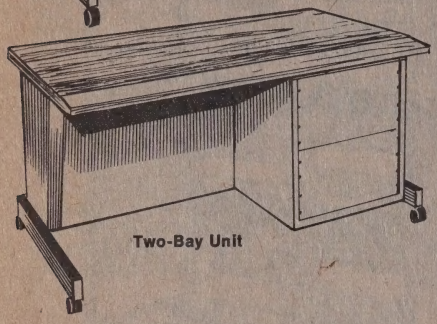
80W750. NET **450.00**

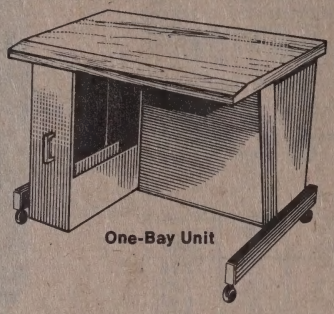
For items not listed in this catalogue and price quotes on larger quantities call or write NEWARK, Make NEWARK your one stop source for all Industrial Electronic supplies.

Modular Work Stations



- **Add or remove modules as needed**
- **Woodgrain Formica finished top**
- **27½" & 29½" field adjustable heights**





Nine standard units allow any combination of cabinets, rear units or modules for housing equipment or for storage. Front and rear adjustable mounting rails in cabinet are tapped 10-32 on wide spacing for fast installation of minis, peripherals. Convenient cable access and management. Rear compartment accommodates 19" wide x 21" high equipment. Cabinets meet E.I.A. specs. Desks and modules shipped assembled. 14 gauge steel frame and pylons, 11 gauge steel struts in units. Top: 1" particle board. **OPTIONAL MODULES AND ACCESSORIES. Vertical drawer** mounts on right or left of desk frame or adjacent to a cabinet on two ball-bearing telescoping slides. Pencil tray at top, fixed divider panel at bottom. 20 gauge steel. **Three-drawer pedestal** mounts on either side of desk. Drawers, each with one movable divider, are on telescoping slides with nylon bearings. 20 gauge steel. **Mounting rail** and **divider panel,** tapped 10-32 on E.I.A. wide hole spacing. 16 gauge steel. **21" door** is reversible, hinges many places on cabinet. 18 gauge steel. **Perforated bottom panel,** 18 gauge steel. 1/16" diameter holes on 1/8" staggered centers. **30" and 21" shelves** are 16 gauge steel.

STANDARD ONE, TWO AND THREE-BAY UNITS

Commander CD-16000. One-bay desk with standard one-bay unit.
80W820. NET **441.40**

Commander CD-16001. One-bay desk with deluxe one-bay unit.
80W821. NET **509.00**

Commander CD-16002. Two-bay desk with deluxe one-bay rear unit.
80W822. NET **592.20**

Commander CD-16003. Two-bay desk with deluxe one-bay rear unit, plus cabinet.
80W823. NET **658.65**

Commander CD-16004. Two-bay desk with deluxe two-bay rear unit.
80W824. NET **680.25**

Commander CD-16005. Three-bay desk with standard one-bay rear unit and two cabinets.
80W825. NET **753.30**

Commander CD-16006. Three-bay desk with deluxe one-bay rear unit and two cabinets.
80W826. NET **820.00**

Commander CD-16007. Three-bay desk with deluxe two-bay rear unit and one cabinet.
80W827. NET **845.05**

Commander CD-16008. Three-bay desk with deluxe three-bay rear unit.
80W828. NET **881.85**

Cabinet. Mounted on right or left side of two or three-bay framework. Front and rear adjustable mounting rails tapped 10-32 E.I.A. spacing. Solid bottom panel supplied. Perforated bottom panel and doors optional. 16 gauge steel.

Standard Rear Unit. For storage and/or cable routing. Rear quick-disconnect panel secured by two ¼-turn fasteners at top and two open slots at bottom. Optional 30" shelf. Modesty panel and shelf, 16 gauge steel. Knobs are black plastic.

One-Bay Deluxe Rear Unit. For storage, cable routing and/or mounting equipment. Reversible rear door affixed with pin hinges along one side, locking bar and magnetic latch along opposite side. Optional 30" shelves, mounting rails and divider panels available. Modesty panel and rear frame are 16 gauge steel. Door mounting strips are 11 gauge steel.

Two-Bay Deluxe Rear Unit. For storage, cable routing and/or mounting equipment. Reversible rear doors affixed with pin hinges along one side, locking bar and magnetic latch along opposite side. Optional 21" and 30" shelves, mounting rails and divider panels available. Modesty panel and rear frame, 16 gauge steel. Doors, 18 gauge steel. Door mounting strips, 11 gauge steel.

Three-Bay Deluxe Rear Unit. For storage, cable routing and/or mounting equipment. Reversing rear doors affixed with pin hinges along one side, locking bar and magnetic latch along opposite side. Optional 21" and 30" shelves, mounting rails and divider panels available. Modesty panel and rear frame, 16 gauge steel. Doors, 18 gauge steel. Door mounting strips, 11 gauge steel.

OPTIONAL MODULES AND ACCESSORIES

Stock No.	Type	Description	When used with work station	Quantity Needed	Each
80W829	CD-16009	Vertical Drawer	All units	1*	82.10
80W830	CD-16010	3-drawer Pedestal	CD-16000,1,7 CD-16004,8	1 1 or 2	137.90
80W831	CD-16011	Mounting Rail	CD-16001,3,6 CD-16004,7 CD-16008	1-4 1-8 1-12	13.20 pr.
80W832	CD-16012	30" Shelf	CD-16000,2 CD-16001,3,4,6,7,8 CD-16005	1 1 or 2 1-4	10.55
80W833	CD-16013	21" Shelf	CD-16004,7 CD-16008	1 or 2 1-4	9.60
80W834	CD-16014	Divider Panel	CD-16001 CD-16003,6 CD-16004,7 CD-16008	1-2 1 or 2 1-4 1-6	10.00
80W835	CD-16015	21" Door	CD-16002,3,7 CD-16005,6	1 or 2 1-4	48.65
80W836	CD-16016	Perforated Bottom Panel	CD-16002,3,7 CD-16005,6	1 1 or 2	11.35
91F100	RC-7760	Casters	All units	2 or 4	5.80
91F101	RL-7765	Levelers—Black Nylon Base, 110 lb. Load Rating	All units	2 or 4	2.80
91F102	RL-7766	Levelers—Rubber Base, 220 lb. Load Rating	All units	2 or 4	2.00
91F103	RL-7767	Levelers—White Nylon Base, 200 lb. Load Rating	All units	2 or 4	2.00

*One or two vertical drawers can be used with Commander CD-16004, 16007, 16008.

Cabinet Racks

BUD

BUD ENCLOSED RELAY RACKS

Made of 16 gauge steel with 7/64" panel mtg. supports which are recessed so that panel will be flush with face of rack. Bottom supports use RC 7756 casters. Stk. No. 91F082. Shipped with necesary assembly hardware.

Black	Gray	Ham. Gray	Type	HxWxD	Panel Space	Lbs.	1-9	10-14	15-19
91F050	91F056	91F062	CR-1772	66 9/16"x22"x17 1/8"	61 1/4"x19"	115	169.75	152.80	135.80
91F051	91F057	91F063	CR-1773	82 9/16"x22"x17 1/8"	77" x19"	135	195.45	175.90	156.35
91F058	91F061	91F078	CR-1771	47 9/16"x22"x17 1/8"	42" x19"	92	135.50	121.95	108.40
91F059	91F060	91F077	CR-1774	42 1/16"x22"x17 1/8"	36 3/4"x19"	82	125.33	112.80	100.30

ENCLOSED RELAY RACK—GRAY HAMMERTONE FINISH

Stk. No.	Type	Ht.	P.S.	Dep.	Lbs.	1-9	10-14	15-19
91F095	CR-2071	47 9/16"	42"x19"	22 1/8"	102	157.95	142.25	126.35
91F096	CR-2072	66 9/16"	61 1/4"x19"	22 1/8"	137	191.40	172.25	153.10
91F097	CR-2073	82 9/16"	77"x19"	22 1/8"	159	227.10	204.40	181.70
91F098	CR-2074	42 1/16"	36 3/4"x19"	22 1/8"	98	135.10	121.60	108.10

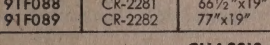
PRESTIGE RELAY CABINET RACKS

Stk. No.	Type	Panel	HxWxD	Lbs.	1-9	10-14	15-19
91F087	CR-2280	61 1/4"x19"	66 9/16"x22"x22"	179	282.60	254.35	226.10
91F088	CR-2281	66 1/2"x19"	71 13/16"x22"x22"	186	289.40	260.45	231.50
91F089	CR-2282	77"x19"	82 5/16"x22"x22"	213	325.30	292.75	260.25

Emc. Relay Rack

Prestige Rack

CHASSIS SLIDES



AS-5000

AS-5080

Unsurpassed for reliability and absence of wear after hundreds of thousands of cycles. Ball bearings of chrome carbon steel are set in special retainers which keep them evenly spaced to give an extremely smooth movement of the slide. Self-cleaning bridged ball retainer. Bright Electro-Zinc finish. High-low temp. grease.

Stk. No.	Type No.	Lt.	Travel	Load Rating	Shpg Wt.	Per Pair Each	2-4	5-9
91F1607	AS-5000	12"	8.80	140	1.75	18.50	16.80	15.10
91F1608	AS-5001	16"	11.88	95	2.00	21.35	19.45	17.50
91F1609	AS-5002	20"	14.88	82	2.50	23.45	21.30	19.15
91F1610	AS-5020	12"	12.88	175	3.25	39.90	39.90	35.90
91F1611	AS-5021	16"	16.88	160	4.25	44.25	44.25	39.85
91F1612	AS-5022	20"	20.88	142	5.25	47.80	47.80	43.00
91F1613	AS-5040	12"	11.88	120	3.25	52.80	52.80	47.50
91F1614	AS-5041	16"	15.88	108	4.25	57.15	57.15	51.45
91F1615	AS-5042	20"	19.88	92	5.25	61.05	61.05	54.95
91F1616	AS-5060	12"	9.00	108	1.75	16.85	15.30	13.75
91F1617	AS-5061	16"	12.00	95	2.00	18.30	16.65	15.00
91F1618	AS-5062	20"	15.00	82	2.50	19.15	17.40	15.65
91F1619	AS-5080A	12"	12.88	120	3.50	46.20	46.20	41.60
91F1620	AS-5081A	16"	16.88	108	4.50	47.20	47.20	42.50
91F1621	AS-5082A	20"	20.88	92	5.50	54.85	54.85	49.35

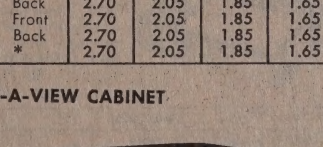
MOUNTING BRACKETS AND BAR NUTS FOR SLIDES

*Bar Nut can be used with all mtg. brackets.

Stk. No.	Type	Mounts	Each	2-4	5-9	10-24
91F1622	BAS-5100	Front	2.70	2.05	1.85	1.65
91F1623	BAS-5101	Back	2.70	2.05	1.85	1.65
91F1624	BAS-5102	Front	2.70	2.05	1.85	1.65
91F1625	BAS-5103	Back	2.70	2.05	1.85	1.65
91F1626	NAS-5110	*	2.70	2.05	1.85	1.65

TILT-A-VIEW CABINET

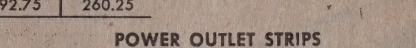
- **18 Gauge Steel**
- **Adjustable Tilt**



Designed to present selective angles of vision to the viewer who may be observing the action of meters or the postion of dials and recorders. Detachable legs change the position of the cabinet. Two piece construction permits immediate access to interior for installation and service. Cabinet fasteners are all positioned on the lower portion of the cabinet so that no fasteners appear on the front or rear panels. Color is gray textured with sand front and rear panels. All models 18 gauge steel.

Stk. No.	Type	Lbs.	H	W	D	Each	2-14	15-24	25-34
90F393	TV2155	8 1/2	4 1/2"	15"	10"	20.80	17.35	15.60	13.90
90F394	TV2156	13	6 1/2"	16"	12"	24.30	20.30	18.25	16.25
90F395	TV2157	17	8 1/2"	17"	14"	29.50	29.50	26.55	23.60

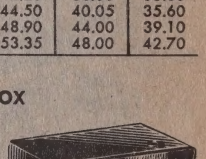
POWER OUTLET STRIPS



Aluminum, silver-finished channels. Strips snap into mntg. clips. Internal wire, 14 AWG solid TW conductor. Internal ground, 16 AWG solid bare conductor. 6' cord 16/3 AWG. 125V receptacles on 6" centers. U.L. approved.

Stk. No.	Type	Outlets	Lgth.	Lbs.	1-9	10-14	15-19
90F396	POS-4	4	17 1/2"	2	42.25	38.05	33.80
90F397	POS-7	7	48"	3 1/2	44.50	40.05	35.60
90F398	POS-9	9	60"	4 1/4	48.90	44.00	39.10
90F399	POS-11	11	72"	4 3/4	53.35	48.00	42.70

COWL TYPE MINIBOX



Has projecting cover which reduces glare on panel from overhead lighting and provides protection for controls and dials. Cover has two box braces to which bottom is attached with sheet metal screws. When assembled this type of construction results in a sturdy, rigid housing. Fabricated of .040 aluminum. Overall dimensions and wt.: SC-2130 and SC-3030. 6x10x7". 1¾ lb. SC-2131 and SC-3031, 7x12x8", 2 lbs. SC-2132 and SC-3032, 3x8x5". 1 lb.; SC-2133 and SC-3033, 5x5x5", ¾ lb.

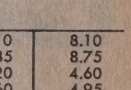
Gray Hammertone Finish

Stock No.	Type	Each	2-49	50-99	100-149
91F884	SC-2130	16.70	13.95	12.55	11.15
91F885	SC-2131	18.30	15.30	13.75	12.25
91F886	SC-2132	9.60	8.00	7.20	6.40
91F887	SC-2133	9.90	8.25	7.45	6.60

Natural Finish

91F888	SC-3030	12.10	10.10	9.10	8.10
91F889	SC-3031	13.10	10.95	9.85	8.75
91F890	SC-3022	6.90	5.75	5.20	4.60
91F891	SC-3033	7.40	6.20	5.60	4.95

UNIVERSAL SLOPING PANEL CABINETS



One piece, detachable back and sides fastened to body with four self tapping screws permits easy access for mounting and servicing components. Available in steel or aluminum. Hammertone gray, finish.

Aluminum

Stk. No.	Type	HxWxD	Lbs.	EACH	2-49	50-99	100-149
91F834	AC1610	4 13/64x4x4 1/16"	3/8	5.50	4.60	4.15	3.70
91F835	AC1611	4 13/64x5x4 1/16"	1/2	5.40	4.50	4.05	3.60
91F836	AC1612	4 13/64x6x4 1/16"	9/16	5.90	4.95	4.45	3.95
91F837	AC1613	4 13/64x7x4 1/16"	5/8	6.50	5.45	4.90	5.35

Steel

91F830	C-1606	4 13/64x4x4 1/16"	1	4.60	3.85	3.45	3.10
91F831	C-1607	4 13/64x5x4 1/16"	1	4.80	4.00	3.60	3.20
91F832	C-1608	4 13/64x6x4 1/16"	1 1/4	5.30	4.40	3.95	3.50
91F833	C-1609	4 13/64x7x4 1/16"	1 1/2	6.20	5.20	4.70	4.15

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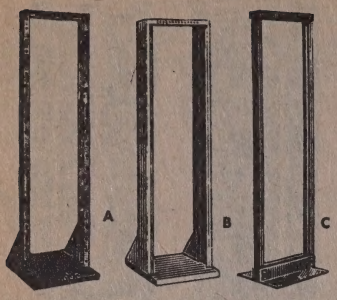
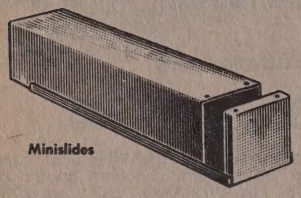


OPEN TYPE RELAY RACKS

For mounting equipment where a complete enclosure is not necessary or advisable. Racks A and B may add casters for mobility. Fig. B has louvered "U" member for ventilation. Gray Hammertone (HG) except Fig. C, Black Rinkletex (BR).

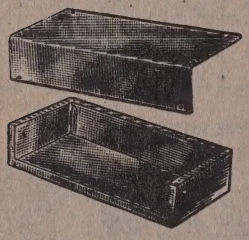
Stk. No.	Type	Fig.	HxWxD	Panel Sp.	Lbs.	1-9	10-14	15-19
91F1740	RR1263HG	A	35⅝x19¾x22″	31½x19″	35	51.75	46.60	41.40
91F1741	RR1264HG	A	70⅝x18¾x22″	66½x19″	46	61.85	55.65	49.50
91F054	RR1265BR	C	72¼x20½x13″	66½x19″	69	117.65	105.90	94.10
91F1743	RR1363HG	A	40⅞x19¾x22″	36¾x19″	36	52.10	46.90	41.70
91F1744	RR1364HG	A	75⅞x19¾x22″	71¾x19″	48	65.05	58.55	52.05
91F1745	RR1366HG	A	81⅛x19¾x22″	77x19″	49	67.90	61.10	54.30
91F1746	RR1367HG	B	64⅜x20⅞x26″	61¼x19″	80	120.75	108.70	96.60
91F1747	RR1368HG	B	73⅜x20⅞x26″	70x19″	89	129.85	116.85	103.90
91F1748	RR1369HG	B	80⅜x20⅞x26″	77x19″	104	138.10	124.30	110.50



MINISLIDES

Used where access to internally mounted parts is necessary. .050 aluminum. Grey hammertone HG except (*) plain.

Stk. No.	Type	LxWxH	Lbs.	Each	2-49	50-99	100-149
91F862	MS-2150	13x3⅛x2⅝″	1	11.50	9.60	8.65	7.70
91F863	MS-2151	13x5⅛x2⅝″	1½	12.90	10.75	9.70	8.60
91F864	MS-2152	17x3⅛x2⅝″	1¼	12.50	10.45	9.40	8.35
91F1600	MS-3050	13x3⅛x2⅝″	1	8.30	6.95	6.25	5.55
91F1601	MS-3051*	13x5⅛x2⅝″	1½	10.00	8.35	7.50	6.70
91F1602	MS-3052*	17x3⅛x2⅝″	1¼	9.80	8.20	7.40	6.55



CONVERTA-BOX

This new box enclosure consists of a welded base and a two sided cover. Box may be easily mounted to any type of surface. Converta-Box is made of 20 gauge steel. Hardware furnished: 4 self-tapping screws. The box has a zinc-plated finish.

Stk. No.	Type	HxWxD	Lbs.	Each	2-24	25-49	50-99
91F554	CU-341	1½x4x3″	½	5.50	4.60	4.15	3.70
91F555	CU-452	2x5x4″	¾	5.90	4.95	4.45	3.95
91F556	CU-482	2x8x4″	1¼	6.20	5.20	4.70	4.15
91F557	CU-592	2½x9½x5″	1¾	6.60	5.50	4.95	4.40
91F558	CU-622	2½x12x6″	2¼	7.20	6.00	5.40	4.80
91F559	CU-712	2½x15x7″	3	9.70	8.10	7.30	6.50

DESK TYPE OPEN RELAY RACKS

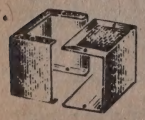
Chassis type base for mounting heavy components. Supporting angles assure steady support. Panel mounting rails are recessed so that any standard 19″ panel will fit flush with the front. Available in Black Rinkletex (BR) or Light Gray Hammertone (HG).

Black		Ham. Gray						
Stk. No.	Type	Stk. No.	Type	Hgt.	Space	Lbs.	1-14	15-24	25-34
91F030	RR-1248BR	91F677	RR-1248HG	24″	21″	14¼″	27.15	24.45	21.70
91F031	RR-1249BR	91F678	RR-1249HG	31″	28″	16¾″	30.75	27.70	24.60

VERTICAL PANEL CHASSIS

Panel mounting chassis for vertical installation where depth is limited or front service is desired. Made of .060″ aluminum alloy 5005 H-14 in natural finish. Front flange has standard notching. Fits standard 19″ panel space.

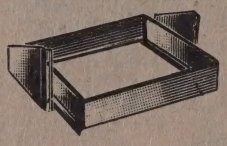
Stk. No.	Type	Ht.	Wt. Lbs.	Each	2-24	25-49	50-99
91F493	CB1370	1¾″	¾	6.50	5.45	4.90	4.35
91F494	CB1371	3½″	1¼	7.40	6.20	5.60	4.95
91F495	CB1372	5¼″	1½	8.40	7.00	6.30	5.60
91F496	CB1373	7″	2	9.20	7.70	6.95	6.15
91F497	CB1374	8¾″	2¼	11.30	9.45	8.50	7.55
91F498	CB1375	10½″	2¾	13.10	10.95	9.85	8.75
91F499	CB1376	12¼″	3	14.60	12.20	11.00	9.75
91F479	CB1377	14″	3¼	16.10	13.45	12.10	10.75



STEEL HANDY BOXES

Two-piece steel cases. Provides the maximum degree of accessibility, adequate shielding as well as complete protection from mechanical injury and dust particles. Formed of 22 gauge steel. Finished in black Rinkletex (BR).

Stk. No.	Type	HxWxD	Wt.	Each	2-49	50-99	100-149
91F541	HB-1621	1½x2¼x4¼″	¼	4.60	3.85	3.45	3.10
91F542	HB-1622	2¾x2x4″	½	4.60	3.85	3.45	3.10



SLIDING DRAWER ASSEMBLY

Used in mounting record players, portable typewriters, instruments, drawer space and many other purposes. Chassis and slide are light gray hammertone. Brackets are 11GA-steel. Will support 30 lbs. Fits standard relay rack. Size: 16¾x14x3″.

Stk. No.	Type	Description	Lb.	1-2	3-4	5-7	8-10
91F826	SD-1717	Assembly	5	31.05	27.95	24.85	23.30
				Each	2	3-4	5-7
91F827	TP-1718	Drawer Plate	1½	8.90	7.45	6.70	5.95

PRECISION DIE CAST UTILITY BOXES

For applications requiring a sturdier structure than a sheet metal utility cabinet. LM-380 aluminum lightweight and easy to machine. Suitable for instrument and meter cases, filter networks, junction boxes, switches, audio and radio frequency distributors, etc.

Stk. No.	Type	Thickness	Wt. Lbs.	LxWxH"*	Each	2-24	25-49	50-99
93F689	CU-123	.063	½	3.63x1.5x1.06	2.90	2.45	2.20	1.95
91F1603	CU-124	.063	½	4.38x2.38x1.06	3.30	2.75	2.50	2.20
91F1604	CU-234	.094	¾	4.69x3.69x2.06	5.50	4.60	4.15	3.70
91F1605	CU-247	.094	1¼	7.38x4.69x2.06	8.80	7.35	6.60	5.90
91F1606	CU-347	.094	1½	7.38x4.69x3.06	8.45	7.70	6.95	6.15

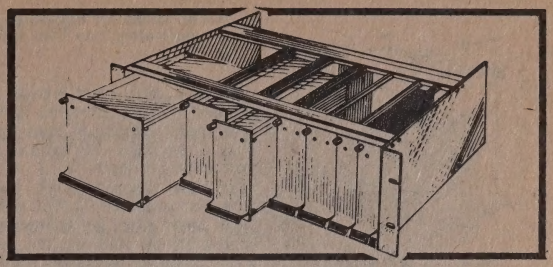
(*) Height less cover.

17

Modular Packaging Systems

BUD

Simple in design, highly functional, easy to use and handsome in appearance. This is the proven System that assures quick and accurate alignment of circuit boards and connectors. Since guides do not carry the weight of boards or sub-unit chassis, there's no guide distortion. Circuit boards go directly into the connectors securely mounted at the end of the guides. Shipped in easy-to-assemble kits.
Size by code:
Height: 2U, 3.50" (88.90mm); **3U,** 5.25" (133.35mm); **4U,** 7.00" (177.80mm); **5U,** 8.75" (222.25mm).
Overall depth: C, 11.4" (290mm); **D,** 14.1" (358mm).
Overall width: 19" (483mm).

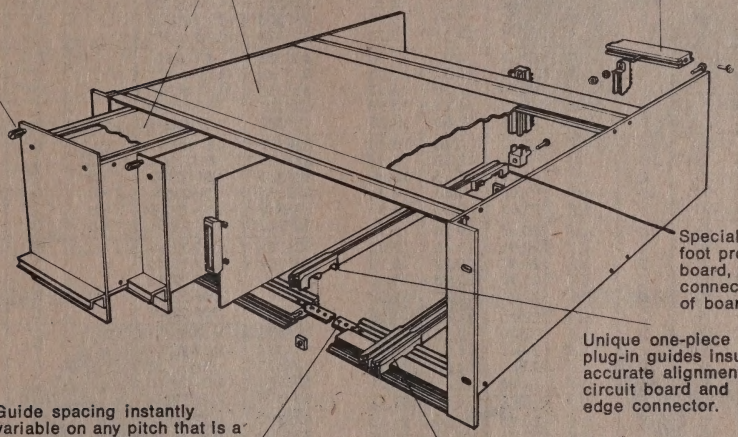


DESIGN FEATURES

Top and bottom cover plates for sub-racks and dust covers for sub-units fitted without increasing overall height and without reducing usable internal height—no mounting screws necessary.

Other types and sizes of connectors can be accommodated by use of CMR-21201 Connector Mounting Rails.

Patented floating screw lock. Panel mounting screws and screw-lock are outside of board area giving more usable front panel space.



Specially designed end-foot provides lead-in for board, also allows edge connector to be full height of board—no profiling.

Unique one-piece plug-in guides insure accurate alignment of circuit board and edge connector.

Guide spacing instantly variable on any pitch that is a multiple of 0.200" (5.08mm) up to a maximum of 42 stations on 0.400" (10.16mm) pitch.

Guides can be removed and installed without dismantling sub-rack. Grounding facility not interrupted by guides. Circuit boards or sub-units run directly on the horizontal members.

Bud Sub-Racks

Stock No.	Type	Sub-Rack Ht.	Sub-Rack Depth	1-3	4-6	7-9
83F417	SR-20101	2U	C	30.60	28.30	25.30
83F418	SR-20102	2U	D	31.20	28.85	25.80
83F300	SR-20103	3U	C	32.15	29.75	26.60
83F310	SR-20104	3U	D	33.40	30.90	27.60
83F351	SR-20105	4U	C	34.35	31.75	28.40
83F360	SR-20105	4U	D	35.55	32.90	29.40
83F419	SR-20107	5U	C	36.60	33.85	30.25
83F420	SR-20108	5U	D	38.20	35.35	31.60

				Each	2-24	25-49
83F302	G-20601	....	C	.40	.30	.28
83F359	G-20602	....	D	.40	.30	.28
83F367	N-9234	....	.....	3.70	2.80	2.80
83F318	N-9226	....	.....	6.40	4.80	4.80
83F313	TBC-20801	....	C	8.35	6.25	5.80
83F327	TBC-20802	....	D	9.95	7.45	6.90
83F421	OFP-21101	3U	.....	9.90	7.45	6.90
83F422	OFP-21102	4U	.....	11.35	8.55	7.90
83F423	OFP-21103	5U	.....	13.15	9.90	9.15
83F424	FL-22700	....	.....	1.35	1.00	1.00
83F363	CMR-21201	....	.....	3.20	2.40	2.20
83F345	S-9089	....	.....	3.20	2.40	2.15
83F324	N-9233	....	.....	2.80	2.10	2.10
83F309	W-9556	....	.....	2.70	2.05	2.05
83F425	RDP-21301	3U	C	8.20	6.15	5.70
83F426	RDP-21302	3U	D	8.50	6.40	5.90
83F427	RDP-21303	4U	C	8.50	6.40	5.90
83F428	RDP-21304	4U	D	9.10	6.85	6.35
83F429	RDP-21305	5U	C	9.10	6.85	6.35
83F430	RDP-21306	5U	D	9.50	7.15	6.60

OPTIONAL EXTRAS FOR SUB-RACKS

GUIDES

Type G—Used on top and bottom of sub-rack to guide sub-units and circuit cards into position. Nuts **N-9234** are used on front for locks, **N-9226** on back for connector or panel mounting. Order nuts separately.

TOP OR BOTTOM COVERS

Type TBC—No mounting screws are required—simply slip into grooves and depress lugs. Order by rack depth.

OVERALL FRONT PANELS

Type OFP—Order by rack height. 4 **FL-22700** floating locks required per panel, order separately.

CONNECTOR MOUNTING RAILS

Type CMR-21201. To be used only when connectors are not mounted direct to guides, 2 needed. Supplied with screws to mount to side plates. Order hardware separately: screw—**S-9089,** nut—**N-9233,** washer—**W-9556** for mounting connectors to connector mounting rail, 2 of each required per connector.

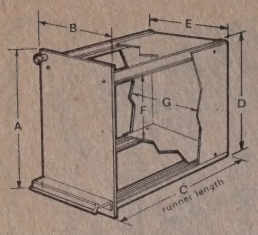
DIVIDER PANELS

Type RDP. Divider Panels are used for dividing the width of Sub-Rack in sections. By mounting additional pairs of horizontal members or connector mounting rails (cut to proper length), different height circuit boards, connectors or sub-units can be used in the same Sub-Rack. No hardware required. Held in place by guides.

BUD Modular Units and Accessories

SUB-UNIT KITS

Slide into racks on mounting guides and lock in place. 30 different sizes to choose from. Order guides separately, see previous page, 4 needed for each sub-unit.



Note: C Depth—7.25″
D Depth—9.897″

OPTIONAL EXTRAS

Type UCP. SUB-UNIT COVER PANELS. These slide into grooves on top and bottom of sub-unit runners before rear panel is fitted, no hardware necessary.

Type USP. SCREEN PLATES. Circuit boards may be replaced by screen plates on one or both sides of unit. Supplied with screws and washers, nuts are supplied as part of the sub-unit kits. Choose by height and depth.

Type UDP. DECK PLATES. Can be used on top and bottom. Supplied with screws and washers, nuts are supplied as part of sub-unit kit.

Type SMP. SOCKET MOUNTING PANELS. These panels are used to provide matching plug or socket on sub-rack for the sub-unit to mate with. Hardware supplied. Mounted on guides, if the sub-unit is not the same width, order extra guides. Choose by height.

Type JL-22800. JACKING LOCKS. Jacking locks can be used instead of supplied floating locks.

Stock No.	Kit No.	Sub-Rack Height	Sub-Rack Depth	Sub-Unit Width	1-9	10-14	15-19
83F323	SU-22101	3U	C	2.4″	17.60	16.30	14.55
83F329	SU-22102	3U	D	2.4	18.10	16.75	14.95
83F334	SU-22103	4U	C	2.4″	18.00	16.65	14.90
83F339	SU-22104	4U	D	2.4″	19.00	17.60	15.70
83F372	SU-22105	5U	C	2.4″	18.45	17.05	15.25
83F373	SU-22106	5U	D	2.4″	19.45	18.00	16.10
83F349	SU-22107	3U	C	2.8	17.70	16.35	14.65
83F364	SU-22108	3U	D	2.8″	18.70	17.30	15.45
83F358	SU-22109	4U	C	2.8″	18.10	16.75	14.95
83F370	SU-22110	4U	D	2.8″	19.05	17.60	15.75
83F374	SU-22111	5U	C	2.8″	18.60	17.20	15.40
83F375	SU-22112	5U	D	2.8″	20.00	18.50	16.55
83F347	SU-22113	3U	C	4.2″	18.85	17.45	15.60
83F341	SU-22114	3U	D	4.2″	19.90	18.40	16.45
83F319	SU-22115	4U	C	4.2″	19.65	18.20	16.25
83F337	SU-22116	4U	D	4.2″	20.65	19.10	17.10
83F376	SU-22117	5U	C	4.2″	20.95	19.40	17.35
83F377	SU-22118	5U	D	4.2″	21.90	20.25	18.10
83F368	SU-22119	3U	C	5.6″	21.90	20.25	18.10
83F354	SU-22120	3U	D	5.6″	22.95	21.25	19.00
83F343	SU-22121	4U	C	5.6″	23.20	21.45	19.20
83F312	SU-22122	4U	D	5.6″	24.00	22.20	19.85
83F378	SU-22123	5U	C	5.6″	24.45	22.60	20.20
83F379	SU-22124	5U	D	5.6″	25.50	23.60	21.10
83F380	SU-22125	3U	C	8.4″	24.55	22.70	20.30
83F381	SU-22126	3U	D	8.4″	26.05	24.10	21.55
83F382	SU-22127	4U	C	8.4″	25.95	24.00	21.45
83F383	SU-22128	4U	D	8.4″	27.75	25.65	22.95
83F384	SU-22129	5U	C	8.4″	27.85	25.75	23.05
83F385	SU-22130	5U	D	8.4″	29.35	27.15	24.25

Stock No.	Type	As applicable Height	As applicable Depth	As applicable Width	Each	2-24	25-49
83F304	UCP-22901	.....	C	2.4″	2.40	1.80	1.65
83F315	UCP-22902	.....	D	2.4″	2.55	1.90	1.75
83F321	UCP-22903	.....	C	2.8″	2.55	1.90	1.75
83F325	UCP-22904	.....	D	2.8″	2.75	2.05	1.90
83F330	UCP-22905	.....	C	4.2″	2.95	2.20	2.05
83F335	UCP-22906	.....	D	4.2″	3.20	2.40	2.20
83F340	UCP-22907	.....	C	5.6″	3.20	2.40	2.20
83F353	UCP-22908	.....	D	5.6″	3.60	2.70	2.50
83F3B6	UCP-22909	.....	C	8.4″	3.80	2.85	2.65
83F387	UCP-22910	.....	D	8.4″	4.90	3.70	3.40
83F361	USP-23001	3U	C	.....	4.20	3.15	2.90
83F344	USP-23002	3U	D	.....	4.80	3.60	3.35
83F365	USP-23003	4U	C	.....	4.80	3.60	3.35
83F355	USP-23004	4U	D	.....	5.50	4.15	3.85
83F348	USP-23005	5U	C	.....	5.20	3.90	3.60
83F342	USP-23006	5U	D	.....	6.30	4.75	4.40
83F388	UDP-22501	.....	C	2.4″	3.40	2.55	2.35
83F389	UDP-22502	.....	D	2.4″	3.90	2.95	2.75
83F390	UDP-22503	.....	C	2.8″	3.70	2.80	2.60
83F391	UDP-22504	.....	D	2.8″	4.10	3.10	2.85
83F392	UDP-22505	.....	C	4.2″	4.10	3.10	2.85
83F393	UDP-22506	.....	D	4.2″	4.80	3.60	3.35
83F394	UDP-22507	.....	C	5.6″	4.50	3.40	3.15
83F395	UDP-22508	.....	D	5.6″	5.30	4.00	3.70
83F396	UDP-22509	.....	C	8.4″	5.30	4.00	3.70
83F397	UDP-22510	.....	D	8.4″	6.65	5.00	4.65
83F398	SMP-23101	3U	.....	2.4″	4.30	3.25	3.00
83F400	SMP-23102	4U	.....	2.4″	4.70	3.55	3.30
83F401	SMP-23103	5U	.....	2.4″	5.10	3.85	3.55
83F305	JL-22800	.....	.....	.....	1.35	1.00	1.00

CIRCUIT BOARDS

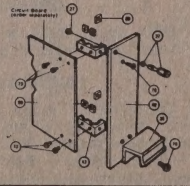
.062" thick, single-sided copper, circuit boards with contact fingers for edge connectors. Use with handles or printed board units.

Stock No.	Type	Sub-Unit Hght	Sub-Unit Dpth	No. Contacts	1-9	10-14	15-19
83F402	CB-21401	2U	C	24	13.90	12.85	11.50
83F403	CB-21402	2U	D	24	15.85	14.65	13.10
83F301	CB-21403	3U	C	40	18.45	17.05	15.25
83F311	CB-21404	3U	D	40	21.75	20.10	18.00
83F320	CB-21405	4U	C	58	24.60	22.75	20.35
83F328	CB-21406	4U	D	58	29.35	27.15	24.25
83F404	CB-21407	5U	C	76	33.00	30.55	27.30
83F405	CB-21408	5U	D	76	35.25	32.60	29.15

CBH-21501. Circuit Board Handles; with hardware. **83F406 NET** ..... **.30**

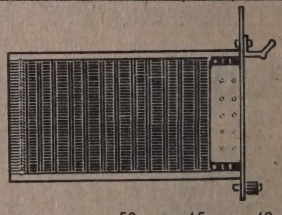
PRINTED BOARD UNITS

Consists of a handle, finished front panel, floating lock, and all necessary hardware needed to attach a printed circuit board. Compatible boards listed above.



Stock No.	Type	Rack Height	Width	Each	2-24	25-49
83F306	PBU-24101	3U	1.2″	6.70	5.05	4.65
83F316	PBU-24102	4U	1.2″	6.70	5.05	4.65
83F415	PBU-24103	5U	1.2″	7.20	5.40	5.00
83F352	PBU-24104	3U	1.8″	7.00	5.25	4.85
83F369	PBU-24105	4U	1.8″	7.50	5.65	5.25
83F416	PBU-24106	5U	1.8″	7.80	5.85	5.40

EDGE CONNECTORS



.50 .45 .40

Mount on the mounting guides used for the circuit boards. With single or double row pins, in miniwrap or solder form. End feet needed.

Stock No.	Type	Unit Hght	No. Rows	Pin Type	Pins /Row	Each	2-24	25-49
83F407	C-20901	2U	1	Solder	24	4.95	3.70	3.40
83F408	C-20902	2U	1	Wrap	24	4.95	3.70	3.40
83F409	C-20903	2U	2	Solder	24	6.00	4.50	4.15
83F410	C-20904	2U	2	Wrap	24	6.00	4.50	4.15
83F314	C-20905	3U	1	Solder	40	7.60	5.70	5.25
83F322	C-20906	3U	1	Wrap	40	7.60	5.70	5.25
83F326	C-20907	3U	2	Solder	40	9.35	7.00	6.50
83F332	C-20908	3U	2	Wrap	40	9.35	7.00	6.50
83F338	C-20909	4U	1	Solder	58	10.40	7.80	7.20
83F350	C-20910	4U	1	Wrap	58	10.40	7.80	7.20
83F357	C-20911	4U	2	Solder	58	13.00	9.75	9.00
83F346	C-20912	4U	2	Wrap	58	13.00	9.75	9.00
83F411	C-20913	5U	1	Solder	76	13.20	9.90	9.15
83F412	C-20914	5U	1	Wrap	76	13.20	9.90	9.15
83F413	C-20915	5U	2	Solder	76	16.20	12.15	11.25
83F414	C-20916	5U	2	Wrap	76	16.20	12.15	11.25

CEF-21001. Connector End Feet used to mount edge connectors to mounting guides. Supplied in pairs with hardware. **83F303. NET** ..... **.98**

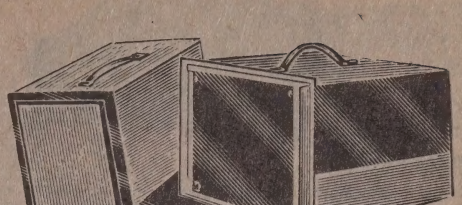
17

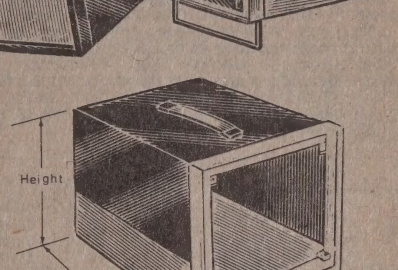
Show Case Enclosures

BUD

PORTABLE ENCLOSURES

Use as desk top instrument cases, in systems, in racks, as portable enclosures. Function plus design gives your products the competitive edege . . . the value edge. Lightweight, but sturdy. Top, sides, rear panel and base are .050 aluminum; front panel is .090. For added strength, gussets have been engineered into the sides of the unit. Strong, flexible handles, recessed and secured firmly into the top, assure safe handling. Front and rear panels and fold-away bail are standard equipment and are included. Two standard color combinations: black textured (BT) and white, royal blue (RB) and white. Also available in an accessory aluminum chassis which adds to the unit's function and versatility.



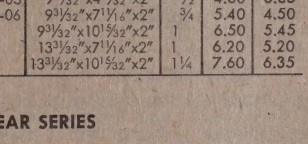


Stock No.						
BT	RB	Type	HxWxD	Lbs.	1-14	15-24
93F670	93F671	BB-1800	6 7/16x5 1/2"x11"	2 1/2	56.45	50.80
93F672	93F673	BB-1801	6 7/16"x8 5/16"x11"	3	58.80	52.90
93F674	.....	BB-1802	8 3/16"x5 1/2"x11"	3	58.10	52.30
93F675	.....	BB-1803	8 3/16"x8 5/16"x11"	3 1/4	60.85	54.75
93F676	93F677	BB-1804	8 3/16"x11 1/16"x11"	4	66.40	59.75
93F678	.....	BB-1805	9 1/16"x5 1/2"x11"	3 1/4	61.60	55.45
93F679	.....	BB-1806	9 1/16"x8 5/16"x11"	3 1/4	64.20	57.80
93F680	93F681	BB-1807	9 1/16"x8 5/16"x15"	4 1/2	68.65	61.80
96F682	.....	BB-1808	9 1/16"x11 1/16"x11"	4 1/4	66.80	60.10
93F683	.....	BB-1809	9 1/16"x11 1/16"x15"	5	70.80	63.70

ALUMINUM CHASSIS FOR SHOWCASE

Stk. No.	Type	Fits	HxWxD	Lbs.	Each	2-14
93F684	BBC-1821	BB-1800-25-05	9 3/32"x4 29/32"x2"	1/2	4.60	3.85
93F685	BBC-1822	BB-1801-03-06	9 3/32"x7 11/16"x2"	3/4	5.40	4.50
93F686	BBC-1823	BB-1804-08	9 3/32"x10 15/32"x2"	1	6.50	5.45
93F687	BBC-1824	BB-1807	13 3/32"x7 11/16"x2"	1	6.20	5.20
93F688	BBC-1825	BB-1809	13 3/32"x10 15/32"x2"	1 1/4	7.60	6.35

LINEAR SERIES



- **For Housing Small Elements**
- **One Piece Aluminum Body**
- **No Visible Fasteners**

Practical for housing small elements and electronic sub-systems. The one piece body of .057 aluminum has a smooth white enamel finish and has knockouts in the rear. The frame is made of 1/8" aluminum with a black textured finish. Two components are easily detached from each other. No visible fasteners are employed and rubber feet are furnished.

Stock No.	Type	O.D. HxWxD	Panel Space HxWxD	Each	2-24	25-34	35-49
91F235	RC-11100	3 1/4"x5"x10"	2 7/8"x4 3/4"x9 1/2"	18.55	16.85	15.15	13.50
91F236	RC-11101	8"x12"x10"	7 7/8"x11 3/4"x9 1/2"	37.05	37.05	33.35	29.65

SLOPE SERIES

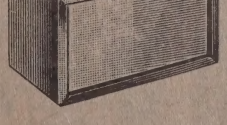
- **20° Front Slope**
- **Quick Interior Access**

Clean vertical and horizontal lines provide quick access to the interior. The frame is of 1/8" aluminum with black textured finish, while the one piece body is .057 aluminum in smooth white enamel finish. The two elements are quickly separated, with knockouts in the rear. Front panel has a 20° slope.

Stock No.	Type	O.D. HxWxD	Panel Space HxWxD	Each	2-24	25-34	35-49
91F237	SC-12100	4 1/4"x5"x5"	4 1/8"x4 3/4"x3 5/8"	12.60	11.45	10.30	9.15
91F238	SC-12101	3 1/4"x12"x10"	3 1/16"x11 3/4"x8 1/16"	26.20	23.80	21.40	19.05

"FUTURA" CABINETS

Versatile housing for small equipment. Made of 20-gauge steel except for front panel, which is 18-ga. Top and sides are one piece, easily removable to expose interior. Front panel is held by flanges (no screws to mar appearance); is vertical, except † rises vertically 2", then has 15° incline. Chassis may be attached to base, rear, or front panels. Has four rubber feet. Dark Blue textured body with light blue textured panel (BBY) or light gray hammertone body, textured panel. (HG)



Gray Stk. No.	Blue Stk. No.	Type	HxWxD	Lbs.	Each	2-14	15-24	25-34
91F1350	91F1356	MD-1960	7x13x8"	6 3/4	23.10	19.30	17.35	15.45
93F1351	93F1357	MD-1961	8x14x9"	7 3/4	25.00	20.90	18.80	16.70
93F1352	93F1358	MD-1962	8x16x9"	8 1/2	25.70	21.45	19.30	17.15
91F1353	91F1359	MD-1963†	7x13x8"	7	27.20	22.70	20.45	18.15
91F1354	91F1360	MD-1964†	8x14x9"	8	29.20	24.35	17.40	15.50
91F1355	91F1361	MD-1965†	8x16x9"	8 3/4	31.20	26.00	23.40	20.80

"GRAND PRIX" CABINETS

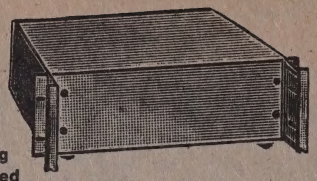
For audio equipment, medical electronics, or wherever appearance is of importance. Handles are brushed aluminum extrusions that slide over and flanges of the upper and lower body segments and are secured by setscrews; when removed, the upper body segment comes off to permit servicing contents. Made entirely of 20-gauge steel. With four rubber feet to prevent damage to desk tops, etc. Choice of light gray hammertone body with matching panels (HG) or dark gray textured body with light gray panels (GGY).

GGY Stk. No.	HG Stk. No.	Type	HxWxD	Lbs.	1-14	15-24	25-49
91F1362	91F1365	MD-1	4 3/16"x19 1/8"x10 1/2"	7 1/4"	35.75	32.20	28.60
91F1363	91F1366	MD-2	7 3/16"x19 1/8"x10 1/2"	7 3/4	37.50	33.75	30.00
91F1364	91F1367	MD-3	4 3/16"x12 1/2"x8 3/4"	7	28.95	26.05	23.15

17

Cabinets & Accessories

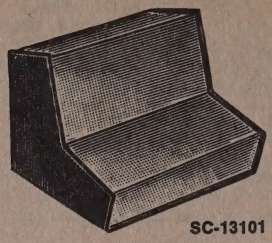
VALU/LINE CABINETS



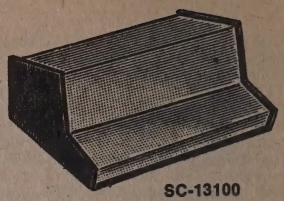
- **Contemporary styling**
- **Completely assembled**

Classic and contemporary styling together with innovative engineering techniques result in a ruggedly built enclosure. Completely assembled with separate detachable rack mounting brackets and rubber feet. Adhesive paper covering on 1/8" brushed aluminum front panel provides an excellent surface for indicating position when drilling or punching panel. 7/8" diameter knockout in rear. Base, rear and top are .057" aluminum with white, smooth enamel finish. Sides are 1/8" aluminum with white, textured enamel finish. Handles are clear, anodized 6063-T5 aluminum extrusions. Balls are available as extras.

Stock No.	Type	D x W x H	1-3	4-7	8-10
99F1010	HC-14100	13" x 12¾" x 3½"	84.50	76.05	67.60
99F1011	HC-14101	13" x 17" x 3½"	89.20	80.30	71.35
99F1012	HC-14102	13" x 12¾" x 5¼"	91.75	82.60	73.40
99F1013	HC-14103	13" x 17" x 5¼"	92.00	82.80	73.60
99F1014	HC-14104	13" x 17" x 7"	96.55	86.90	77.25
99F1015	HC-14105	13" x 17" x 8¾"	101.20	91.10	80.95
99F1016	HC-14106	13" x 17" x 10½"	105.80	95.20	84.65
99F1017	HC-14107	15" x 17" x 10½"	110.40	99.35	88.30
99F1018	HC-14108	15" x 17" x 12¼"	114.90	103.40	91.90
99F1019	HC-14109	15" x 17" x 14"	124.10	111.70	99.30



SC-13101



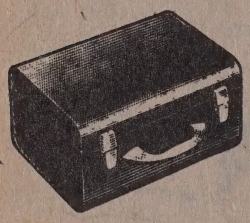
SC-13100

COMPUCAB SERIES

Practical and adaptable to many types of instruments. Keyboard look matches today's advanced digital technology concept. All aluminum construction combines beauty, utility and sturdiness. Base and sides are 1/8" aluminum with black textured enamel finish. Cover and back are .057" aluminum with smooth, white enamel finish. SC-13100 rear panel has one 7/8" knockout, SC-13101 rear panel has two 7/8" knockouts and 4 sets of louvers. Shipped completely assembled.

Stock No.	Type	W x D x H	1	2-5	6-9
91F1730	SC-13100	10" x 8 1/16" x 5 1/32"	28.20	25.65	23.10
91F1731	SC-13101	14" x 10¾" x 9 61/64"	52.20	52.20	47.00

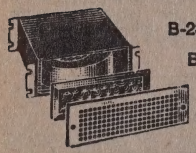
TRANSICASE



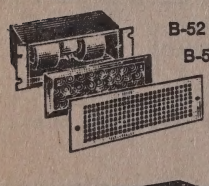
A portable instrument case. Made of .040 aluminum with a flush fitting panel. Transicase has two slide-off bright nickel plated hinges for easy removal of top and has two bright nickel toggle catches. Also, bright nickel handle. Two types of finishes are available, dark blue textures (BB) or dark gray textured (GG). Rubber feet on base and back. Clear int. space above panel: 1 15/32".

Stk. No. Blue	Stk. No. Grey	Type	W x D x H	Panel Size	Clear Int. Space Below Panel	Internal Aperture	Lbs.	1-9	10-14	15-19
91F911	91F916	TC-300	10 1/16x7x6"	8 15/16x5 15/16"	4 13/32"	8x5 3/32"	2½	46.00	41.40	36.80
91F912	91F917	TC-301	11½x8¼x6"	10 3/8x7¼"	4 13/32"	9 7/16x7 9/32"	3¼	47.45	42.70	37.95
91F913	91F918	TC-302	13x9x7½"	11 7/8 x7 15/16"	5 29/32"	10 15/16x7 3/32"	4	53.10	47.80	42.50
91F914	91F919	TC-303	16½x9x7½"	15 3/8x7 15/16"	5 29/32"	17 5/16x7 3/32"	4¾	53.85	48.45	43.10
91F915	91F920	TC-304	20 1/8 x8x9"	19x7"	7 1/32"	18 1/16x7 1/32"	6¾	59.45	53.50	47.55

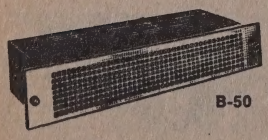
TRANS-AIRE-BLOWERS



B-23A
B-25A
B-27A



B-52
B-54



B-50

Designed for cooling electronic equipment. All are 115 volts, 50/60 Hz. single phase.

Model B-27A. Two speed packaged blower for top CFM. Air delivery: 515 CFM high speed, 280 CFM low speed. Motor: 1350/1150 RPM, 550/350 watt shaded pole motor.

Model B-23A. Low silhouette two speed, requiring just 3½" of panel space. Produces 180 CFM on high, 130 CFM on low speed. Motor: 1450/1250 RPM, 125/100 shaded pole motor.

Model B-25A. Two speed 350/160 CFM blower, delivers a turbulent air distribution pattern to eliminate hot spots. Motor: 1420/1075 RPM, 375/200 shaded pole motor.

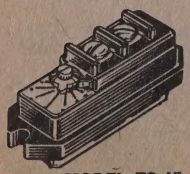
Model B-52. Produces 150 CFM, equipped with two extra wide, small diam. centrifugal blower wheels. Motor: 3000 RPM, fan cooled, 80 watts.

Model B-54. Dual wheels deliver 300 CFM of clean, cool filtered air. Motor 1550 RPM, rubber mounted. 60-watt shaded pole motor.

Model B-50. Requires only 3½" of panel ht., produces 150 CFM, 12½" wide air stream. Motor: 3150 RPM, 80 watts, shaded pole. Gray finish on all.

BLOWER						USE FILTER				
Stk. No.	Type	Dim. HxWxD	1-9	10-14	15-19	Stk. No.	Type	Each	2-24	25-49
91F1630	B-27A	7x19x14½"	189.55	155.05	137.85	91F905	BF-28	4.30	3.25	2.95
91F1631	B-23A	3½x19x12"	147.55	126.45	112.40	91F904	BF-24	3.30	2.50	2.25
91F1632	B-25A	5¼x19x14½"	168.30	144.25	128.25	91F638	BF-26	3.80	2.85	2.55
91F1633	B-52	5¼x19x9"	138.10	124.30	110.50	80W723	BF-53	3.80	2.85	2.55
91F1634	B-54	7x19x10 3/16"	172.75	155.50	138.20	80W724	BF-55	4.00	3.00	2.70
91F1635	B-50	3½x19x6⅜"	136.50	122.85	109.20					

TEM-STAT TEMPERATURE CONTROL



MODEL TS-15

Prevent shut-downs from over-heating of enclosed electronic or electrical equipment. Reacts to gradual or sudden changes. Accuracy ±4°F. Contacts remain closed until there is a 10°F drop. Also controls convection and radiant heating. Range: 80°-170°F.

U.L. ELECTRICAL RANGE. 100,000 cycles: full load 8 amps at 115 VAC, 4 amps at 230 VAC. Motor rating: locked rotor 48 amps at 115 VAC, 24 amps at 230 VAC. Pilot Duty: 125V amps at 115/230 VAC or 250 mV or more. 6,000 cycles: full load 13.6 amps at 120 VAC, 6.9 amps at 240 VAC. Motor rating: locked rotor 82.8 amps at 120 VAC, 41.4 amps at 240 VAC.

91F1636. NET 10.60

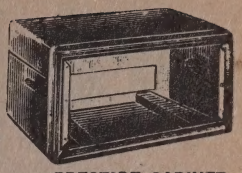
Cabinets and Cases

BUD

"PRESTIGE" CABINETS

Stock cabinets of 16 gauge steel for housing quality instruments, etc. Hinged covers . . . solid or perforated. Grommeted finger holes for easy cover lifting. Cover closes by pressure fasteners. Chassis supporting channels and embossed feet. Width 21⅝, Depth 14¾. Finished in gray hammertone.

Stock No.	Type No.	Cover	Overall Height	Panel Space	Lbs.	1-14	15-24	25-34
91F064	C-1440	Solid	9⅜₁₆	7"	25	79.40	71.45	63.50
91F065	C-1441	Solid	11⅝₁₆	8¾"	26	87.10	78.40	69.70
91F066	C-1442	Solid	13⅜₁₆	10½"	18½	90.85	81.75	72.70
91F067	C-1550	Perf.	9⅜₁₆	7"	23½	89.35	80.40	71.50
91F068	C-1551	Perf.	11⅝₁₆	8¾"	25	93.10	83.80	74.50
91F069	C-1552	Perf.	13⅜₁₆	10½"	27½	98.35	88.50	78.70

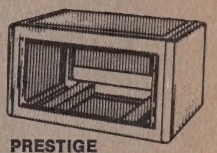


PRESTIGE CABINET

PRESTIGE VERSA CABINETS

Has sturdy framework with ball cornered sides. Unit also has solid bottom plate and two supporting channels. All of these parts are removable. Unit uses standard 19" panels. Cabinets are made to be stacked, or may be fastened side by side. Grey Hammertone finish.

Stk. No.	Type	Overall Height	Panel Space	Rear Panel	Lbs.	Net Each, Lots of 1-9	10-14	15-19
91F906	PC-1700	8¾"	5¼"	3½"	27	75.25	67.75	60.20
91F907	PC-1701	10½"	7"	5¼"	28¼	79.60	71.65	63.70
91F908	PC-1702	12¼"	8¾"	7"	32	81.60	73.45	65.30
91F909	PC-1703	14"	10½"	8¾"	33	92.10	82.90	73.70
91F910	PC-1704	15¾"	12¼"	10½"	34¾	97.20	87.50	77.75

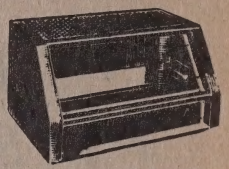


PRESTIGE VERSA CABINET

SLOPING PANEL PRESTIGE CABINETS

Cabinet has ventilated top, full top opening, recessed handle, shielded handles in sides. Top panel swept back for easy viewing, rear opening for easy cable or control access. Panel trim bar removable. Provides for installation or removal of panels. Grey hammertone finish. Rear opening is 2½" x 18", panel offset: 1¼" overall width: 22" pnl. ht. vert: 3½".

Stock No.	Type	Ht. x Depth	Pan. Ht. Slope	Lbs.	1-14	15-24	25-34
91F743	C-1555	11⅞ x14⅜"	7"	25	78.40	70.55	62.70
91F744	C-1556	13¼ x15⅛"	8¾"	27	83.50	75.15	66.80
91F745	C-1557	14¾x16⅛"	10½"	30	89.50	80.55	71.60



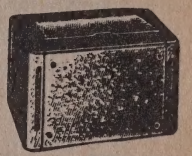
SLOPING PANEL PRESTIGE CABINET

STREAMLINED CABINETS

Stk. No. Black	Stk. No. Ham. Grey	Type	Wid.	Panel	Top Opening	Lbs.	Each	2-24	25-49
91F680	91F775	CD-1480	10½"	8x 8"	5⅝x 7⅝"	6¼	19.50	16.30	14.65
91F681	91F776	CD-1481	12½"	8x10"	5⅝x 9⅛"	6¾	19.70	16.45	14.80
91F682	91F777	CD-1482	14½"	8x12"	5⅝x11⅛"	7½	21.00	17.55	15.80
91F683	91F778	CD-1483	16½"	8x14"	5⅝x13⅛"	7¾	22.70	18.95	17.05
91F684	91F779	CD-1484	18½"	8x16"	5⅝x15⅞"	9¼	24.00	20.05	18.05
91F685	91F780	CD-1485*	20⅝"	12x18"	10½x15½"	17½	39.35	39.35	35.40

*Has 12" overall depth.

Ideal cabinets for electronic devices. They have recessed hinged cover with convenient finger lift. Grey hammertone HG finish or black Rinkletex BR. Overall ht. is 8" and overall depth is 8¼". Complete with panel.



STREAMLINED

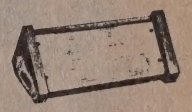
CARRYING CASES

Portable cases for transceivers, test units and other types of compact equipment. Front and back panels are fastened by self-tapping screws. Have easy grip handle. Black Rinkletex finish. Steel construction.

Stk. No.	Type	HxWxD	Lbs.	Each	2-24	25-49
91F608	CC-1095	9x6x5"	3	9.20	7.70	6.95
91F609	CC-1092	7x12x6"	5	13.00	10.85	9.75
91F610	CC-1100	10x10x8"	7	14.90	12.45	11.20
91F611	CC-1091	6x9x5"	3	9.20	7.70	6.95
91F612	CC-1096	12x7x6"	5¼	13.00	10.85	9.75
91F613	CC-1097	15x7¾x7"	7¼	14.60	12.20	11.00
91F614	CC-1093	9x15x7"	8	18.00	15.05	13.55

MARK-T

Unique triangular 16 gauge steel welded cabinet. Features include: Removable front panel & rear door; recessed carrying handles; 4 rubber feet; dark gray textured body, light gray textured panel & door. All models 6$^{17}/_{32}$" H.



Stock No.	Type	W	Panel	Weight	1-14	15-24	25-34
90F384	MT-214	16"	5¾x14"	9¾	59.35	53.40	47.50
90F385	MT-219	21"	5¾x19"	12¼	65.05	58.55	52.05
90F386	MT-224	26"	5¾x24"	14¼	76.55	68.90	61.25

17

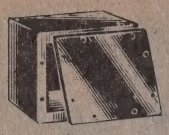
MAKE NEWARK YOUR ONE STOP SOURCE FOR ALL BUD RADIO CABINETS AND ACCESSORIES FAST DELIVERY FROM ON-THE-SHELF STOCKS.

UNIVERSAL METER CASES

Can accommodate either a 2" or 3" meter. Center hole is punched for 2" meter and has an easily removed knock-out ring which increases size of hole to fit 3" meter. One piece, detachable back and sides fastened to the body of case with four self tapping screws. Two ⅜" knock-out holes in top for installation of feed through insulators if required. Available in steel or aluminum gray hammertone. 4¼"H. x 4"W. x 4"D. †CMA-1930. 4¼ x 6 x 4".

Stk. No.	Type	Lbs.	Each	2-49	50-99
91F598	CM-1935 Steel	¾	4.40	3.65	3.30
91F599	CMA-1936 Alum.	¼	5.20	4.35	3.90
91F597	†CMA-1930 Alum.	½	8.60	7.20	6.50

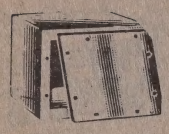
BUD Cabinets & Miniboxes



Steel utility cabinets for electronic equipment, monitors, frequency meters, etc. Ideal for the amateur, experimeter. Accurately formed of sheet steel for rugged use. Have two removable sides. Black rinkletex and light grey hammertone finish.

STEEL UTILITY CABINETS

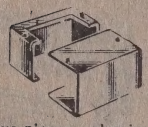
Black		Grey Ham.						
Stk. No.	Type	Stk. No.	Type	HxWxD	Lbs.	Each	2-49	50-99
91F620	CU-883	91F640	CU-883HG	4x4x2"	¾	3.70	3.10	2.80
91F621	CU-728	91F641	CU-728HG	4x5x3"	1	4.50	3.75	3.40
91F622	CU-729	91F642	CU-729HG	6x5x4"	1¾	5.60	4.70	4.25
91F623	CU-1098	91F643	CU-1098HG	6x6x6"	2¼	7.60	6.35	5.70
91F624	CU-1099	91F644	CU-1099HG	9x6x5"	3	8.60	7.20	6.50
91F625	CU-880	91F645	CU-880HG	10x10x8"	6¼	13.60	11.35	10.20
91F626	CU-882	91F646	CU-882HG	15x8x7"	8¼	15.20	12.70	11.45
91F627	CU-879	91F647	CU-879HG	10x8x7"	3¼	11.70	9.75	8.80
91F628	CU-881	91F648	CU-881HG	12x11x8"	8½	15.10	12.60	11.35
91F629	CU-1124	91F649	CU-1124HG	12x7x6"	5	11.70	9.75	8.80



Ideal for mounting amplifiers, meters, test instruments, etc. Removable front and back may be fastened to cabinet with self-tapping screws provided. Available in natural or light gray hammertone finish (HG). Rugged and attractive. Aluminum alloy 500S H14.

ALUMINUM UTILITY CABINETS

Stk. No.	Type	HxWxD	Lbs.	Each	2-49	50-99
91F543	AU-1028	4x5x3"	½	4.50	3.75	3.45
91F544	AU-1029	6x5x4"	¾	5.10	4.25	3.85
91F545	AU-1039	6x6x6"	1	7.60	6.35	5.70
91F546	AU-1040	9x6x5"	1½	8.40	7.00	6.30
91F547	AU-1083	4x4x2"	¼	4.30	3.60	3.25
91F716	AU-1083HG	4x4x2"	¼	5.10	4.25	3.85
91F717	AU-1028HG	4x5x3"	½	5.80	4.85	4.35
91F718	AU-1029HG	6x5x4"	¾	6.10	5.10	4.60
91F719	AU-1039HG	6x6x6"	1	8.10	6.75	6.10
91F720	AU-1040HG	9x6x5"	1½	10.20	8.50	7.65

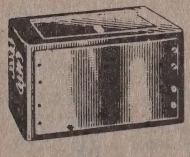


Two-piece aluminum design insures maximum degree of accessibility, adequate shielding as well as complete protection from mechanical injury and dust particles. Formed of .040 gauge aluminum. Comb. snap lock and screw type fastening. Excellent for constructing amplifiers, shielded oscillators, etc.

MINIBOXES

Grey Enamel							Natural Aluminum				
Stk. No.	Type	Each	2-49	50-99	LxHx	Wt. Lbs.	Stk. No.	Type	Each	2-49	50-99
91F700	CU-2100B	2.10	1.75	1.60	2¾x2⅛x1⅝"	¼	91F572	CU-3000A	1.60	1.35	1.20
91F701	CU-2101B	2.10	1.75	1.60	3¼x2⅛x1⅝"	¼	91F573	CU-3001A	1.60	1.35	1.20
91F702	CU-2102B	2.30	1.90	1.70	4x2⅛x1⅝"	¼	91F574	CU-3002A	1.80	1.50	1.35
91F703	CU-2103B	2.40	2.00	1.80	4x2¼x2¼"	¼	91F575	CU-3003A	2.10	1.75	1.60
91F704	CU-2104B	2.80	2.35	2.10	5x2¼x2¼"	¼	91F576	CU-3004A	2.10	1.75	1.60
91F705	CU-2105B	3.40	2.85	2.55	5x4x3"	½	91F577	CU-3005A	2.30	1.90	1.70
91F706	CU-2106B	3.00	2.50	2.25	5¼x3x2⅛"	¼	91F578	CU-3006A	2.30	1.90	1.70
91F707	CU-2107B	4.30	3.60	3.25	6x5x4"	¾	91F579	CU-3007A	3.10	2.60	2.35
91F708	CU-2108B*	4.80	4.00	3.60	7x5x3"	¾	91F580	CU-3008A*	3.90	3.25	2.95
91F709	CU-2109B*	6.30	5.25	4.75	8x6x3½"	1	91F581	CU-3009A*	5.00	4.20	3.80
91F697	CU-2110B*	6.90	5.75	5.20	10x6x3½"	1¼	91F582	CU-3010A*	5.40	4.50	4.05
91F698	CU-2111B*	9.40	7.85	7.05	12x7x4"	1¾	91F583	CU-3011A*	6.90	6.25	5.65
91F535	CU-2112B*	9.50	7.95	7.15	17x5x4"	2¼	91F584	CU-3012A*	6.90	6.25	5.65
91F536	CU-2113B*	3.50	2.90	2.60	10x2x1⅝"	½	91F585	CU-3013A*	3.00	2.50	2.25
91F537	CU-2114B*	4.70	3.90	3.50	12x2½x2¼"	¾	91F586	CU-3014A*	3.80	3.15	2.85
91F538	CU-2115B	2.50	2.10	1.90	4x2x2¾"	¼	91F587	CU-3015A	2.10	1.75	1.60
91F539	CU-2116B	2.50	2.10	1.90	4¼x2¼x2½"	¼	91F588	CU-3116A	2.10	1.75	1.60
91F540	CU-2117B	2.50	2.10	1.90	3¼x2⅛x1⅛"	¼	91F589	CU-3017A	1.80	1.50	1.35

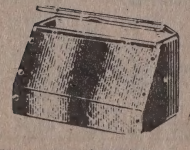
(*) Made of .050" aluminum



DELUXE METAL CABINET RACKS

Will accommodate standard 19" panels. Five larger sizes only have hinged door. All sizes have top door for easy servicing or inspection. "No scratch" metal feet are embossed on bottom to minimize marring. Available in black Rinkletex (BR), gray Rinkletex (GR), or light gray hammertone (HG) finish.

Black	Grey	Type	HG Fin.	Type	DxWxH	Panel	Wt. Lbs.	1-9	10-14	15-19
91F687	91F688	CR-1726	91F689	CR-1726HG	14¾x22x8²⁵⁄₃₂"	7"	28	49.00	44.10	39.20
91F650	91F656	CR-1741	91F671	CR-1741HG	14¾x22x10⁹⁄₁₆"	8¾"	30	51.95	46.75	41.55
91F662	91F664	CR-1740	91F668	CR-1740HG	14¾x22x12⁹⁄₁₆"	10½"	34	58.35	52.50	46.70
91F651	91F657	CR-1742	91F672	CR-1742HG	14¾x22x14¹⁄₁₆"	12½"	37	62.70	56.45	50.15
91F652	91F658	CR-1739	91F673	CR-1739HG	14¾x22x15¹³⁄₁₆"	14"	40	81.50	73.35	65.20
91F653	91F659	CR-1743	91F669	CR-1743HG	14¾x22x19⁵⁄₁₆"	17½"	47	83.50	75.15	66.80
91F654	91F660	CR-1744	91F670	CR-1744HG	14¾x22x28¹⁄₁₆"	26¼"	58	92.10	82.90	73.70
91F666	91F667	CR-1728	91F674	CR-1728HG	14¾x22x33⁵⁄₁₆"	31½"	68	98.30	88.45	78.65
91F655	91F661	CR-1745	91F675	CR-1745HG	14¾x22x36¹³⁄₁₆"	35"	78	102.95	92.65	82.35
91F663	91F665	CR-1727	91F676	CR-1727HG	14¾x22x22¹³⁄₁₆"	21"	51	89.50	80.55	71.60



The entire front panel of this cabinet is removable if so desired. This cabinet is also provided with a hinged top for easy accessibility to components that are mounted on the chassis without necessitating removal of the front panel. These cabinets are finished in black Rinkletex or light grey hammertone enamel.

SLOPING PANEL CABINETS

Black		HG Fin.						
Stk. No.	Type	Stk. No.	Type	HxWxD	Lbs.	Each	2-24	25-49
91F782	C-1584	91F791	C-1584HG	6½x7¹⁄₁₆x7⁵⁄₁₆"	2¾	11.00	9.20	8.30
91F783	C-1587	91F792	C-1587HG	8x8¹⁄₁₆x8"	4	14.50	12.10	10.90
91F784	C-1585	91F793	C-1585HG	6½x9¹⁄₁₆x7⁵⁄₁₆"	2½	12.10	10.10	9.10
91F785	C-1588	91F794	C-1588HG	8x10¹⁄₁₆x8"	4½	16.10	13.45	12.10
91F786	C-1586	91F795	C-1586HG	6½x11¹⁄₁₆x7⁵⁄₁₆"	3¾	13.90	11.60	10.45
91F787	C-1894	91F796	C-1894HG	8x14¹⁄₁₆x8"	6	16.70	13.95	12.55
91F788	C-1892	91F797	C-1892HG	8x13¹⁄₁₆x8½"	5½	18.80	15.70	14.15
91F789	C-1896	91F798	C-1896HG	9x18¹⁄₁₆x3⁹⁄₁₆"	9¾	23.80	19.85	17.85
91F790	C-1893	91F799	C-1893HG	10x18¹⁄₁₆x10½"	12½	24.40	20.35	18.30

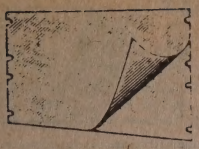
Has two removable panels. The front panel has a chassis attached. An ideal housing for constructing electronic devices using miniature components. Black Rinkletex finish only. Steel.

MINIATURE UTILITY CABINETS

Stk. No.	Type	HxWxD	Wt. Lbs.	Each	2-49	50-99
91F487	C1793	4x4x2"	¾	4.80	4.00	3.60
91F488	C1794	4x5x3"	1¼	5.40	4.50	4.05
91F489	C1795	5x4x3"	1	6.00	5.00	4.50
91F490	C1796	6x5x4"	2	6.40	5.35	4.80
91F491	C1797	5x6x4"	2	6.90	5.75	5.20
91F492	C1798	6x6x6"	2¾	9.50	7.95	7.15

Cabinet Accessories

BUD



Surface Shield

Shelf Assembly

Triangular Brackets

Rack Shelves

Chassis Brackets

"SURFACE SHIELD" RACK PANELS

Each panel is covered on one side with sturdy pressure sensitive white paper for indicating size and position of drilling or milling.

Panels have standard notching. Made of aluminum alloy.

⅛" Panels 19" Wide

Stk. No.	Type	Height	Lbs.	Each	2-49	50-99	100-149
91F265	SFA-1831	1¾"	⅜	3.80	3.15	2.85	2.50
91F266	SFA-1832	3½"	¾	5.40	4.50	4.05	3.60
91F267	SFA-1833	5¼"	1⅛	7.00	5.85	5.25	4.70
91F268	SFA-1834	7"	1¾	8.90	7.45	6.70	5.95
91F269	SFA-1835	8¾"	2	9.90	8.25	7.45	6.60
91F270	SFA-1836	10½"	2½	12.80	10.70	9.65	8.55
91F271	SFA-1837	12¼"	2¾	14.70	12.25	11.05	9.80
91F272	SFA-1838	14"	3¼	16.60	13.85	12.45	11.10
91F273	SFA-1839	15¾"	3⅝	18.80	15.70	14.15	12.55
91F274	SFA-1840	17½"	4	20.70	17.30	15.55	13.85
91F275	SFA-1841	19¼"	4¼	22.90	19.10	17.20	15.30
91F276	SFA-1842	21"	5	25.00	20.90	18.80	16.70

3/16" Panels 19" Wide

Each Stk. No.	Type	Height	Lbs.	Each	2-49	50-99	100-149
91F277	SFA-3161	1¾"	¾	7.00	5.85	5.25	4.70
91F278	SFA-3162	3½"	1¼	9.80	8.20	7.40	6.55
91F279	SFA-3163	5¼"	1¾	12.80	10.70	9.65	8.55
91F280	SFA-3164	7"	2½	16.10	13.45	12.10	10.75
91F281	SFA-3165	8¾"	3	19.00	15.85	14.25	12.70
91F282	SFA-3166	10½"	3¾	22.20	18.55	16.70	14.85
91F283	SFA-3167	12¼"	4½	26.00	23.40	21.05	18.70
91F284	SFA-3168	14"	5	26.65	26.65	24.00	21.30
91F285	SFA-3169	15¾"	5¾	29.90	29.90	26.90	23.90
91F286	SFA-3170	17½"	6¼	32.80	32.80	29.50	26.25
91F287	SFA-3171	19¼"	7	36.40	36.40	32.75	29.10
91F288	SFA-3172	21"	7¼	39.25	39.25	35.35	31.40

STEEL RACK PANELS

Made of ⅛" steel. 19" widths. Have standard notched edges which are able to fit the normal mounting screw spacing of all standard relay racks and telephone type relay racks.

White	Sand	Grey	Ham Grey	Textured Blue	Textured Grey	Type	Lbs.	Height	Each	2-49	50-99	100-149
91F1574	91F1575	91F320	91F435	.....	91F412	PS-1250	1¼	1¾"	3.60	3.00	2.70	2.40
91F1576	91F1577	91F321	91F436	.....	91F413	PS-1251	2¼	3½"	4.30	3.60	3.25	2.90
91F1578	91F1579	91F322	91F437	91F402	91F414	PS-1252	3¼	5¼"	5.30	4.40	3.95	3.50
91F1580	91F1581	91F323	91F438	.....	91F415	PS-1253	4½	7"	5.80	4.85	4.35	3.90
91F1582	91F1583	.....	91F439	.....	91F416	PS-1254	6	8¾"	7.80	6.50	5.85	5.20
91F1584	91F1585	91F325	91F440	91F405	91F417	PS-1255	7	10½"	9.10	7.60	6.85	6.10
91F1586	91F1587	.....	91F441	91F406	91F418	PS-1256	8¼	12¼"	10.10	8.45	7.60	6.75
91F1588	91F1589	.....	91F442	.....	91F419	PS-1257	9½	14"	11.60	9.70	8.75	7.75
91F1590	91F1591	.....	91F443	.....	91F420	PS-1258	10¾	15¾"	12.60	10.50	9.45	8.40
91F1592	91F1593	91F329	91F444	.....	91F421	PS-1259	11¾	17½"	14.00	11.70	10.55	9.35
91F1594	91F1595	.....	91F445	.....	.....	PS-1260	13	19¼"	15.20	12.70	11.45	10.15
91F1596	91F1597	91F331	91F446	.....	91F423	PS-1261	14¼	21"	17.60	14.70	13.25	11.75

ALUMINUM—RACK—PANELS—1/8 PANELS (5005 H-36)

91F1700	91F1701	91F360	91F388	91F240	91F252	PA-1101	⅜	1¾"	4.10	3.40	3.05	2.70
91F1702	91F1703	91F361	91F389	91F241	91F253	PA-1102	¾	3½"	5.60	4.70	4.25	3.75
91F1704	91F1705	91F362	91F390	91F242	91F254	PA-1103	1⅛	5¼"	7.30	6.10	5.50	4.90
91F1706	91F1707	91F363	91F391	91F243	91F255	PA-1104	1¾	7"	9.20	7.70	6.95	6.15
91F1708	91F1709	91F364	91F392	91F244	91F256	PA-1105	2	8¾"	10.40	8.70	7.85	6.95
91F1710	91F1711	91F365	91F393	91F245	91F257	PA-1106	2½	10½"	13.40	11.20	10.10	8.95
91F1712	91F1713	91F366	91F394	91F246	91F258	PA-1107	2¾	12¼"	15.40	12.85	11.55	10.30
91F1714	91F1715	91F367	91F395	91F247	91F259	PA-1108	3	14"	17.70	14.80	13.30	11.85
91F1716	91F1717	91F368	91F396	91F248	91F260	PA-1109	3¼	15¾"	19.60	16.35	14.70	13.10
91F1718	91F1719	.....	91F397	91F249	91F261	PA-1110	3⅝	17½"	21.50	17.95	16.15	14.35
91F1720	91F1721	.....	91F398	.....	91F262	PA-1111	4¼	19¼"	23.40	19.55	17.60	15.65
91F1722	91F1723	.....	91F399	91F251	91F263	PA-1112	5	21"	26.00	21.70	19.55	17.35

⅛" PANELS, 2024 T-3

Ham Gray	Textured Blue	Textured Grey	Type	Lbs.	Hgt.	Each	2-49	50-99	100-149
90F284	.....	.....	PA-1131	⅜	1¾"	5.30	4.45	4.00	3.55
90F285	.....	90F309	PA-1132	¾	3½"	6.80	5.70	5.15	4.55
90F286	.....	90F310	PA-1133	1⅛	5¼"	9.20	7.70	6.95	6.15
90F287	90F299	90F311	PA-1134	1¾	7"	11.80	9.85	8.85	7.90
90F288	90F300	.....	PA-1135	2	8¾"	14.50	12.10	10.90	9.70
90F289	90F301	90F313	PA-1136	2½	10½"	16.80	14.05	12.65	11.25
90F290	.....	90F314	PA-1137	2¾	12¼"	19.30	16.10	14.50	12.90
90F291	90F303	90F315	PA-1138	3¼	14"	22.40	18.70	16.85	14.95
90F292	.....	90F316	PA-1139	3⅝	15¾"	24.20	20.20	18.20	16.15
90F293	.....	.....	PA-1140	4	17½"	26.00	21.70	19.55	17.35
90F294	.....	.....	PA-1141	4¼	19¼"	28.10	23.45	21.10	18.75
90F295	.....	90F319	PA-1142	5	21"	32.45	27.05	24.35	21.65

3/16" PANELS. 5005 H-36

90F224	90F236	90F248	PA-3101	¾	1¾"	5.90	4.95	4.45	3.95
90F225	90F237	90F249	PA-3102	1¼	3½"	8.30	6.95	6.25	5.55
90F226	90F238	90F250	PA-3103	1¾	5¼"	11.10	9.25	8.35	7.40
90F277	90F239	90F251	PA-3104	2½	7"	13.60	11.35	10.20	9.10
.....	.....	90F252	PA-3105	3	8¾"	16.10	13.45	12.10	10.75
90F230	.....	.....	PA-3107	4½	12¼"	23.30	19.45	17.50	15.55

CHASSIS SUPPORTING ANGLES

7/64" steel. Black. Supplied in pairs.

Stk. No.	Type	Length	Width	Lbs.	Each	2-24	25-49	50-99
91F090	SA-1349	14½"	3"	3½	8.30	6.95	6.25	5.55
91F091	SA-1350	12"	3"	3	8.30	6.95	6.25	5.55

SHELF ASSEMBLY

Slides welded to shelf bottom. Mtg. brackets slip into slides, fastened with two screws. Ht. is 7⅛".

Black	Gray	HG	Type	Size	Lbs.	1-2	3-4	5-7	8-10
91F878	91F880	91F882	SA-1719	16x22"	13¼	27.40	24.90	22.40	19.90
91F879	91F881	91F883	SA-1720	20x22"	15¼	29.00	26.40	23.75	21.10

CHASSIS MOUNTING BRACKETS

Black enamel. (*) For 4" chassis. Sold in pairs.

Stk. No.	Type	Dimensions	Lbs.	Each	2-49	50-99	100-149
91F070	MB-458	6½x8"	1¼	4.20	3.50	3.15	2.80
91F071	MB-448	6½x10"	1¾	4.40	3.65	3.30	2.90
91F072	MB-459	6½x11"	2	4.90	4.10	3.70	3.30
91F073	MB-449	6½x12"	2	5.40	4.50	4.05	3.60
91F074	MB-460	6½x13"	2½	5.10	4.25	3.85	3.40
91F075	MB-450*	8½x10"	2¼	5.90	4.95	4.45	3.95
91F076	MB-451*	8½x13"	3	6.10	5.10	4.60	4.10

TRIANGULAR TYPE CHASSIS MOUNTING BRACKETS

Black enamel 16 gauge steel with ¾" flanges. Sold in pairs.

Stock No.	Type	Ht.	Dep.	Wt. Lbs.	Each	2-49	50-99	100-149
91F484	MB1266	5"	5"	½	3.60	3.00	2.70	2.40
91F485	MB1267	7"	7"	1	4.40	3.65	3.30	2.90
91F486	MB1268	9"	9"	1½	5.40	4.50	4.05	3.60

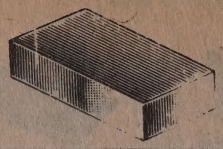
RACK SHELVES

Stk. No.	Type	Size	Lbs.	Each	2-14	15-24	25-34
91F092	CB-1976	19x1x15"	6	12.20	10.20	9.20	8.15
91F093	CB-1977	19x1x12"	5	9.60	8.00	7.20	6.40

17

BUD Chassis & Cabinets

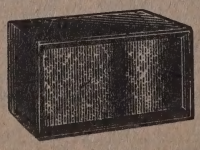
ALUMINUM CHASSIS



Unsurpassed range of standard sizes. Made of one piece of 5005-H-14 aluminum alloy. Reinforced, welded corners to insure utmost strength and long lasting qualities. Folded over on bottom for extra strength.

Stock No.	Type No.	Dimen.	Wt. Lbs.	Each 2-24	25-49	50-99
91F1319	AC-1401	2½" x 4½" x 1"	⅛	2.90	2.40	2.15
91F1320	AC-1402	3½" x 4½" x 1"	⅛	3.00	2.50	2.25
91F1321	AC-1403	3½" x 5½" x 1"	⅛	3.00	2.50	2.25
91F1322	AC-1404	4" x 5" x 2"	¼	3.60	3.00	2.70
91F1323	AC-1405	4" x 6" x 1½"	¼	3.10	2.60	2.35
90F940	AC-430	4" x 6" x 3"	⅓	3.90	3.25	2.95
90F941	AC-431	4" x 6" x 2"	¼	3.50	2.90	2.60
91F1324	AC-1406	4" x 8" x 2"	¼	4.30	3.60	3.25
90F942	AC-432	4" x 17" x 3"	1	6.70	5.60	5.05
91F1325	AC-1407	4½" x 8" x 1½"	¼	3.90	3.25	2.95
90F943	AC-402	5" x 7" x 2"	⅓	3.70	3.10	2.80
90F944	AC-429	5" x 7" x 3"	½	4.10	3.40	3.05
91F1326	AC-1408	5" x 9" x 1½"	⅓	3.90	3.25	2.95
91F1327	AC-1409	5" x 9½" x 1½"	⅓	3.90	3.25	2.95
90F945	AC-403	5" x 9½" x 2"	½	4.00	3.60	3.25
90F939	AC-401	5" x 9½" x 2½"	½	4.70	3.90	3.50
90F946	AC-421	5" x 9½" x 3"	⅝	4.80	4.00	3.60
90F947	AC-404	5" x 10" x 3"	⅝	4.80	4.00	3.60
90F948	AC-422	5" x 13" x 3"	¾	5.60	4.70	4.25
91F1328	AC-1410	5" x 13½" x 2½"	¾	5.20	4.35	3.90
91F1329	AC-1411	5½" x 5½" x 1"	⅕	3.50	2.90	2.60
91F1330	AC-1412	5½" x 9½" x 1½"	⅓	3.90	3.25	2.95
91F1331	AC-1413	6" x 8" x 2"	⅓	4.00	3.35	3.00
91F1332	AC-1414	6" x 14" x 3"	1½	6.70	5.95	5.35
90F949	AC-433	6" x 17" x 3"	1¼	8.10	6.75	6.10
90F950	AC-405	7" x 7" x 2"	½	4.00	3.60	3.25
90F951	AC-406	7" x 9" x 2"	½	4.10	3.40	3.05
90F952	AC-407	7" x 11" x 2"	⅝	4.80	4.00	3.60
90F953	AC-408	7" x 12" x 3"	⅞	5.80	4.85	4.35
90F954	AC-409	7" x 13" x 2"	¾	4.90	4.10	3.70
91F1333	AC-1415	7" x 15" x 2"	1	7.70	6.45	5.80
90F955	AC-411	7" x 15" x 3"	1¼	8.10	6.75	6.10
91F1334	AC-1416	7" x 17" x 2"	1⅛	7.20	6.00	5.40
91F1335	AC-1417	7" x 17" x 2½"	1¼	7.50	6.25	5.65
90F956	AC-423	7" x 17" x 3"	1½	8.10	6.75	6.10
91F1336	AC-1418	8" x 10" x 2½"	1	6.00	5.00	4.50
91F1337	AC-1419	8" x 12" x 2½"	1⅛	7.10	5.95	5.35
90F957	AC-424	8" x 12" x 3"	1¼	6.90	5.75	5.20
90F958	AC-425	8" x 17" x 2"	1½	7.20	6.00	5.40
90F959	AC-412	8" x 17" x 3"	1¾	8.40	7.00	6.30
91F1338	AC-1420	8½" x 15" x 3"	1½	7.70	6.45	5.80
91F1339	AC-1421	9" x 15" x 3"	1½	8.80	7.35	6.60
90F960	AC-413	10" x 12" x 3"	1¼	8.40	7.00	6.30
90F961	AC-414	10" x 14" x 3"	1½	8.40	7.00	6.30
90F962	AC-415	10" x 17" x 2"	1½	8.10	6.75	6.10
90F963	AC-416	10" x 17" x 3"	1¾	9.20	7.70	6.95
90F969	AC-427	10" x 17" x 4"	2½	13.10	10.95	9.85
91F1340	AC-1422	10" x 17" x 5"	2¼	18.80	15.70	14.15
91F1341	AC-1423	10" x 23" x 3"	2¾	14.00	11.70	10.55
90F964	AC-426	11" x 17" x 2"	2	10.20	8.50	7.65
90F965	AC-417	11" x 17" x 3"	2¼	11.80	9.85	8.85
91F1342	AC-1424	12" x 12" x 3"	1½	8.50	7.10	6.40
91F1343	AC-1425	12" x 17" x 2"	1⅝	10.50	8.75	7.90
90F966	AC-418	12" x 17" x 3"	2¼	12.00	10.00	9.00
90F967	AC-419	13" x 17" x 2"	2⅝	10.40	8.70	7.85
90F968	AC-420	13" x 17" x 3"	2¾	12.40	10.35	9.30
90F970	AC-428	13" x 17" x 4"	3¼	15.10	12.60	11.35
91F1344	AC-1426	13" x 17" x 5"	3½	20.80	17.35	15.60
91F1345	AC-1427	14" x 17" x 3"	2¾	14.80	12.35	11.10
91F1346	AC-1428	15" x 17" x 4"	3¼	20.80	17.35	15.60
91F1347	AC-1429	15" x 17" x 6"	4⅛	28.70	23.95	21.55
91F1348	AC-1430	17" x 17" x 3"	3¼	17.60	14.70	13.25
91F1349	AC-1431	17" x 17" x 4"	3⅞	24.80	20.70	18.65

SHADOW CABINET



Extremely versatile housing since front, rear and bottom may be removed for installation or servicing. One inch recessed front panel prevents accidental movement of controls, knobs, and switches attached to it. Body made of 18 gauge steel and panels of 16 gauge steel. Four rubber feet attached to base eliminates scratching. Finished in gray hammertone.

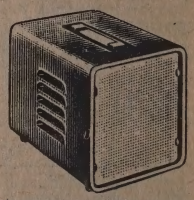
Stk. No.	Type	WxHxD	Lbs.	Each 2-24	25-49	50-99
91F892	SB-2140	14¼x8x10"	11½	25.10	20.95	18.85
91F893	SB-2141	13¼x7½x9"	9¾	21.70	18.10	16.30
91F894	SB-2142	17x9½x11"	15¼	27.70	27.70	24.95
91F895	SB-2143	15½x6x9"	9½	20.60	17.20	15.50

ALUMINUM BOTTOM PLATES

Widest variety of standard sizes. Fit all BUD chassis. Made of 5005-H-14 aluminum alloy. Natural finish. Plates have four embossed feet to prevent damage to surface. Fit snugly on bottom of chassis.

Stock No.	Type No.	Dimen.	Wt. Lbs.	Each 2-49	50-99	100-149
91F1406	BPA-1501	2½"x 4½"	1/16	1.70	1.40	1.25
91F1407	BPA-1502	3½"x 4½"	1/16	1.80	1.50	1.35
91F1408	BPA-1503	3½"x 5½"	⅛	1.80	1.50	1.35
91F1409	BPA-1504	4" x 5"	⅛	1.80	1.50	1.35
91F1410	BPA-1505	4" x 6"	⅛	1.90	1.60	1.45
91F1411	BPA-1506	4" x 8"	⅛	2.40	2.00	1.80
91F1413	BPA-1532	4" x17"	¼	2.40	2.00	1.80
91F1412	BPA-1507	4½"x 8"	3/16	2.50	2.10	1.90
90F860	BPA-1589	5" x 7"	⅛	2.00	1.65	1.50
91F1414	BPA-1508	5" x 9"	3/16	2.00	1.65	1.50
90F861	BPA-1590	5" x 9½"	⅛	2.00	1.65	1.50
90F862	BPA-1591	5" x10"	¼	2.00	1.65	1.50
91F1415	BPA-1509	5" x13"	¼	3.30	2.75	2.50
91F1416	BPA-1510	5" x13½"	¼	3.30	2.75	2.50
91F1417	BPA-1511	5½"x 5½"	⅛	2.00	1.65	1.50
91F1418	BPA-1512	5½"x 9½"	3/16	2.40	2.00	1.80
91F1419	BPA-1513	6" x 8"	3/16	2.50	2.10	1.90
91F1420	BPA-1514	6" x14"	3/16	3.30	2.75	2.50
91F1421	BPA-1515	6" x17"	⅜	4.00	3.35	3.00
90F863	BPA-1592	7" x 7"	3/16	2.00	1.65	1.50
90F864	BPA-1593	7" x 9"	¼	2.40	2.00	1.80
90F865	BPA-1594	7" x11"	¼	2.50	2.10	1.90
90F866	BPA-1595	7" x12"	5/16	2.90	2.40	2.15
90F867	BPA-1596	7" x13"	½	3.30	2.75	2.50
91F1422	BPA-1516	7" x15"	½	3.50	2.90	2.60
91F1423	BPA-1517	7" x17"	½	3.50	2.90	2.60
91F1424	BPA-1518	8" x10"	¼	3.40	2.85	2.55
91F1425	BPA-1519	8" x12"	⅜	4.20	3.50	3.15
91F1426	BPA-1520	8" x17"	½	4.30	3.60	3.25
91F1427	BPA-1521	8½"x15"	½	5.10	4.25	3.85
91F1428	BPA-1522	9" x15"	½	5.40	4.50	4.05
91F1429	BPA-1523	10" x12"	½	4.20	3.50	3.15
91F1430	BPA-1524	10" x14"	½	4.20	3.50	3.15
90F868	BPA-1597	10" x17"	⅝	4.20	3.50	3.15
91F1431	BPA-1525	10" x23"	⅞	6.10	5.10	4.60
91F1432	BPA-1526	11" x17"	¾	4.40	3.65	3.30
91F1433	BPA-1527	12" x12"	⅝	4.40	3.65	3.30
91F1434	BPA-1528	12" x17"	¾	5.60	4.70	4.25
90F869	BPA-1598	13" x17"	⅞	5.90	4.95	4.45
91F1435	BPA-1529	14" x17"	15/16	5.80	4.85	4.35
91F1436	BPA-1530	15" x17"	1	7.90	6.60	5.95
91F1437	BPA-1531	17" x17"	1 1/16	8.00	6.70	6.05

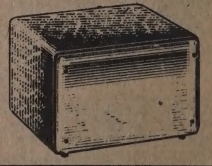
PORTACAB



Desirable as housing for instrumentation requiring high stylized appearance. Body is one piece aluminum with contoured corners. Panel is also aluminum. Flexible recessed handle permits easy portability as well as vertical stacking. Louvers point inward permitting side-to-side placement without loss of space. Welded back has opening. Front panel recessed ½". Four detachable rubber feet provided. Gray hammertone finish.

Stk. No.	Type	Lbs.	Dimensions D	W	H	Each 2-24	25-49	50-99
91F615	WA-1540	2	8"	6⅛"	8"	23.40	19.55	17.60
91F616	WA-1541	3½	12"	8⅛"	9"	26.80	26.80	24.10
91F617	WA-1542	3¾	8"	10⅛"	8"	27.30	22.80	20.50
91F618	WA-1543	5½	18"	11⅛"	11"	33.15	33.15	29.85
91F619	WA-1544	8	18"	14⅛"	12"	39.85	39.85	35.85

CONTOUR UTILITY CABINETS



Housing and flanged panels have rounded corners. Solid front and louvered rear panels are removable. Four rubber feet attached to base prevent scratching. Dark gray textured body and light gray textured panel. All parts are 20 gauge steel.

Stk. No.	Type	Overall Size	Lbs.	Each 2-24	25-49	50-99
91F896	CU-463	4 7/32x6 7/32x3¾"	1¾	11.65	10.60	9.55
91F897	CU-465	4 7/32x6 7/32x5¾"	2¼	13.30	12.10	10.90
91F898	CU-585	5 7/32x8 7/32x5¾"	3	17.10	15.55	14.00
91F899	CU-587	5 7/32x8 7/32x7¾"	3¾	18.80	17.10	15.40
91F900	CU-7125	7 7/32x12 7/32x5¾"	5	18.20	16.55	14.90
91F901	CU-7127	7 7/32x12 7/32x7¾"	6	19.20	17.45	15.70

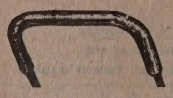
17

Handles, Casters and Levelers

Types H-9115 and H-9116. These handles made of ⅜" steel rod, chrome plate finish. Have hand clearance of 1⁵⁄₁₆". Ideal for use where a thin, durable handle is necessary or desirable. Hardware provided: two ¼-28 nuts. Av. shpg. wt. 3 oz.

Stk. No.	Type	Mtg. Ctrs.	Net Each	2-99	100-199	200-499
90F746	H-9115B	4"	3.45	3.00	2.70	2.40
90F732	H-9116B	6"	3.85	3.35	3.00	2.70

Types H-9160, H-9161, H-9162, H-9163B, H-9164, H-9165. All have chrome plated finish and are made of ⅜" diameter steel. All have 1⁷⁄₁₆" hand clearance. All are provided with two ¼-28 hex nuts as hardware. Types differ in mounting centers only which are listed below.

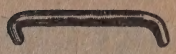


Stk. No.	Type	Mtg. Ctrs.	Net Each	2-99	100-199	200-499
90F733	H-9160B	3½"	3.85	3.35	3.00	2.70
90F734	H-9161B	5¼"	3.85	3.35	3.00	2.70
90F735	H-9162B	7"	4.15	3.60	3.25	2.90
90F736	H-9163B	8¾"	4.40	3.85	3.45	3.10
90F737	H-9164B	10½"	4.60	4.00	3.60	3.20
90F738	H-9165B	12¼"	5.10	4.45	4.00	3.55

Types H-9166, and H-9168. Both are made of ¼" diameter brass and both have a chrome plated finish. These handles each have 1" hand clearance and are provided with the same hardware: two 6-32x½" screws. They differ only in mounting centers which are listed below.

Stk. No.	Type	Mtg. Ctrs.	Net Each	2-99	100-199	200-499
90F739	H-9166B	1¹⁵⁄₁₆"	2.10	1.75	1.60	1.40
90F740	H-9168B	3"	2.10	1.75	1.60	1.40

Types H-9110-14. ⅜" dia. except H-9114, ½" dia. steel, chrome plated. All provided with two 10-32x½" screws except H-9114 two ¼-28x½" screws. Hand clearance 1" except* 1¼" and ** 1½". Shpg. wt. 3 oz.

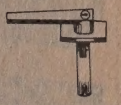


Stk. No.	Type	Mtg. Ctrs.	Net Each	2-99	100-199	200-499
90F741	H-9110B*	6"	3.85	3.35	3.00	2.70
90F742	H-9111B	4"	2.70	2.35	2.10	1.90
90F743	H-9112B	6"	2.90	2.50	2.25	2.00
90F744	H-9113B	8"	3.00	2.60	2.35	2.10
90F745	H-9114B**	8"	4.40	3.85	3.45	3.10

9223

LEVER TYPE DOOR HANDLES

Satin chrome plated, die cast handle and face plate. Corrosion resistant steel spindle and cam. Easily and quickly attached to Super Deluxe Relay Racks.



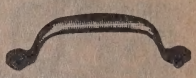
Stock No.	Type	Desc.	Net Each	2-49	50-99	100-149
90F401	H-3360	Non-Locking	14.60	12.70	11.45	10.15
90F402	H-3361	With lock & Key	19.65	17.10	15.40	13.70

FLUSH TYPE HANDLE AND CATCH

Combination handle and catch is standard on Bud Cabinet Racks. Fits flush with top of cabinet. All exposed parts are chrome plated.

Stock No.	Type	Net Each	2-49	50-99	100-149
91F1683	H-9347	3.60	2.70	2.45	2.15

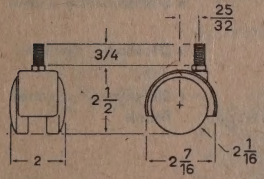
Type UH-70A. Useful for attaching to any small housing or speaker enclosure to achieve portability. Handle made from aluminum and given an etched finish. Aver. Shpg. wt., 3 oz.

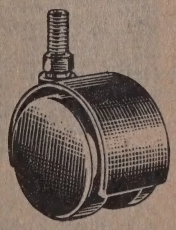


Stock No.	Type	Len.	Mtg. Cen.	Each	2-49	50-99	100-149
91F079	UH-70A	5⅛"	4⅝"	1.60	1.20	1.10	.95
91F1680	UH-71A	3¾"	3¼"	1.40	1.05	.95	.85

CASTERS AND LEVELERS

DUAL-WHEEL CASTERS

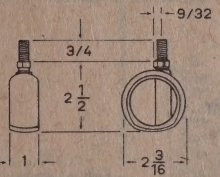


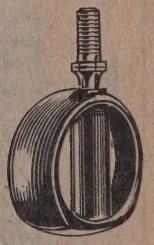


Contemporary-styled casters. Smooth dual-wheel mobility even under heavy loads. Black nylon hoods and wheels. Threaded ⅜-16 steel pin.

Stk. No.	Type	Load Rating	Weight (set of 2)	NET
91F100	RC-7760	110 lb.	8 oz.	5.80

LEVELERS

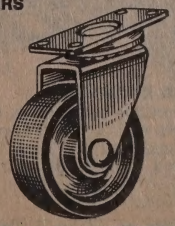




Handsomely-styled levelers complement RC-7760 casters. Designed to coordinate with the most modern enclosures. Black nylon. Threaded ⅜-16 steel pin.

Stk. No.	Type	Load Rating	Weight (set of 2)	NET
91F101	RL-7765	110 lb.	4 oz.	2.80

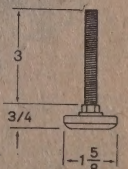
HEAVY-DUTY CASTERS



Two types of traditional casters. Heavy-duty type, RC-7756. Extra-heavy-duty, RC-7758 for Bud Series 60, 2000. Classic II and Concorde cabinet racks. Ball-bearing wheels made of hard tread composition.

Stock No.	Type	Height	Wt. (4)	Each	2-24	25-49	50-99
91F082	RC-7756	2⅝"	1¾ lbs.	2.50	2.10	1.90	1.70
91F094	RC-7758	3¼"	6 lbs.	6.05	5.50	4.95	4.40

STEM LEVELERS



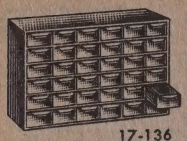
Stem levelers. Steel cap and stem nickel-plated; ⅜-16 thread. RL-7766, rubber base. RL-7767, white nylon base.

Stk. No.	Type	Load Rating	Weight (set of 2)	NET
91F102	RL-7766	200 lb.	5 oz.	2.00
91F103	RL-7767	200 lb.	6 oz.	2.00

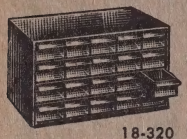
17

Akro-Mils Drawer Cabinets

MODULAR HEAVY-DUTY CABINETS


17-136

18-228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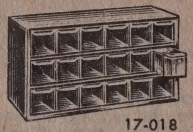
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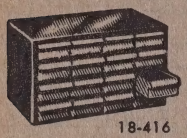
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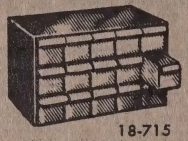
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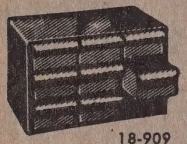
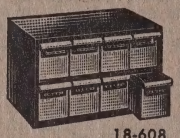
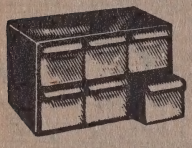
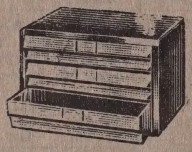

18-909


18-608


18-956


18-803

WELDED STEEL FRAMES

- Chip-proof, scratch-resistant baked enamel finish
- Standard 18" width
- Keyhole slots for wall mounting
- Attractive charcoal hammertone finish
- Nesting "feet" for stability in stacking

MOLDED STYRENE DRAWERS

- Long-lasting—rust and corrosion proof
- Safe—no sharp edges
- Lightweight—60% lighter than steel
- Non-Spreading—won't bulge or sag
- Spill-proof—safety tab keeps drawer open

TWO TYPES OF STYRENE DRAWERS

Gray Heavy-Duty
Virtually unbreakable hi-impact styrene—ideal for most requirements. Guaranteed for life, won't crack, dent or break.

Transparent
Where frequent visual inventories are required, transparent drawers permit a quick check.

Dividable
All drawers can be partitioned into several sub-compartments. Patented dovetail dividers lock in place—won't creep or slip. Label slots provide easy indexing.

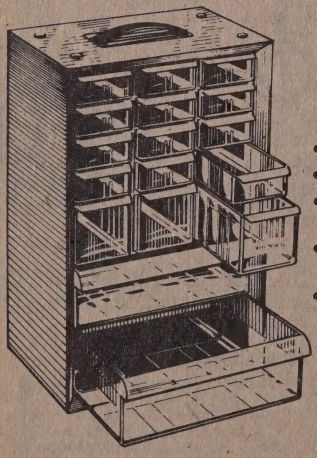
Gray HD Stk. No.	Type	Trans. Stk. No.	Type	Drws.	Drawer Size H"	W"	D"	Cabinet Size H"	D"	Each
.....	.....	80W057	17-136	36	1¼	2¾	5⅞	9½	6	20.88
80W065	18-228	.....	.....	28	2⅛	2⅛	11	11	11	34.50
.....	.....	80W085	17-018	18	2½	2¾	5⅞	9	6	20.88
80W061	18-320	80W062	17-320	20	2⅛	3⅛	11	11	11	
80W056	18-416	80W050	17-416	16	2⅛	4	11	11	11	
80W055	18-715	80W063	17-715	15	3 1/32	3⅛	11	11	11	31.11
80W054	18-909	80W064	17-909	9	3 1/32	5¼	11	11	11	
80W066	18-608	.....	.....	8	4¾	4	11	11	11	
80W067	18-956	.....	.....	6	4¾	5¼	11	11	11	
80W086	18-803	.....	.....	3	3 1/32	16¾	11	11	11	27.25

DIVIDERS FOR AKRO MILS CABINETS

Stk. No.	Type	Description	For Drwrs. in cabinet	Pkg. Qty.	Per Pkg.
82F083	42-121	Long	17-136 11-150 11-124 11-565	25	2.35
82F119	40-501	Cross	17-136 11-150 11-124 11-565	25	1.04
82F030	42-301	Cross	17-320 18-320	25	1.94
82F131	43-301	Cross	17-909 18-909	25	3.11
82F132	43-331	Long	17-715 18-715 17-909 18-909	10	2.92
82F134	43-101	Cross	17-715 18-715	25	2.92
82F137	42-401	Cross	17-416 18-416	25	2.35
82F138	42-431	Long	17-416 18-416 17-320 18-320	10	1.94
82F161	42-201	Cross	18-228	25	3.09
82F162	44-401	Cross	18-608	25	3.73
82F165	44-501	Cross	18-956	25	4.08
82F175	40-902	Cross	17-018 11-565	25	1.94

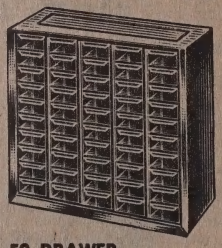
ECONOMY DRAWER CABINETS

STORAGE ORGANIZER PORTABLE 17-DRAWER CABINET



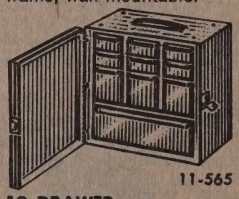
- Self-stacking frame
- Dividable drawers
- Chip-proof enamel finish
- Built-in carrying handle
- Three drawer sizes

Model 11-117. Steel-frame cabinet measures 10"W x 15"H x 6½"D. 17 dividable transparent drawers. 3 drawer sizes: 12 standard, 2¾"W x 1¼"D x 5¾"L; 3 double deep, 2¾"W x 2¼"D x 5¾"L; 2 jumbo, 8¾"W x 2½"D x 5¾"L. Finish is metallic blue chip-proof enamel. Built-in carrying handle, stamped key-hole slots facilitate wall mounting. Wt. 7 lbs.
80W058 NET.....11.86

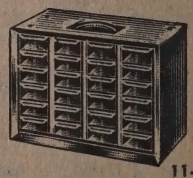

11-150

- Self-stacking frame
- Dividable drawers
- Chip-proof enamel finish

50 DRAWER
Portable steel frame, 50 Full Size 2¾" x 1¼" x 5¾" see-thru drawers. Blue metallic finish, dividable drawers. Stackable frame, wall mountable.


11-565

10 DRAWER
Portable steel frame, 6 full size 2¾ x 1¼ x 5¾" drawers, 3 double deep 2¾ x 2½ x 5¾" drawers and 1 jumbo 8¾ x 2½ x 5¾". Blue metallic finish, see-thru dividable drawers.


11-124

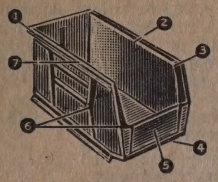
24 DRAWER
Portable steel frame, 24 Full size 2¾" x 1¼" x 5¾" see-thru drawers. Blue metallic finish, dividable drawers. Stackable frame, wall mountable.

Stk. No.	Type	Drwrs.	Cabinet Size	Shpg. Wt.	Each
80W052	11-565	10	10" x 9¼" x 7"	5¾ lbs.	8.96
80W051	11-124	24	13" x 9½" x 6½"	7 lbs.	8.96
80W087	11-150	50	15" x 15" x 6½"	12 lbs.	16.95

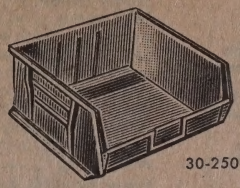
17

Storage Bins and PC Equipment

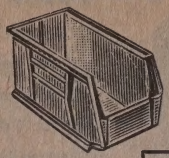
AKRO-MILS STACKING STORAGE BINS



1. Full width hanger—suspendable from most straight rails & carts.
2. Extra-wide stacking ledges for stability
3. Anti-Slide "Stops" prevent shifting of stacks when moved.
4. Extra large label holder.
5. Heavy reinforcing ribs prevent spreading under heavy loads.
6. Finger grips for easier handling.
7. Special slot under bin holds computer size inventory card.



30-250



30-240

30-230

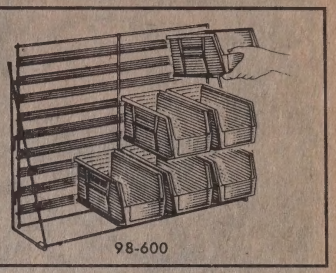
30-220

30-210

Efficient bins for storing, assembling, and transporting small parts, components, and finished goods. Use on shelving, rail or panel systems, or stacked. Blue-colored molded polypropylene is rust-proof, corrosion-proof, impervious to water, oils, and chemicals.

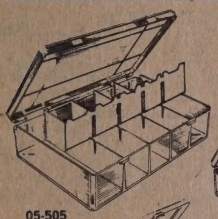
Stk. No.	Inside Dimension Type	L	W	H	X*	Each
80W089	30-210	4¾	3 7/16	2 13/16	4	.55
80W090	30-220	6¾	3 7/16	2 13/16	6	1.02
80W091	30-230	10¼	4⅜	4¾	9	2.49
80W092	30-240	14	6 5/16	6¾	12	4.99
80W093	30-250	14	14¾	6¾	12	6.99

(*) Inside bottom length-front to back.

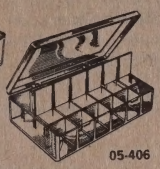


98-600

Model 98-600. Bench Rack. Accommodates 24 of 30-210, 24 of 30-220 or 12 of 30-230.
80W059. NET.....23.27



05-505



05-406

05-206

MODEL 05-505, 5-15 COMPARTMENTS

Has 5 permanent compartments that can be subdivided into 15 equal compartments or varied in other combinations. Molded of clear styrene, unbreakable hinges. Snap-tight lid. Size: 11½" wide x 6½" deep x 2⅜" high. Packaged in protective chipboard sleeves.
82F025. NET.....2.45

PLASTIC UTILITY BOXES

MODEL 05-406, 6-18 COMPARTMENTS

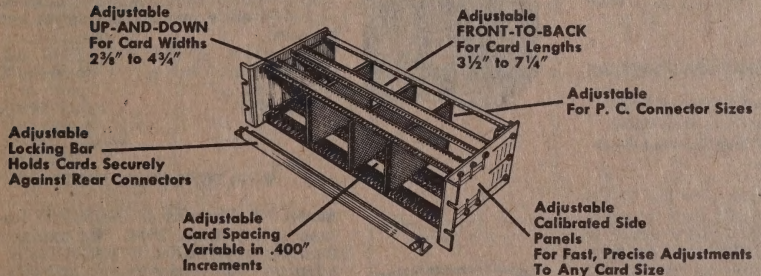
Has six permanent compartments, 1¼" x 4⅛" each. Two removable partitions, scored to snap off at intervals, allowing up to eighteen subcompartments. Hinged lid. Molded of transparent styrene. Size 8½" wide x 4¾" deep x 1½" high.
82F135. NET.....1.48

MODEL 05-206, 6 EQUAL COMPARTMENTS

Has six equal compartments, 1¼" x 1⅜" each. Break-away hinges give when lid is closed over overloaded box; top pops off, snaps into position. Size 4⅜" x 2⅝" x 1".
82F136. NET.....47

H. H. SMITH PRINTED CIRCUIT CARD EQUIPMENT

STACKING & BLANK END PLATES


Adjustable UP-AND-DOWN For Card Widths 2⅜" to 4¾"
Adjustable FRONT-TO-BACK For Card Lengths 3½" to 7¼"
Adjustable For P. C. Connector Sizes
Adjustable Locking Bar Holds Cards Securely Against Rear Connectors
Adjustable Card Spacing Variable in .400" Increments
Adjustable Calibrated Side Panels For Fast, Precise Adjustments To Any Card Size

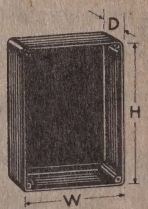
- **Card Capacity up to 39 Cards, 1/16" Thick**
- **Card Spacing .400" Minimum Centers, Adjustable in .400" Increments**
- **Accommodates Card Edge Connectors With Mounting Centers From 0.936" Minimum To 4.437" Maximum**
- **Card Sizes With Locking Bar, 2⅜" to 4¾" Maximum Width, 4⅜" to 6½" Maximum Length. Without Locking Bar, 3½" to 7½" Maximum Length.**

P.C. Card Rack. Made of heavy gauge anodized aluminum, guide and alignment members are extrusions. Capacity 39 cards, 1.16" thick. Card spacing .400" minimum centers, adjustable in .400" increments. Accommodates card edge connectors with mounting centers from 0.936" minimum to 4.437" maximum. All hardware, plastic card guides (for 1/16" thick cards), step and assembly instructions included.

Stk. No.	Type	Each
65F020	3050	30.00

BOARD GUIDES

Stk. No.	Type	Pkg. of 100
39F1780	3051	5.00



Instrument Cases and Covers. Ideal for small instruments and test equipment. The right size and the right mounting for your requirements. Molded of high quality, glass finish, thermosetting plastic. Threaded brass insert for cover mounting. BLACK ONLY. *Self-tapping

Stk. No.	Type	H	W	D	Insert	Ea.
22F101	2377	4"	2⅞"	1 1/16"	4-40*	.73
22F102	2291	5"	4¼"	1¾"	6-32	1.70
22F103	2255	6¼"	3¾"	2"	6-32	2.25
22F104	2257	6 13/16"	5½"	2 5/16"	4-40	3.00
22F105	2289	8½"	7 7/16"	3"	6-32	3.40

PHENOLIC COVERS

Stk. No.	Type	Description	Each
22F108	2378	For No. 2377	.22
22F109	2292	For No. 2291	.50
22F110	2256	For No. 2255	1.10
22F111	2260	For No. 2257	1.90
22F112	2390	For No. 2289	3.00

PANEL PLATE

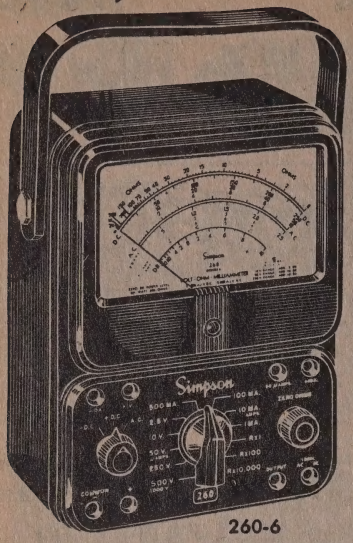
Stk. No.	Type	Description	Each
22F115	2379	For No. 2255	1.30

17

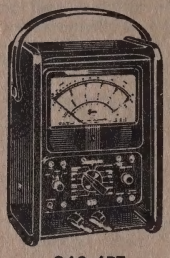
Simpson

Volt-Ohm-Milliammeters

- Taut Band Movement
- 27 Ranges
- External Access Battery and Fuse Compartment
- Varistor Protected
- Clip-type Fuse Holders and Extra Fuse



260-6



260-6RT

260 SERIES VOM

Model 260-6 Volt-Ohm-Milliammeter. Features a varistor protected rugged taut-band movement. Multi-purpose screw-on test leads with combination probe and alligator clips. Requires only two batteries: one 9-volt NEDA 1604 and one 1.5-volt "D" cell NEDA 13F. **Batteries supplied.** Polarity reversing switch allows faster, more convenient DC measurement. Full-wave bridge rectifier provides accurate AC voltage measurements. **Specifications**—20,000 ohms/volt DC, 5000 ohms/volt AC, Scale length: 4.2", Dimensions 5¼" x 7" x 3". **Ranges**—DC volts: 0-0.25; 0-1; 0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000. AC volts: 0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000. DC microamperes: 0-50 (250 mV drop). DC milliamperes: 0-1; 0-10; 0-100; 0-500. DC amperes: 0-10 (250 mV drop). DB scale (1 mW 600 ohm reference): −20 to +10; −8 to +22; −6 to +36; +20 to +50. Resistance: Rx1; Rx100; Rx10K. **With batteries, test leads and manual included.**

62F300. NET.....87.50

260-6M. As above with mirrored scale.

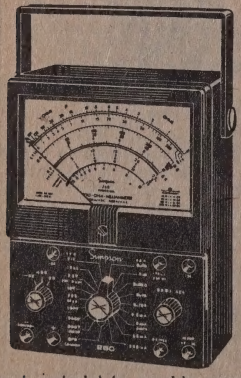
62F305. NET.....91.00

260-6RT. As above with roll-top case.

62F303. NET.....98.50

260-6MRT. With mirrored scale and roll-top case.

62F2269. NET.....102.00



260-6XL VOM FOR SOLID STATE

- Four Color, Color-Keyed Scales
- Low Power Ohms Capabilities
- Shock and Drop Resistant Const
- 33 Ranges

All the features of the Model 260-6, with additional capabilities to make it more useful in servicing solid state systems. Additional voltage and current ranges permit making measurements with higher resolution. Low power resistance measurements protect against damage of solid state components. Panel and case are molded of high impact material to provide more resistance to shock. Large meter face features color-keyed scales in four colors to facilitate rapid reading of measurements. In addition to the ranges available on the **260-6**, the **260-6XL** has the following ranges: DC Volts: 0-25 and 0-100. AC Volts: 0-25 and 0-100. DC milliamperes: 0-5 and 0-50. DC amperes: 0-5 (250 mV drop). dB scale: −1 to +29 and +11 to +41. Resistance ranges are: Standard Power: Rx1 (6 ohm center scale); Rx100 (600 ohm center scale); Rx1K (6000 ohm c.s.) Rx10K (60K ohm c.s.). Low Power: Rx1 (20 ohm c.s.) Rx10 (200 ohm c.s.) Max. open circuit voltage on low-power is 100 mV and max. measuring power is 0.125 mW. **Complete with batteries, test leads and manual.**

62F1786. NET.....102.50

OVERLOAD PROTECTED TAUT BAND VOM

Model 260-6P. Offers the same ranges and specifications as the 260-6 series of VOM with the added feature of electronic circuit protection which senses overload conditions and trips a protective relay. Entire tester is protected, providing an extra measure of protection for experienced personnel exploring unfamiliar equipment. Meter cannot be reset, even momentarily, until the overload has been removed. Particularly useful for labs, schools, shops or wherever mortality rate of VOM's is apt to be high. **Sold complete with batteries, test leads, and manual.**

62F1191. NET.....131.00

Model 260-6PM. As above with mirrored scale.

62F2242. NET.....134.50

Model 260-6PRT. As above with roll-top case.

62F2270. NET.....142.00

ACCESSORIES FOR VOM 260-6 SERIES VOM

Model 150 Amp-Clamp. Increases range and versatility of 250, 255, 260, 261 and 270 series VOM's by allowing measurement of AC current (can be used with any VOM having a 2.5 or 3 volt AC scale).

62F2377. NET.....33.00

Type 00735. Low-Power Ohms Probe (not for XL).

62F2243. NET.....36.55

Type 00118. Grip-Tip Extension Probe.

62F1410. NET.....5.95

Type 00812. Ruggedized Case.

62F2244. NET.....25.50

Type 00805. Vinyl Ever-Ready Case.

62F302. NET.....25.45

Type 01818. Leather Sheath Case.

62F301. NET.....20.80

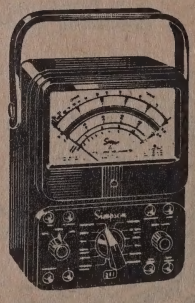
Type 00795. 5 kV DC Probe.

62F2247. NET.....10.00

Type 00794. 5 kV AC Probe.

62F2248. NET.....10.00

HIGH ACCURACY VOM's

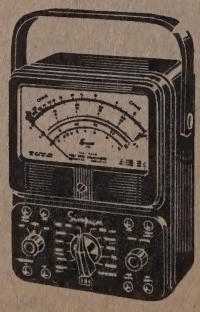


Designed for VOM applications requiring high accuracy. All the features of the **260-6M,** including external access battery, mirror scale, varistor-protected self-shielding movement, and Adjust-A-Vue handle. Special calibration circuits and components, combined with strict manufacturing controls, produce outstanding accuracy. Use all 260 accessories, including plug-in Add-A-Tester adapters. **Complete with operator's manual, test leads and batteries.**

Model 270-4. ±1.25% DC; ±2% AC; ±1.5% of arc on Rx1, ±1° of arc on Rx100 and Rx10K.

62F380. NET.....109.00

VOM WITH 50mV DROP



Model 250. Contains all the built-in features of the model 260-6. Has provision for using the entire line of "Add-A-Tester" adapters, high voltage probes and other accessories used with the 260-6. Self-shielding, diode-protected, taut-band meter movement. Features 1-ampere, fused input and 50 millivolt drop on DC current ranges . . . specifically for solid state circuits. Ranges—DC Volts: 0-50 and 0-250 mV; 0-2.5; 0-10; 0-50; 0-250; 0-500; and 0-1000 Volts. AC Volts: 0-0.25; 0-10; 0-10; 0-50; 0-250; 0-500; and 0-1000. DC μA: 0-50 (both 50 and 250 mV drops). DC milliamperes 0-1; 0-10; 0-100; and 0-500 (50 mV drop). DC amperes: 0-50 (50 mV drop). dB Scales (1 mW 600 ohms): −20 to +10; −8 to +22; +6 to +36; +20 to +50. Resistance: Rx1, 0-2000 ohms (12 ohm center); Rx100, 0-200K ohms (120 ohm center); Rx10K, 0-20 Megohms (120 K ohm center). 2% accuracy.

62F1692. NET.....96.50

19

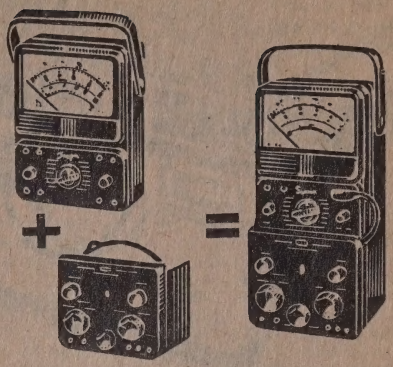
VOM's

Simpson

ADD-A-TESTER ADAPTERS

Stk. No.	Type	Description & Range	Accuracy	Net
62F382	650	Transistor Tester, Beta: 0-5, 50, 250, Ico: 0-100 μA	Beta; ±5%# Ico: ±3%#	60.50
62F383	651	DC VTVM, Volts: 0-0.5, 1.0, 2.5, 5, 10, 25, 50, 100, 250, 500. Input Imp. 10 megohms.	±3% F.S.#	66.00
62F384	652	Temp. Tester, −50°F to 100°F to 250°F. Sensing Element: Thermistor included	±2°F from −30° to +220°F. ±4°F over remainder of range	66.00
62F385	653	AC Ammeter. 0-0.25, 1.0, 2.5, 12.5, 25 Amps Freq: 50-3000 cycles.	±3% F.S.	43.50
62F386	654	Audio Wattmeter. Load Ranges 4, 8, 16, 600 ohms. Wattage: 25 W (8,600), 50 W (4, 16) continuous Intermittent duty: 50 and 100 W.	±10% (±7% with 261 and 270).	46.25
62F2371	655	Microvolt Atten. 2.5 to 250,000 μV in decade steps. Freq: DC to 20 kc.	±1 dB	38.50
62F393	657	Milliohmmeter. 0-0.1 (150 Ma. max. output), 0.25 (103 Ma.), 0.5 (90 Ma.) 1.0 (80 Ma.)	±2% F.S. (±1½% with 261 and 270).	69.50
62F1194	661	DC Ammeter, DC Amperes: 0-1.0, 2.5, 5, 10, 25.	±2% F.S. (±1½% with 261 and 270)	43.50

#1% or better accuracy when used with 261 or 270.



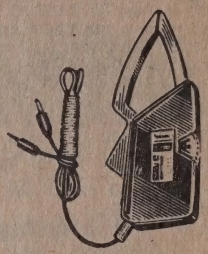
Fit 260 and 270 Series VOM's for increased Versatility

AMP, CLAMP ADAPTERS FOR AC AMPERE MEASUREMENTS

Model 150. Clamp-on AC ammeter adapter for analog VOM's. Plug into 160, 260, 260XL, 261, 270, 250 or 255 VOM. Ranges: 0-5, 10, 25, 50, 100, and 250 AC amperes. Readout is on VOM's 0-2.5 VAC scale. May be used with any VOM having 0-2.5, 0-3 and 0-5 VAC range. When used with 0-3 VAC adapter, the ranges are 0-6, 0-12, 0-30, 0-60, 0-120, and 0-300 AC amperes. When used with a 0-5 VAC adapter, ranges are from 0-10 to 0-500 AC amperes. Rugged construction and easy to use. Accuracy: ±3% of full scale. **Complete with Test Lead and operator's manual.**
62F2377. NET **33.00**

Test Lead. Type No. 00533.
62F1683. NET **3.45**

Model 154. For digital VOM's and multimeters. Plugs into 360-2, 460-3 or 464. Readout is on 0.2V, 2V, or 20 V AC VOM scale. Ranges: 2A, 20A, or 200A. **Complete with test lead and operator's manual.**
62F1687. NET **33.20**



VOM SPECIFICATIONS

ACCURACIES	250	255	260-6, 260-6RT	260-6M, 260-6MRT	260-6P, 260-6PM,†† 260-6PRT	260-6XL, 260-6XLM††	260-6XLP, 260-6XLPM††	261-2	270-4
0-50 MV; 0-250 MV; 0-1 to 0-1000 VDC	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.	±2% ½ F.S.	±2% F.S.	±1.5% F.S.*	±1.25% F.S.
0-5000 VDC	—	—	—	—	—	—	—	±2.5% F.S.	—
0-50 μA				±1.5% F.S.				±1.0% F.S.	±0.75% F.S.
0-0.5 MA to 0-500 MA	—	—	—	—	—	±2% F.S.	±2% F.S.	—	—
0-1 MA to 0-10 ADC	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.	—	—	±1.5% F.S.	±1.25% F.S.
RX1 (L.P.); RX10 (L.P.)	—	—	—	—	—	±2.5° or arc	±2.5° fo arc	—	—
RX1 Conventional	±2.5° of arc	±2.5° of arc	±2.5° of arc	±2.5° of arc	±2.5° of arc	±2.5° of arc	±2.5° of arc	±2.0° of arc	±1.5° of arc
RX100 Conventional	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±1.5° of arc	±1.0° of arc
RX1000 Conventional	—	—	—	—	—	±2.0° of arc	±2.0° of arc	—	—
RX10,000 Conventional	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±1.5° of arc	±1.0° of arc
0-2.5 to 0-100 VAC	±3% F.S.	±3% F.S.	±3% F.S.	±3% F.S.	±3% F.S.	—	—	±3% F.S.	±2% F.S.
0-1 to 0-1000 VAC	—	—	—	—	—	±3% F.S.	±3% F.S.	—	—
0-5000 VAC	—	—	—	—	—	—	—	±4% F.S.	—
Movement	Taut Band Self-Shielding Annular								
Amp Clamp Direct Reading	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Movement Protedtion	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Resettable Circuit Protection	No†	No†	No†	No†	Yes**	No	Yes**	No†	No†
Mirror Scale	No	No	No	Yes	No	No	No	No	No

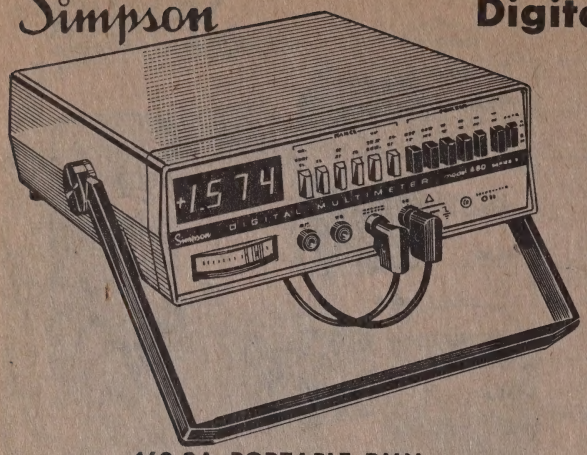
*261-2 Accuracy 0-25 to 0-1000 VDC
** Except on 500 VDC, 1000 VDC, and 5 ADC
† Amp fuse limits maximum current
†† Has mirror scale

RANGES	250	255	260-6, 260-6M, 260-6RT, 260-6MRT, 260-6P, 260-6PM, 260-6PRT	260-GXL, 260-6XLM, 260-XLP, 260-6XLPM	261-2	270-4
DC Volts	0-0.050; 0-0.250; 0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000	0-0.050; 0-0.250; 0-1; 0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000	0-0.250; 0-1; 0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000	0-0.250; 0-1; 0-2.5; 0-10; 0-25; 0-100; 0-250; 0-500; 0-1000	0-0.250; 0-2.5; 0-10; 0-50; 0-250; 0-1000; 0-5000	0-0.250; 0-1; 0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000
AC Volts	0.25; 0-10; 0-50; 0-250; 0-500; 0-1000	0-2.5; 0-10; 0-50; 0-250; 0-1000	0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000	0-2.5; 0-10; 0-25; 0-100; 0-250; 0-500; 0-1000	0-2.5; 0-10; 0-50; 0-250; 0-1000; 0-5000	0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000
DC Microamperes	0-50 (Both 50 and 250 MV Drop)		0-50 (250 MV Drop)			
DC Milliamperes	0-1; 0-10; 0-100; 0-500 (50 MV Drop)		0-1; 0-10; 0-100; 0-500	0-0.5; 0-5 (250 MV Drop); 0-50 (252 MV Drop) 0-500 (400 mV Drop)	0-1; 0-10; 0-100; 0-500	
DC Amperes	0-10 (50 MV Drop)	None	0-10 (250 MV Drop)	0-5 (250 MV Drop)	0-10	
AC Amperes	Up to 250 AC Amps with Optional Amp-Clamp Adapter, Model 150					
dB Scale (1 MW 600Ω)	−20 to +10; −8 to +22; +6 to +36; +20 to +50	None	−20 to +10; −8 to +22; +6 to +36; +20 to +50	−20 to +10; −9 to +21; −1 to +29; +11 to +41; +19 to +49	−20 to +10; −8 to +22; +6 to +36; +20 to +50	
Output	None		0.1 mfd capacitor in series with all AC voltage ranges through 250 volts			
Conventional Resistance	RX1 0-2000Ω (12Ω center); RX100, 0-200KΩ (120Ω center); RX10K, 0-20 Meg Ω (120K center)			RX1, 0-1K (6Ω center); RX100, 0-100K (600Ω center) RX1K, 0-1M16KΩ center); RX10K, 0-10M (60KΩ center)	RX1, 0-2000Ω (12Ω center) RX100 0-200KΩ (1200Ω center) RX10K; 0-20 Meg Ω (120KΩ (120KΩ center)	
Low-Power Resistance	None		None	RX1 (L.P.) 0-1K (20Ω center) RX10 (L.P.) 0-10K (200Ω center)	None	
Temperature	None	+100°F to +1050°F	None	None	None	

19

Simpson

Digital Instruments



460-3A PORTABLE DMM

32 ranges, including low-power ohms. Overload protection on all ranges. 0.43" LED readout. Analog meter for nulling, peaking, scanning trends. MOS-LSI IC for reliability, low power drain. High-impact case with adjustable tilt-view handle. Pushbutton selection of range. Over-range indication. Accuracy (% of reading)—DCV: ±(0.1% +1 digit); ACV: ±(0.5% +2 digits); DC current: ±(0.25% +1 digit), except 2000 mA and 10 A ranges ±(1.0% +1 digit); AC current: ±(0.7% +2 digits); Resistance: ±(0.25% +1 digit), except on 2000 K Ω and 20 M Ω, ±(0.5% +2 digits). Oper. Temp. 0 to +55°C. Wt.: 3 lbs. With test leads, line cord and operator's manual.

Model 460-3A. 120/240VAC (50-400 Hz) operation,
62F1700. NET **299.00**

Model 460-3D. Ni-cad batt. or 120/240VAC oper. **(Less batteries).**
62F1701. NET **338.00**

AC/DC VOLTS (AC 40Hz-20kHz)

Range	Maximum Indication	Input Res.
200 mV	±199.9 mV	10M/75pF AC)
2 V	±1.999 V	10M/75pF AC)
20 V	±19.99 V	10M/75pF AC)
200 V	±199.9 V	10M/75pF AC)
1000 V	±1000 V* (Max In)	10M/75pF AC)

*600 V Max. AC
Overload Prot: 1100VDC, 350V RMS AC

AC/DC CURR. (AC 40Hz-20kHz)

Range	Maximum Indication	Overload Prot. to
200 µA	199.9 µA	2.5 A†
2 mA	1.999 mA	2.5 A†
20 mA	19.99 mA	2.5 A†
100 mA	199.9 mA	2.5 A†
10 A	10 A (Max In)	10 A (50V max)

†Fuse Protected.
Full Range Voltage Drop: 200 mV except 10A range, 100 mV.

RESISTANCE: Low-Power

Range	Maximum Indication	Test Current
200 Ω#	199.9 Ω	1 mA
2k Ω#	1.999k Ω	100 µA
20k Ω	19.99k Ω	10 µA
200k Ω	199.9k Ω	1 µA
2000k Ω	1999 k Ω	100 nA

Full Scale Voltage: 200mV
Overload Prot: 250V RMS, except #135V RMS.

RESISTANCE: Hi-Power

Range	Maximum Indication	Test Current
2k Ω#	1.999k Ω	1 mA
20k Ω	19.99k Ω	100 µA
200k Ω	199.9k Ω	10 µA
2000k Ω	1999k Ω	1 µA
20M Ω	19.99M Ω	100 nA

Full Scale Voltage: 2 V

MODEL 464A DMM

Similar to Model 460-3, but with fewer ranges and without the analog meter. Conforms to applicable A NSI C39.5 requirements.

Model 464A. 120/240VAC (50-400 Hz) operation.
62F400. NET **229.00**

Model 464D. 120/240VAC or Nicad Battery operation. Test leads, line cord, manual **(less batteries).**
62F401. NET **269.00**

DC VOLTS

Range	Maximum Indication	Input Res.
200 mV	±199.9 mV	10 M
2 V	±1.999 V	10 M
20 V	±19.99 V	10 M
200 V	±199.9 V	10 M
1000 V	±1000 V	10 M

Overload Prot.: ±1100 V.

AC VOLTS (40Hz-10 kHz)

Range	Maximum Indication	Input Res.
200 mV	199.9 mV	10 M @75pF
2 V	1.999 V	10 M @75pF
20 V	19.99 V	10 M @75pF
200 V	1199.9 V	10 M @75pF
600V	600 V	10 M @75pF

Overload Prot.: 650 V RMS.

AC/DC CURRENT

Range	Maximum Indication	Full Range Volt. Drop
#200 µA	199.9 µA	200 mV
#2 mA	1.999 mA	200 mV
20 mA	19.99 mA	200 mV
200 mA	199.9 mA	200 mV
2000 mA	1999 mA	200 mV
10 A	10.00 A	100 mV

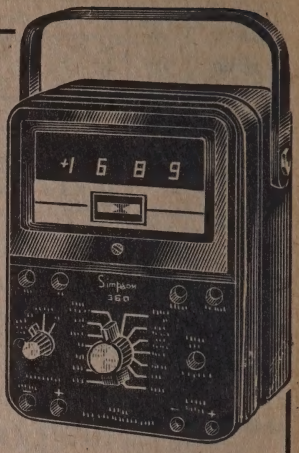
Overload Prot.: 2.5 A, except 10A to 10A.

RESISTANCE

Range	Maximum Indication	Test Current
#200 Ω	199.9 Ω	1 mA
#2k Ω	1.999k Ω	1 mA
20k Ω	19.99k Ω	100 µA
200k Ω	199.9k Ω	1 µA
2000k Ω	1999k Ω	1 µA
20M Ω	19.99M Ω	100 nA

Overload Prot.: 250V RMS, except #135V RMS.

MODEL 360-2 PORTABLE DMM



- **3½ Digit, Auto-Polarity**
- **0.43" LED Display**
- **MOS/LSI Circuitry**
- **Analog Meter**
- **29 ranges**
- **AC Line or Battery**
- **Overrange Indication**

Analog output provision permits monitoring input signal with chart recorder. Accuracy (% of reading)—DCV: ±(0.25% +1 digit); ACV: ±(0.5% + 1 digit) 40Hz—1 kHz; ±(1.0% + 1 digit) 1 kHz-10 kHz; ±(2.0% +2 digits) 10 kHz-20 kHz except 200V range: ±(5% +2 digits); DC Current: ±(0.5% +1 digit) except 2A and 10A ranges: ±(1.0% + 1digit); AC Current: ±(1.0% +1 digit) except 2A and 10A: ±(2.0% +2 digits); Resistance: ±(0.5% +1 digit) except 2M and 20M ranges: ±(1.0% +2 digits). Conversion rate: 3 times per second, nominal. Complete with test leads, line cord and manual **(less batteries).**
62F259. NET **288.00**

No. 00816. Carrying Case.
62F1702. NET **29.55**

No. 00432. High-voltage Probe. 40 kV DC.
62F1703. NET **36.75**

No. 00433. RF Probe.
62F1704. NET **29.55**

Model 154. AC Amp Clamp.
62F1687. NET **33.20**

DC VOLTAGE

Range	Maximum Indication	Overload Protection
200 mV	119.9 mV	350 V
2 V	1.999 V	350 V
20 V	19.99 V	1100 V
200 V	199.9 V	1100 V
1000 V	1000 V	1100 V

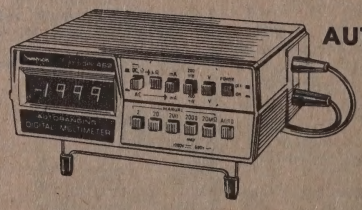
AC VOLTAGE

Range	Maximum Indication	Overload Protection
200 mV	199.9 mV	350V RMS
2 V	1.999 V	350V RMS
20 V	19.99 V	650V RMS
200 V	199.9 V	650V RMS
600 V	600 V	650V RMS

RESISTANCE

Range	Maximum Indication	Short Circuit Current	Full Scale Voltage	Overload Protection
200 Ω	199.9 Ω	1mA	200mV	150V RMS
2k Ω	1.999k Ω	1mA	2V	150V RMS
20k Ω	19.99k Ω	10µA	200mV	250V RMS
200k Ω	199.9k Ω	10µA	2V	250V RMS
2M Ω	1.999M Ω	1µA	2V	250V RMS
20M Ω	19.99M Ω	100mA	2V	250V RMS

MODEL 462 AUTORANGING DMM

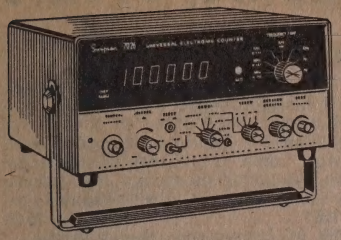


- **Automatically selects range & positions decimal point**
- **Operates 8 hours on a single charge**

Makes voltage and resistance measurements easier and faster by automatically selecting range and positioning decimal point for highest accuracy. Features include; Automatic polarity indication, Recessed insulated jacks on test leads, Large 3½ digit 0.3" LED readout, Measures DC voltage from 100 V to 1000V, AC voltage from 100 V to 600V, Resistance from 1.0 ohm to 20 Megohm, Direct Current from 1 A to 1999mA, Alternating Current from 1 A to 1999 mA. Conforms to applicable ANSI C39.5 requirements. Complete with nickel-cadmium rechargeable batteries, AC charger/adapter, color coded test leads, and instruction manual.
55F4939. NET **185.00**

VOM's and Test Equipment

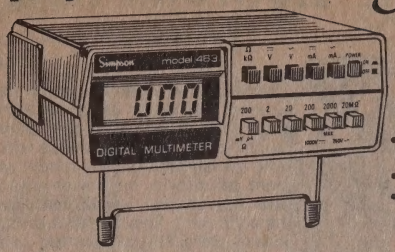
Simpson



Model 7026 UNIVERSAL ELECTRONIC COUNTER

- **0.55" Planar Numerical Display**
- **5 Hz to 50 MHz**
- **Overrange Indication**

Measures frequencies, periods, ratios of two frequencies, time intervals and events. Standard features include: display storage selection, automatic decimal point location, variable display time, manual reset, gate time indication, high input Z and input overload protection. Can be interfaced with a high frequency prescaler to extend range. Temp. Stability: ±10ppm max. 0 to +45°C. Aging Rate ±5ppm max./yr. Gate Times: 10 μsec, 100 μsec, 1 msec., 10 msec., 100 msec., 1 sec. 10 sec. Accuracy ±1 count, ± time base accuracy. Oper. Temp.: 0 to +45°C. With probe, manual.
62F1706. NET.....415.00
Model 7026B. Has additional BCD Output.
62F1707. NET.....467.00
No. 00238. Replacement Probe.
62F2360. NET.....15.25



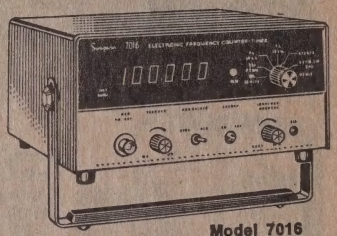
Model 463 Digital Multimeter LCD Display

- **Extensive Overload Protection**
- **2% DCV Accuracy**
- **RMS Calibrated Sine Wave**

Specifications. DC Voltage. Range/Max. Indication: 200mV/±199.9mV, 2V/±1.999V, 20V/±19.99V, 200V/±199.9V, 1000V/±1000V. Overload protected to 1100V (DC and peak AC) all ranges. Accuracy: ±0.2% of reading plus 1 digit (+20°C to +30°C). Sensitivity: 100μV on 200 mV range. AC Voltage. Range/Max. Indication: 200mV/199.9mV, 2V/1.999V, 20V/19.99V, 200V/199.9V, 750V/750V. Overload protected to 1100V (DC and peak AC) all ranges. Accuracy (+20°C to +30°C): All ranges, 20 to 40Hz/±1.5% +3 digits, 40Hz to 400kHz/±0.5% +2 digits (except 750V ±1.5% +3 digits), 400Hz to 1kHz/±0.5% +2 digits (except 200V and 750V ranges), 1kHz to 10kHz/±1.5% +3 digits (except 200 and 750V ranges), 10kHz to 200kHz/±5% +5 digits (except 200 and 750V ranges. Resistance. Overload protected to 250 VRMS, all ranges.
55F4940. Type 463. **NET**.....235.75

ELECTRONIC FREQUENCY COUNTER-TIMER

Model 7016. Measures frequencies, elapsed time and events and exhibits them on a 0.55" planar numerical display. Frequencies from 5 Hz to 50 MHz, elapsed time from 0.01 sec to 19999.99 sec. Features display storage selection, automatic decimal point location, variable display time, manual reset, overrange and gate time indications and input overload protection. AC coupled input with 1 M Ω impedance shunted by 30 pF. Gate time: 10 msec, 0.1 sec, 1.0 sec, 10 sec. Accuracy ±1 count ±time base accuracy. Oper. Temp. 0 to +45°C. 2.0 MHz Internal time base temp, stable to ±10 ppm from 0 to 45°C; aging rate ±5 ppm/year; ±10% line variation produces deviation of ±1.0 ppm max. Input sensitivity: 50 mV RMS from 5 Hz to 50 MHz (sinewave). Max. input 240V RMS, derated to 50V RMS at 1 MHz and 10V RMS at 50 MHz. Size 4"H x 8.5"W x 8"D. With probe, line cord, manual.
62F1407. NET.....375.00
Model 7016B. As above with BCD out.
62F1408. NET.....428.00



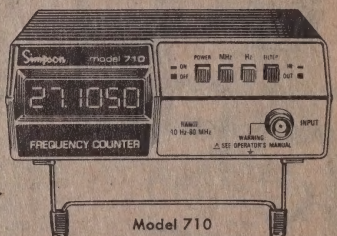
Model 7016

MODEL 710 COMPACT FREQUENCY COUNTER

For CB/communications service, Production line testing, frequency monitoring, R&D lab use. Features: Covers 10Hz to 60Hz. 2 ranges —Hz and MHz. 6 digits 0.35" LED readout with overrange indicator. Accurate to ±1 count (±time base accuracy) standard 10ppm time base. Resolves 1 Hz. Switchable low-pass filter eliminates input noise. Highly reliable LSI circuitry. Compact 2" x 5.6" x 4.6". Power requirements: 120 VAC ±10%, 50-400Hz, approx. 5 VA.
55F4941. Model 710. **NET**.....155.00

55F4942. 00747. Carrying Case. **NET**...21.90

62F2360. 00238. Gen. Pur. Probe. **NET**.15.25

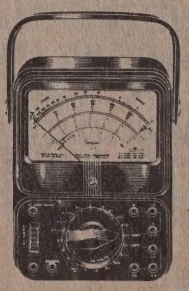


Model 710

INDUSTRIAL VOM

Model 265. Rugged, self-shielded, taut band movement VOM features simultaneous AC voltage and current measurements. Single switch operation. Specifications—DC Volts: 0.3V, 3V, 12V, 60V, 300V, 600V, ±2% of Full Scale accuracy, 20,000 Ω /V. AC Volts: 3V, 12V, 60V, 300V, 600V, ±3% of Full scale accuracy, 5,000 Ω /V, DC Current: 60μA, 1.2 mA, 12 mA, 120 mA, 0.6 A, 1.2 A, 12 A, ±2% full scale accuracy, voltage drop 250 mV max. AC Current: 120 mA, 1.2A, 12A. Resistance: Rx1, Rx100, Rx1K, Rx10K.
62F261. NET.....145.50

00118. Flexible Probe w/Grip-Tip.
62F1410. NET.....5.95



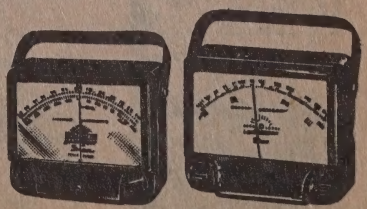
Model 265

THERM-O-METER

Model 388-3L. Wide range tester measures the temperature of practically anything within a range from −50°F to 1000°F (−40°C to +500°C). Has combination °C and °F scale. Sensing Element: Thermocouple (Iron-Constantin). Size 7 15/16" x 6" x 2 15/16". Weight 4 lbs. Can utilize three probes. Supplied with 1-8 ft. probe and operator's manual.
62F350. NET.....142.00

DUAL RANGE THERM-O-METER

Model 389-3L. Temperature tester uses 3 leads to make temperature readings in 3 different locations at the same time; i.e., in a refrigerator, one lead could be connected to the evaporator plate, another to the wall of the food compartment, and the third in the center of the food compartment. Centigrade and Fahrenheit scale. Ranges: −50°F to +100°F (−40°C to +35°C), and +100°F to +250°F (+40°C to +120°C). Accuracy: ±2°F at center scale, ±3°F at other points. Size: 7 15/16" x 6" x 2 15/16". Weight: 4 lbs. Supplied with one No. 00010, 15 ft. lead and thermistor and an operator's manual.
62F391. NET.....131.20



Model 388-3L Model 389-3L

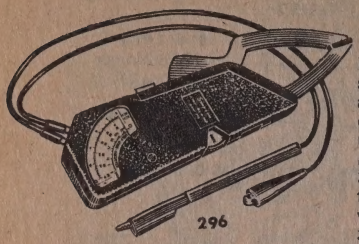
TEMPERATURE PROBES AND ACCESSORIES

00190. General Purpose Probe.
62F352. NET.....14.65
00187. Surface Temp. Probe (1000°F).
62F351. NET.....18.90
05262. Ever-Redy Carrying Case.
62F329. NET.....22.30

00790. Surface Temp. Probe.
62F398. NET.....15.85

00010. 15 ft. Lead and Thermistor.
62F396. NET.....17.50

Simpson Electronic Multimeters, VOM's, VTVM's



296

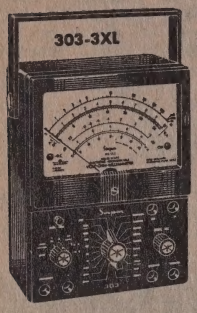
AMP-CLAMP® MULTIMETERS

Model 296. A compact, balanced-weight instrument for faster, easier locating of grounds and shorts in motors, relays, transformers and control circuits. Load balance test and AC current measurements are made without equipment shutdown or power line interruption. Specially shaped jaw is just clamped around the conductor. Easy to insert even into crowded wire clusters. Finger operated controls and jaw. Specifications—AC Current: 0-6, 15, 30, 60, 150, 300 Amperes RMS; ±3% of full-scale accuracy at 60 Hz sine wave with conductor centered; Less than 1% of full scale change from 15°C to 35°C. AC Voltage: 0-30, 150, 300, 600 Volts RMS; ±3% of full scale accuracy at 60 Hz sine wave; 0.5% of full-scale change between 15°C and 35°C. Resistance: 0-500 ohms, 25 ohm center scale; ±3% of arc accuracy; 600V RMS Max. (850V peak) rated circuit-to-ground voltage. Complete with test leads, battery, instructions. 10" long x 2.7" wide x 1.4" high. Weight: 14 oz.
62F403. NET **75.00**

Model 295. AC current and AC voltage only.
62F404. NET **58.50**

Model 294. AC current only.
62F405. NET **50.00**

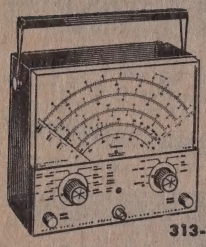
02226. Deluxe black vinyl carrying case.
62F207. NET **20.40**



ELECTRONIC VOM

Model 303-3XL. Has high-impact shock resistant case, automatic LED "polarity" and "power on" indication, and 120/220VAC or battery operation. Features both conventional and low-power ohms ranges, switch-selectable zero-center scale, and drift-free performance. Self-contained nickel-cadmium "D" cell provides up to 20 hours of continuous operation. Specifications—AC/DC Voltage: 0-0.03, 0.1, 0.3, 1, 3, 10, 30, 100, and 300 Volts (1000 VAC and 1000 VDC are available through separate jacks). AC/DC Current: 30μA, 1mA, 30mA (1A and 10A ranges are available on separate jacks). Resistance: Rx1, Rx10, Rx100, Rx1k, Rx10k, Rx100k and Rx1M (Low-power and standard). Accuracy: ±2% F.S. DC; 3% 50-400Hz, 4% 20-20kHz, 10% 2-100kHz on AC. Input Impedance: 10 megohms AC or DC. Size: 5.5" x 7.2" x 3.3". With probe, leads, battery, charger/adapter, manual.
62F1791. NET **226.00**

00432. High-Voltage Probe, 40kV.
62F1703. NET **36.75**



313-3

ELECTRONIC VOM

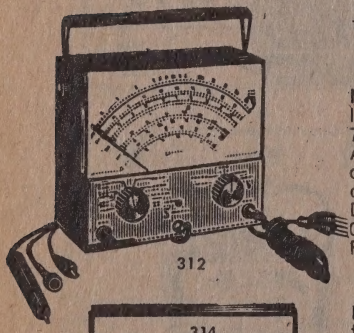
Model 313-3. 7" scale. 11 megohm input impedance. Operates 300 hours, or more, on single set of batteries. Integral "battery check" switch. Specifications—DC Volts: 0-0.3, 1.0, 3, 10, 30, 100, 300, 1000. AC Volts: 0-0.3, 1.0, 3, 10, 30, 100, 300, 1000 RMS. Resistance: Rx1, Rx10, Rx100, Rx1k, Rx10k, Rx100k, Rx1M. DC current: 0-100μA, 1.0mA, 10mA, 1.0A. Accuracy: ±2% F.S. DC, ±3% F.S. AC. dB: −30, −20, −10, 0, +10, +20, +30. Frequency response: ±0.5dB from 20Hz to 100kHz on 0.3, 1.0, 3.0V ranges; ±0.5dB from 20Hz to 20kHz on 10, 30, 100V ranges. With probe, battery, manual.
62F2273. NET **193.00**

00728. 40kV Probe.
62F1415. NET **28.80**

00193. RF Probe.
62F1416. NET **17.15**

00577. Vinyl Case.
62F1684. NET **24.50**

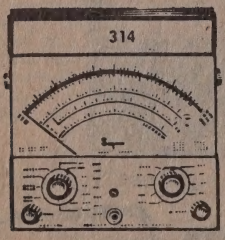
01565. Sponge Lined Case.
62F1417. NET **28.25**



312

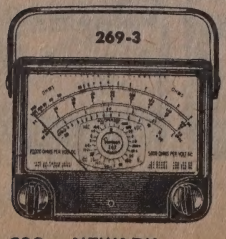
EXTRA HIGH IMPEDANCE VTVM

Model 312. 16 megohm input impedance. 40% less circuit loading than conventional VTVM's. 7" Scale. Full scale accuracies of ±3% on all AC and DC ranges with a tracking error of 1% or less. Built-in overload protection. Power requirement: 105/125 V, 50/60 Hz. Specifications—DC Volts: 0-0.5, 1.5, 5, 15, 50, 500, 1500. AC Volts: 0-1.5, 5, 15, 50, 150, 500, 1500 RMS. Resistance: Rx1, Rx10, Rx100, Rx1k, Rx10k, Rx100k, Rx1M. Accuracy: ±3% F.S. AC and DC, and 3° of arc on ohms. Input impedance: 16 megohms DC, 1 megohm AC. Frequency Response: ±3% from 15 Hz to 4 MHz (useable to 250 MHz with RF probe). Dimensions: 7¾" x 6¾" x 4⅝". Weight: 4¾ lbs. Supplied complete with DC/AC-Ohms probe and operator's manual.
62F1688. NET **156.50**



FET VOM

Model 314. Measures low power and conventional ohms. 10 megohm and 100 megohm impedances on voltage ranges. 7" scale with anti-parallax mirror. Specifications—DC Volts: 0-50 mV, 100mV, 300mV, 1V, 3V, 10V, 30V, 100V, 300V, 1000V. AC Volts; 0-10mV, 30mV, 100mV, 300mV, 1V, 10V, 100V, 300V, 1000V, DC/AC current: 0-10μA, 100μA, 1 mA, 10mA, 100mA, 1A. Resistance: Rx1, Rx10, Rx100, Rx1k, Rx10k, Rx100k, Rx1M. Decibels: −40, −30, −20, −10, 0, +10, +20, +30, +40, +50, +60, Accuracy: ±2% of F.S. DC; ±3% of F.S. AC. Input impedance: 10 megohm AC and DC (10 x probe switch for 100 megohm). Frequency response: ±3% from 30Hz-100kHz on 10mV thru 30V ranges; ±3% from 30Hz-20kHz on 100V-1000V ranges. Complete with X1, X10 (DC/AC-Ohms) probe, batteries and manual.
62F2380. NET **281.50**



7-INCH SCALE VOM

Model 269, Series 3. Sensitivity-100,000 ohms/volt. Self-shielding taut-band meter movement combined with a mirror scale and knife-edge pointer. Snap-on compartment for fast battery replacement. Specifications—DC Volts: 0-0.8, 1.6, 8, 40, 160, 400, 800, 1600. AC Volts: 0-3, 8, 40, 160, 400, 800. DC current: 0-16μA, 160μA, 1.6mA, 16mA, 160mA, 1.6A, 8A. Resistance: Rx1, Rx10, Rx100, Rx1k, Rx10k, Rx100k. Accuracy: ±1½% DC, ±2½% AC. With 4000VDC probe ext., test leads manual.
62F330. NET **154.50**

ACCESSORIES

00152. High-Frequency Probe for Model 312 VTVM.
62F1694. NET **18.30**

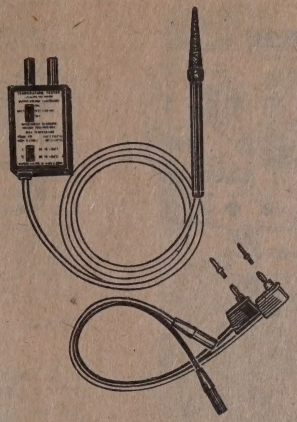
00727. High-Voltage Probe for Model 314 FET VOM.
62F1695. NET **28.80**

Test Equipment

Simpson

TEMP. to DC MILLIVOLT CONVERTER

- **May be used with meters, recorders, controllers and multimeters.**
- **May be used with low impedance devices (5000Ω min) as well as hi-impedance with no loss in accuracy.**
- **°F or °C switch selectable**



Silicon Sensor. Small mass. Absorbs minimal heat from object it is measuring, ideal for measuring transistors. Interchangeable banana jacks test leads & reverse female connectors, may be used with 460, 464, 461, 260-6 and all competitive Multimeters. Output voltage: 1 mV/DEGREE Max. temp; probe tip −150°C, Body & cable 80°C Rated Circuit to ground voltage: 250V rms Max. Response time: 1.5 seconds to within 2°C of final reading for 50°C step change.
55F4938. Type No. 00758. NET **107.00**

AC/DC VOM

Model 230-2. Contains sufficient ranges to do a complete servicing job. Designed for telephone, teletype and marine use. Excellent trouble-shooter. 1,000 ohms per volt AC-DC. **Ranges:** DC: 10v, 50v, 250v, 1,000v. AC: 10v, 250v, 1,000v. DC: 10 ma, 50ma, 250ma. **Resistance:** 0-1,000Ω, 0-100KΩ.
62F2379. NET **62.00**

LOW-OHMMETER

Model 362-2. Permits highly accurate readings between 0.1 and 25 ohms. For checking motor armatures, switch and relay contact resistances, shorts between windings and grounds in radio chassis wiring, electrical equipment, etc. **Ranges:** 0-5, 0-25 ohms. **Accuracy:** ±3% of linear arc length.
62F368. NET **59.00**

AC AMMETER

Model 370. Ideal for checking small motors, line-loads, etc., where AC current measurements are required. 60 Hertz. Self-contained current transformer. **Ranges:** 0-1, 0-2.5, 0-5, 0-10, 0-25 amperes. **Accuracy:** ±5% of full scale.
62F319. NET **56.00**

DC MILLAMMETER

Model 373. General purpose tester. Valuable in a number of applications. Provides DC current transformer and indicator instrument in one case. **Ranges:** 0-1, 5, 10, 25, 50, 100, 250, 1,000 ma. **Accuracy:** ±3% of full scale.
62F323. NET **56.00**

BATTERY TESTER

Model 379. Provides accurate indications of condition of all standard flashlight, hearing aid (mercury cells), radio batteries. Complete with test leads no. 08375 and operator's manual. **Ranges:** 0-1.5, 4.5, 6.0, 7.5, 9.0, 15.0, 22.5, 30.0, 45.0, 67.5, 90.0v.
62F366. NET **56.00**

"HAMMETER" VOM

Model 240-4. Designed for general application around labs, classroom, hamshack, etc. 1,000 ohms per volt AC-DC. **Ranges:** DC: 15v, 75v, 300v, 750v, 3,000v; AC: 15v, 150v, 750v, 3,000v. DC: 51ma, 150ma, 750ma. **Resistance:** 0-3,000Ω, 0-300KΩ.
62F313. NET **62.00**

OHMMETER

Model 372-2. Provides wide range of resistance measurements in a small package. Ideal for use in schools, on test benches or at inspection facilities. **Ranges:** 0-500, 0-5000, 0-50,000, 0-500,000 ohms; 0-5, 0-50 megohms. **Center Scales:** 5, 50, 500, 5,000, 50,000, 500,000 ohms.
62F318. NET **59.00**

DC AMMETER

Model 375. Provides complete range from a fraction of an amp to 25 amps without external shunts. Ideal unit for use with unmetered power supplies. **Ranges:** 0-1, 2.5, 5, 10, 25 amperes. **Accuracy:** 3% of full scale.
62F362. NET **56.00**

AC MILLIAMMETER

Model 378. Has five separate ranges. Typical applications are transformer vacuum tube tests. Contains current transformer and indicating instrument in one case. **Ranges:** 0-5, 25, 100, 250, 1,000 ma. **Accuracy:** ±5% of full scale.
62F365. NET **56.00**

AC VOLT-AMP-WATTMETER

Model 390. AC/DC volts, AC amps and AC watts with one meter. Useful for practically any appliance. Complete with test cord assembly no. 08418 and operator's manual. Volts: 0-150, 300. **Amps:** 0-3, 15. **Watts:** 0-300, 600, 1,500, 3,000. **Accuracy:** ±5% of full scale.
62F317. NET **111.50**

HANDI-VOM

Model 160. Weighs only 12 ounces, yet has ±2% accuracy DC, ±3% AC. Self-shielding taut-band meter movement. **Sensitivity:** 20,000 ohm/volt DC, 5,000 ohm/volt AC. Built-in overload protection. **Scale length:** 3 inches. **Ranges —DC Volts:** 0-0.25, 1.0, 2.5, 10, 50, 250, 500, 1000. **AC Volts:** 0-2.5, 10, 50, 250, 500, 1000. **DC Current:** 0-50ΩA, 1mA, 10mA, 100mA, 250mA, 500mA. **Decibels:** −20 to +10, −8 to +22, +6 to +36, +20 to +50 (0 dB at 1 mW into 600 ohms). **Resistance:** R x 1 (30Ω center scale), R x 10, R x 100, R x 1k, R x 10k. **Dimensions:** 4⅝" x 3⅝" x 1¾". Complete with alligator clip test leads, batteries, and operator's manual. Weight: 12 oz.
62F1723. NET **76.00**

ACCESSORIES

Type 02055. Probe tip leads for Model 160 Handi-VOM.
62F1686. NET **5.05**

Type 02225. Vinyl carrying case for Model 160.
62F1682. NET **15.85**

Type 02929. Vacuum formed carrying case for Model 160.
62F2385. NET **18.90**

Type 08375. Alligator-clip test leads with elbow pin-terminals. For use with 230, 240, 260 (Series 1 and 2 only), 372, 379.
62F1725. NET **4.70**

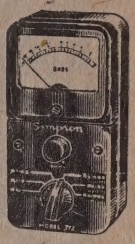
Type 08376. Alligator-clip test leads with spade lug connectors. For use with models 362-2, 371, 373, 374, 375, 376, 377, 378, 387.
62F343. NET **4.70**

Type 08381. Test leads with elbow pin-terminals and insulated prods. For use with models 23, 240, 260 (series 1 and 2 only), 261, 270.
62F369. NET **5.60**

230-2

240-4

362-2



372-2

373

378

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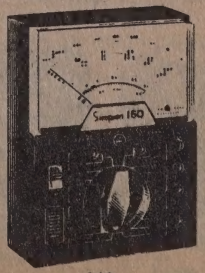
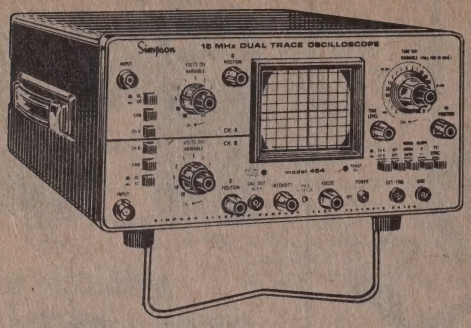
390



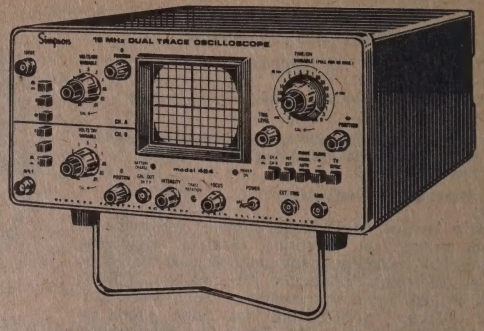
160

Simpson Oscilloscopes, Test Equipment Accessories



MODEL 454 3″ OSCILLOSCOPE

15MHz Dual Trace Line Operated Oscilloscope. Specifications, Vertical: Sensitivity—5mV to 10mV/Div in a 1-2-5 sequence. Bandwidth—DC mode, DC to 15MHz (−3dB), AC mode, 10Hz to 15MHz (−3dB). Risetime—24nSec. Overshoot—At 1 MHz less than 5%. Input Impedance—1MΩ. Chopped Frequency: 100kHz (approx.). Horizontal: Sweep base—.5/μ Sec to 500mSec/Div in a 2-10-50 sequence of steps. Magnifier—X5. Linearity—Better than 3% for .5Sec/Div to 2μ Sec/Div. Better than 5% for .5/μ Sec/Div. Triggering: Sensitivity—One Division of deflection or more for internal triggering, 1VPP for external triggering. Frequency Range—10Hz to 15Hz. Power—120 VAC 50-60Hz. (240 VAC available on demand.)
62F4076. Type 454. **NET**.....**549.00**



MODEL 452 SWEEP SCOPE

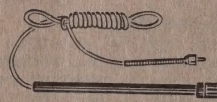
Dual Trace 15MHz Triggered Sweep Scope. Wide bandwidth of DC to 14MHz (−3dB). Vertical: Sensitivity—5mV/cm to 10V/cm calibrated in 1-2-5 sequence in 11 steps. Accuracy—within ±5%. Bandwidth—DC coupled: DC to 15MHz (−3dB). AC coupled: 2Hz to 15MHz (−3dB). Risetime—24nSec. Impedance—1MΩ, 25pF. Horizontal: Bandwidth—DC Coupled, DC to 1.5MHz, AC Coupled, 2Hz to 1.5MHz. Input Imped. 1MΩ shunted by 25pF. Calibration Voltage—0.5V P-P ±1% square-wave, 1kHz. Triggering: Source-External, CH A, CH B. Mode—Normal and Automatic. Coupling—AC. Slope—Positive and Negative. Sensitivities: Internal (CH A or CH B), 0.5cm p-p from 10Hz to 15MHz. External, 0.5V p-p from 3Hz to 15Hz. CRT: Type, 130 BHB31. Screen size, 5″ round face. Display Area 8 x 10 cm. Power—120 VAC ±10%, 50/60Hz. Dim. 6½″h x 12″w x 16″d. (16.5 x 30.5 x 40.6 cm). Wgt. 20 lb. (9.0 kg) (240 VAC available upon demand)
62F4075. Type 452. **NET**.....**698.00**

40 kV DC TEST PROBE-METER

- **For Hands off Measurements.**
- **Superior Insulation.**

Designed for accurate voltage measurements in low-power high impedance high voltage circuits. Direct reading kilo-volt scale, 50 A taut-band meter movement. Specifications: Range up to 40,000 VDC neg. ground. Sensitivity, 20,000 per volt. Accuracy, ±3%. Overall length, 15″ (38cm). Rugged Noryl thermoplastic probe body, handle and oversize disc barriers for superior insulation.
62F4078. Model 248. **NET**.....**44.10**
62F4079. 00804 Carry Case.....**10.15**

07500



00789

00115

LOW CAPACITY 10 TO 1 PROBE

62F202. Type 00791. **NET**.....**28.90**

TEST LEADS

Stk. No.	Type	Description	For Equipment Listed:	Each
62F2834	00115	Combination probe-tip and removable alligator clip.	202, 208, 209, 229-2, 250, 255, 260 (Series 3-6 only),	**6.50**
62F1410	00118	Retractable grip-tip probe for use with 00115	260XL, 261, 262 (Series 3 only), 263, 265, 267, 268.	**5.95**
62F370	07500	Alligator-clip leads,	269 (Series 2 & 3 only),	**5.30**
62F325	07538	Probe-tip leads.	270, 360, 460.	**5.65**
62F1725	08375	Alligator-clip leads,	230, 240, 260 (Series 1 &	**4.70**
62F369	08381	Probe-tip leads.	2 only), 372, 379.	**5.60**
62F343	08376	Alligator-clip leads.	362, 371, 373, 374, 375, 376, 377, 378, 387.	**4.70**
		HIGH VOLTAGE AND RF PROBES		
62F2375	00036	10,000 Volt AC Probe.	250, 255, 260 (Series 3, 4, 4M, 5, 5M, 5P, 6, 6M, 6P,	**29.00**
62F1727	00034	10,000 Volt DC Probe.	6XL, 6XLP), 261, 261 Series 2, 267, 270, 270 (Series 2, 3 4).	**29.00**
62F2248	00794	5,000 Volt AC Probe.	260-6, 260-6M, 260-6P,	**10.00**
62F2247	00795	5,000 Volt DC Probe.	6XL, 6XLP, 270-4.	**10.00**
		TEMPERATURE TESTER LEADS AND PROBES		
62F396	00010	15 ft. lead and Thermistor.	Models 385-3L, 389-3L—	**17.50**
62F308	00789	Free Air Temperature Probe.	Adapter Model 652.	**20.10**
62F398	00790	Surface Temperature Probe.		**15.85**

CARRYING CASES

00248.

05262.

No. 00248. Roll Top Safety Case for 260-6 Family and 270-4.
62F204. NET.....**18.90**
No. 00805. Ever-Redy Vinyl Case for 250, 260, 260XL, 261, 265, 270, 303.
62F302. NET.....**25.45**
No. 01565. Leather-covered, sponge-lined case for 312, 313, 314.
62F1417. NET.....**28.25**
No. 01617. Carrying Case for Models 460-3, 464.
62F205. NET.....**29.80**
No. 01818. Vinyl case for 250, 260, 260XL, 261, 265, 270.
62F301. NET.....**20.80**
No. 02163. Protective cover for 260 Family of VOM's. Snaps firmly over the face to protect from dust dirt and accidents. Fits 260's and 270's except 260-6XL.
62F206. NET.....**22.50**
No. 02226. Case for 294, 295, 296.
62F207. NET.....**20.40**
No. 03413. Leatherette covered case for 391, 392.
62F208. NET.....**17.50**
No. 04299. Vinyl Case for Microtesters.
62F326. NET.....**16.00**
No. 05262. Ever-Redy Vinyl Case for 262, 263, 267, 268, 388-3L.
62F329. NET.....**22.30**

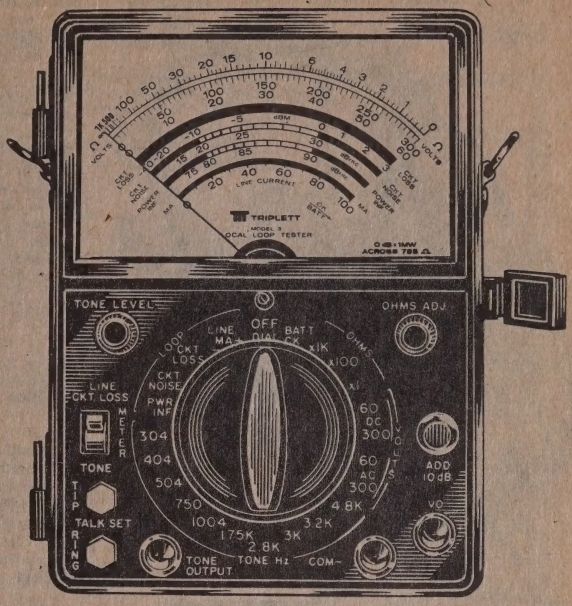
MODEL 3 LOOP TESTER

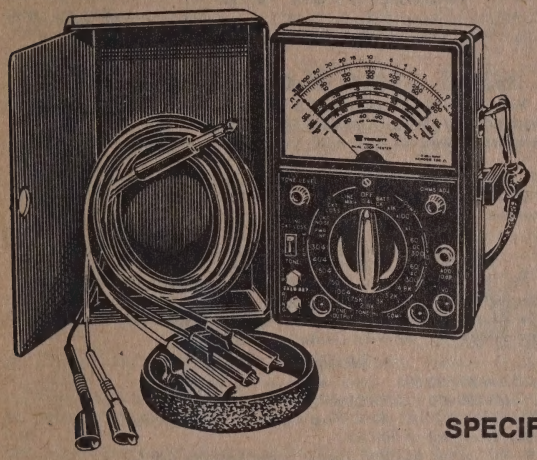
TRIPLETT

THREE-IN-ONE TELEPHONE TESTER

TYPE Model 3 Loop Tester. Three-in-one telephone tester, this multi-function unit is specifically designed for the individual who needs to check telephone company or privately installed cable for transmission quality or alarm circuit work. The **volt-ohmmeter** includes two AC and DC voltage ranges, plus three ohm ranges. The **multi-tone generator** has a 10 frequency tone output at the output jack. The tone level is adjustable from —40dBm to +3dBm and is self-compensating so that negligible error results when used on either 600 or 900 ohm lines. This unit will measure either its tone output or line input. **Standard transmission test set** provides a line measurement capability designed to measure line parameters such as circuit loss, circuit noise, power influence and line current. The input and output circuits are self-compensating. Combining the functions of the tone generator and the transmission test set, you can send a tone and receive and measure a tone simultaneously. This enables the user to measure the receive and send losses of a line under test. Complete with black thermoplastic case and cover, shoulder strap, test leads.

62F2671. Net **450.00**





- **VOLT-OHMMETER**
- **MULTI-TONE GENERATOR**
- **STANDARD TRANSMISSION TEST SET**

SPECIFICATIONS

TRANSMISSION TEST SET

CIRCUIT LOSS
Range: —40 to +3 dBm.
0 dBm Reference: 1 mW across 735 ohms.
Frequency Response: Flat 300 to 5000 Hz, ±3% to 15 kHz.
Color Coded Scale: 0 to +3dBm (red), 0 to —10dBm (green), below —10dBm (red).
Input Resistance: approx. 200 ohms.
Input Impedance: 735 ohms. (Self-compensating for 600 or 900Ω.)
Accuracy: —2 dB @ 0 to —10 dBm.
Overload Protection: ⅛ amp fuse.

CIRCUIT NOISE
Range: 15 to 33 dBrnc.
Reference Level: 0 dBrnc—90dBm w/"C" Message Weighting.
Frequency Response: "C" Message Curve.
Color Code Scale: 30 to 33 dBrnc (red), 20 to 30 dBrnc (yellow), below 20 dBrnc (green).
Input Resistance: approx. 200 ohms.
Input Impedance: 735Ω (self comp. for 600 or 900Ω line Imp.)
Accuracy: Meets Bell Tech. Ref. 41.009 "C" Message Curve Acc.
Overload Protection: ⅛ amp fuse.

POWER INFLUENCE (NOISE TO GROUND)
Range: 75 to 93 dBrnc.
Reference Level: 0 dBrnc—90dBm w/"C" Message Weighting.
Frequency Response: "C" Message Curve.
Color Coded Scale: 90 to 93, red; 80 to 90, yel; bel. 80, grn.
Input Resistance: no DC path between tip-ring and ground.
Input Impedance: betwn. tip and/or ring to gnd. more than 50K.
Accuracy: Meets Bell Tech. Ref. 41.009 "C" Message Curve Acc.
Overload Protection: ⅛ amp fuse.

LINE CURRENT
Range: 0 to 100 DCmA w/+ or — selection.
Color Coded Scale: 0 to 20 mA, red; 20 to 100 mA, green.
Accuracy: ±2% of full scale.
Overload Protection: ⅛ amp fuse.

NEWARK can supply all your test equipment and accessory needs. Contact Your Nearest NEWARK Branch.

MULTI-TONE GENERATOR

TONE
Waveform: Sine Wave.
Frequency Ranges: 304-404-504-750-1004-1750-2804-3004-3204-4804.
Output Amp.-Variable, Metered Level Range: 40 to +30dBm term.
Output Impedance: 735 ohms.
Frequency Accuracy: ±2½% but not lower than selected freq.
Overload Protection: 1 amp fuse.

VOLT-OHMMETER

DC VOLTS
Ranges: 0 to 60; Input res. 1.2 MΩ, 0 to 300 Input Res. 6MΩ.
Accuracy: ±2% of full scale.

AC VOLTS
Ranges: 0 to 60 Input Res. 300kΩ. 0 to 300 Input Res. 1.5MΩ.
Accuracy: ±3% of full scale.

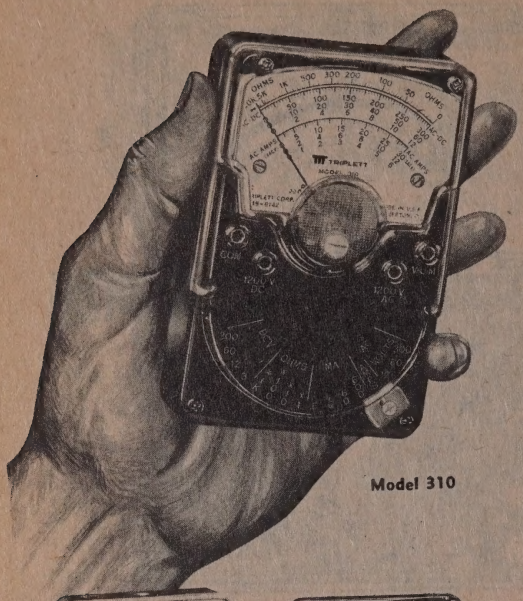
OHMS
Ranges: 0-1k-100k-1MΩ (10 ohms center scale).
Max. Voltage: 1.5 Volts.
Max. Current: 150 mA.
Accuracy: ±3% of arc.
Overload Protection: 1 amp fuse.

TESTER CONSTRUCTION

Meter: 50 uA ruggedized suspension, easily replaced integral module.
Scale Length: approx. 4½".
Case and Cover: Molded, black high impact plastic w/non-slip surface finish; adj. shoulder strap; easy ext. access to sealed bat. and fuse comp.; compartmentalized cover stores both sets of test leads and instruction manual.
Size: tester w/cover, 5½"Wx7½"Hx4½"D.
Weight: approx. 4 lbs. w/batteries.
Operating Temp.: 0 to 50 degrees C.
Storage Temp.: —40 to 60 degrees C.
Test Leads—Color Coded: Test Set—60" phone jack to insulated alligator clips—tip (green), ring (red), gnd. (yellow). VoltOhmmeter—60" safety test leads w/insulated alligator clips; plus (VOM) red, minus (COM) black.
Batteries: 2—9V NEDA 1604; 1—1½V D cell.
Battery Life: 9V merc. 90 hrs.; alk. 45 hrs.—Const. On.

TRIPLETT®

Hand Size Test Instruments



Model 310

MODEL 310 V-O-M TYPE 3

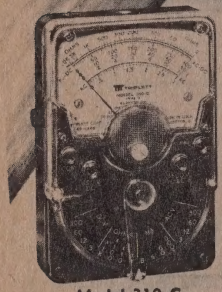
1. **Drop-resistant, hand-size V-O-M w/high-impact thermoplastic case.**
2. **20,000 Ohms per volt DC and 5,000 Ohms per volt AC; diode overload protection with fused Rx1 Ohms range.**
3. **Single range switch; direct reading AC Amp range to facilitate clamp-on AC Ammeter usage.**

RANGES

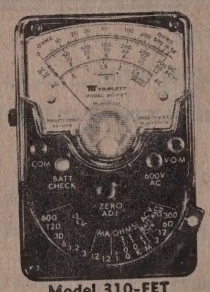
DC Volts: 0-3-12-60-300-1,200 (20,000 Ohms per Volt).
AC Volts: 0-3-12-60-300-1,200 (5,000 Ohms per Volt).
Ohms: 0-20k-200k-2MΩ-20MΩ (200 Ohm center scale on low range).
DC Microamperes: 0-600 at 250 mV.
DC Milliamperes: 0-6-60-600 at 250 mV.
Accuracy: ±3% DC; ±4% AC; (full scale).
Scale Length: 2⅛".
Meter: Self-shielded; diode overload protected; spring backed jewels.
Case: Molded, black, high impact thermoplastic with slide latch cover for access to batteries and fuse, 2¾" w x 1-5/16" d x 4¼" h.
Batteries: NEDA 15V 220 (1), 1½V 910F (1): Complete with 42" leads, alligator clips, batteries and instruction manual. Shpg. wt. 2 lbs.
62FX230 ..... $60.00

MODEL 310-T V-O-M

Model 310-T—Similar to Model 310 with —50°F to +150°F and +50° to +300°F temperature ranges and curve matched thermistor temperature probe.
62FX293 ..... $86.00



Model 310-C



Model 310-FET

MODEL 310-C V-O-M TYPE 4

1. **Hand-size V-O-M w/diode overload-protected suspension movement.**
2. **20,000 Ohms per volt DC and 15,000 Ohms per volt AC.**
3. **Single, enclosed range switch minimizes error; DC polarity-reversing switch.**

Model 310-C. Similar to Model 310 with diode overload-protected suspension movement, 15,000 ohms per volt AC, enclosed range switch and DC polarity-reversing switch. Maximum AC/DC voltage range 600 volts.
62FX292 ..... $77.00

MODEL 310-FET—TYPE 1

1. **Hand-size FET V-O-M with 10 megohm DC input resistance and diode overload-protected suspension movement.**
2. **Low voltage range of 300 mV DC; X1 megohm range.**
3. **Single range switch; DC polarity-reversing switch.**

RANGES

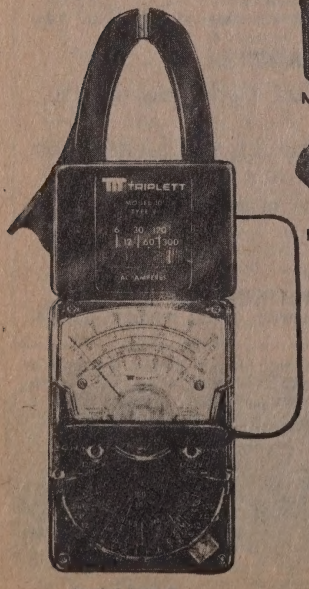
DC Volts: 0-0.3-1.2-6-30-120-600. Input resistance 10 megohms.
AC Volts: 0-3-12-60-300-600 (5,000 Ohms per Volt).
Ohms: 0-5k-500k-50MΩ-5,000MΩ (50 Ohm center scale on low range).
DC Milliamperes: 0-0.12-1.2 at 300 mV.
Accuracy: ±3% DC; ±4% AC; (full scale). **Scale Length:** 2⅛".
Meter: Self-shielded diode overload protected suspension movement; DC polarity-reversing switch.
Case: Molded, black, 2¾" w x 1-5/16" d x 4¼" h.
Batteries: NEDA 7V, 1501M, (1), 1½V 910A (1). Complete with 42" leads, alligator clips, batteries and instruction manual. Shpg. Wt. 2 lbs.
62FX250 ..... $101.00

Model 369

Model 10

Model 369-S

Model 101



Model 100-T

Model 379

ACCESSORIES FOR 310's

Model 10 Clamp-on AC Ammeter—For 310, 310-T and 310-F. Ranges, 0-6-12-30-60-120-300. **62F235** **$29.00**
Model 10-C Clamp-on AC Ammeter—For 310-C. Ranges, 0-6-12-30-60-120-300. **62F251** **$29.00**
Model 101 Line Separator—Divides two conductor cords direct or increases Model 10 sensitivity 10x and 20x. **62F238** **$13.00**
Model 311 Lead—42" long lead to separate Model 10 from 310 unit for easy reading in awkward spots. **62F045** **$5.70**
Model 369 Carrying Case—For Model 310's. **62F231** **$7.40**
Model 369-S Carrying Case—For Model 310's; front opens permitting use of tester in case. **62F046** **$17.40**
Model 379 Carrying Case—For Model 310 and Model 10 in combination, plus Model 101 and leads. **62F239** **$14.10**
Model 79-153 Needle Tip Replacement Lead—For Model 310 series. **62F246** **$5.70**
Model 79-296 Blunt Tip Replacement Lead—For Model 310 series. **62F1316** **$8.90**
Model 79-386 Thermistor Temperature Probe—For Model 310T. **62F2650** **$20.80**

HAND SIZE V-O-M CLAMP-ON AMMETERS

1. **Complete maintenance kit with V-O-M and clamp-on AC ammeter.**
2. **Diode overload-protected; 20,000 Ohms per volt on DC.**
3. **AC clamp-on will read up to 300 Amps AC.**

Model 100—Complete set includes Model 310 Type 3, Model 10, Model 101, No. 311 lead and Model 379 case. Shpg. Wt. 7 lbs. **62F249** **$116.00**
Model 100-C—Complete set includes Model 310-C, Model 10-C, Model 101, No. 311 lead and Model 379 case. Shpg. Wt. 7 lbs. **62F252** **$133.00**
Model 100-FET—Complete set includes Model 310-FET, Model 10, Model 101, No. 311 lead and Model 379 case. Shpg. Wt. 7 lbs. **62F1315** **$154.00**
Model 100-T—Complete set includes Model 310-T, Model 10, Model 101, No. 311 lead, temperature probe and Model 379 case. Shpg. Wt. 7 lbs. **62F2649** **$139.00**

TRIPLETT

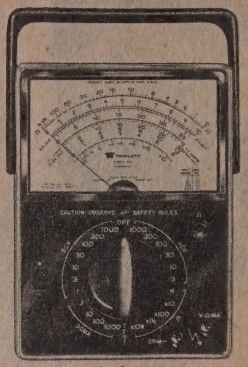
X'TRA rugged, Overload protected, Safety designed V-O-Ms

MODEL 60 V-O-M TYPE 2

1. **X'TRA Rugged—Will withstand an accidental drop up to a five foot height.**
2. **Overload Protected—All ranges protected by diode and unusual three fuse arrangement, including 1/8 amp, 1 amp and 2 amp/1000V fuses.**
3. **Safety Designed For You—Designed to most rigid safety standards; completely insulated unit including newly designed safety leads.**

RANGES

DC Volts: 0-0.3-1-3-10-30-100-300-1000 (Approx. 20,000 Ohms per Volt).
AC Volts: 0-3-10-30-100-300-1000 (Approx. 5,000 Ohms per Volt).
Ohms: 0-1k-10k-100k-1MΩ-10MΩ (12 Ohms center scale on low range).
DC Microamperes: 0-100 at approx. 320mV.
DC Milliammeters: 0-10-100-1000 at approx. 320mV.
Decibels: —20 to +52.
Accuracy: ±2% DC; ±3% AC; (full scale).
X'TRA Rugged: will withstand an accidental drop up to a five foot height with deviation from stated accuracy not exceeding ±4%.
Overload Protected: All ranges protected by diodes and unusual three fuse arrangement, including 1/8 amp, 1 amp and 2 amp/1000V fuses.
Safety Designed to most rigid safety standards to prevent explosive arcs in high energy circuits, up to the 2 amp/1000V (20kW) fuse capacity.
Meter: Diode overload protected ruggedized suspension meter movement module, DC polarity reversing.
Confidence test: Reassurance check of meter.
Case: Molded, orange, high impact thermoplastic; easy external access sealed battery and fuse compartment; handle holds tester at 30° angle; 5¼"W X 7¼"H X 3¼"D.
Batteries: NEDA 9V 1604 (1), 1½V 13F (1). Complete with 48" safety test leads, insulated alligator clips, batteries, spare 1/8A and 1A fuses and instruction manual. Shpg. Wt. 4 lbs.
62F170 ..... $112.00



Model 60

Model 60 Type 2 Approved by MESA Approval 2G-2880

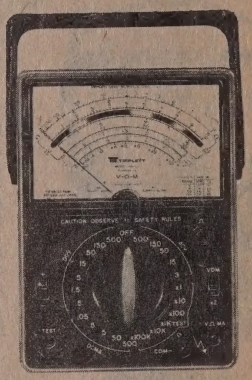
Model 60-K: Includes complete Model 60, Model 10, Model 101, Model 10 attachment lead and Model 639-A leather case. 62FX042..... $183.00
Model 60-A: Similar to Model 60 with mirror scale and ±1½% DC Accuracy. 62FX043..... $121.00

MODEL 60-NA V-O-M

1. **X'TRA Rugged—50 ranges with mirror scale and ±1½% DC accuracy—will withstand an accidental drop up to a five foot height.**
2. **Overload Protected.**
3. **Safety Designed For You**

RANGES

DC Volts: 0-0.15-0.5-1.5-5-15-50-150-500 (20,000 Ohms/Volt).
X2: 0-0.3-1-3-10-30-100-300-1000 (10,000 Ohms/Volt).
AC Volts: 0-3-15-50-150-500 (Approx. 10,000 Ohms/Volt).
X2: 0-6-30-100-300-1000 (Approx. 5,000 Ohms/Volt).
Ohms: 0-1k-10k-100k-1MΩ-10MΩ-100MΩ (6 Ohms center).
DC Microamperes: 0-50-500 at approx. 150mV.
X2: 0-100 at approx. 300mV.
DC Milliammeters: 0-5-50-500 at approx. 150mV.
X2: 0-1-10-100-1000 at approx. 300mV.
Decibels: —20 to +52.
Accuracy: ±1½% DC; ±3% AC; (full scale).
Frequency Compensated.
X'TRA Rugged: See Model 60.
Overload Protected: See Model 60.
Safety Designed. See Model 60.
Meter: Diode overload protected ruggedized suspension meter movement, ½% resistors.
Confidence Test: See Model 60.
Case: Molded, gray, high impact thermoplastic; external access sealed battery and fuse compartment; handle holds tester at 30° angle; 5¼"W X 7½"H X 3¼"D.
Batteries: NEDA 30V 210 (1), 1½V 13F (1). Complete with 48" safety test leads, insulated alligator clips, batteries, spare ⅛A and 1A fuses and instruction manual. Shpg. Wt. 4 lbs.
62FX044 ..... $154.00



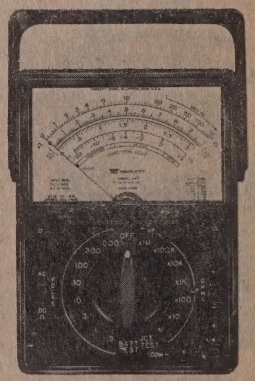
Model 60-NA

MODEL 64 VOLT-OHMMETER

1. **X'TRA Rugged/Overload Protected (all ranges)/Safety Designed solid state Volt-Ohmmeter.**
2. **Low-Power Ohms—LPΩ™—6 ranges with 90mV power source for in-circuit measurements plus junction test circuit.**
3. **Exclusive Triplett Micro Power—TMP™—permits continuous operation with carbon battery life in excess of a year.**

RANGES

DC Volts: 0-0.3-1-3-10-30-100-300-1000. Input res. 11.12 MΩ.
AC Volts: 0-0.3-1-3-10-30-100-300-1000. Input imp. 10 MΩ. Frequency range 20Hz to 20kHz, except 300 and 1000V.
Ohms-Low Power: 0-1k-10k-100k 1MΩ-10MΩ-100MΩ. (Max. voltage 90mV, max. power 0.08mW, 10 Ohm center scale).
Ohms-Conventional: 1000MΩ. (Max. voltage 0.9V, max. power 0.08μW, 10M ohm center scale).
Junction Test: checks diodes and transistor junctions (silicon-germanium-open or shorted); forward and reverse conduction. (Max. V. 0.9V, max. power 0.8mW).
Decibels: —40dB to +62dB.
Accuracy: ±3% F.S., all ranges.
X'TRA Rugged: See Model 60.
Overload Protected: All ranges protected by diodes and unusual two fuse arrangement, including 1 amp and 2 amp/1000V fuses.
Safety Designed: See Model 60.
Meter: See Model 60.
Confidence Test: See Model 60.
Case: Molded, green, high impact thermoplastic; external access sealed battery and fuse compartment; 5¼"W X 7½"H X 3¼"D.
Batteries: NEDA 9V 1604 (2), 1½V 13F (1). Complete with 48" safety test leads, insulated alligator clips, batteries, spare 1A fuse and instruction manual. Shpg. Wt. 4 lbs.
62FX294 ..... $154.00



Model 64

LEADS AND ACCESSORIES

79-374: Model 60 Series, Model 630/630-A type 4, safety test lead set 48". **62F2328** **$6.10**

79-261: Model 601 and 603 ground lead, black, 48". **62F253** **$4.20**

79-363: Model 603 red lead including probe, 48". **62F2329** **$22.80**

79-127: Model 630 Series (except type 4), 615 and 666-R test lead set, 48". **62F245**..... **$5.70**

79-354: Model 60 Series, Model 630/630-A type 4, lead for attaching Model 10/10-C Clamp-on Ammeter to V-O-M. **62F2332**..... **$5.70**

No. 611 Leads: Model 630 Series (except type 4), lead for attaching Model 10/10-C Clamp-on Ammeter to V-O-M. **62F236** **$5.70**

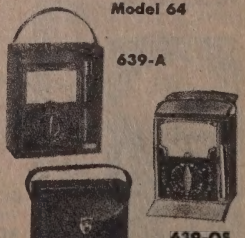
79-433 High Voltage Probe— 6kVDC. **62F2651** **$15.00**
79-432 High Voltage Probe— 6kVAC. **62F2652** **$15.00**

QUALITY LEATHER CASE

Model 639-A: For Model 60, 600, 630 Series, Flaps open to permit use of tester in case. Space for tester, leads, Model 10 and Model 101. **62F041** **$29.20**

Model 639-OS: For Model 600, 630 Series. Flaps open to permit use of tester in case. Space for tester, leads, Model 10 and Model 101. **62F2333** **$25.60**

Model 639: For 630 Series only. Top opens with space for leads. **62F213** **$22.10**

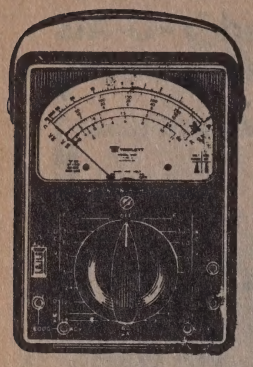


639-A

639-OS

639

MODEL 630/Model 630-A V-O-M TYPE 4



Model 630

1. **OVERLOAD PROTECTED—Protected by diode and two fuse arrangement, including 1 amp and 2 amp/600V fuses.**
2. **SAFETY DESIGNED FOR YOU—Completely insulated unit using newly designed safety leads.**
3. **Single range switch minimizes error; 5 ohmmeter ranges with 4.4 ohms center scale.**

RANGES

DC Volts: 0-0.3-3-12-60-300-600 (20,000 Ohms per Volt).
AC Volts: 0-3-12-60-300-600 (5,000 Ohms per Volt).
Ohms: 0-1k-10k-100k-1MΩ-100MΩ (4.4 Ohm center scale on low range).
DC Microamperes: 0-60 at 300mV.
DC Milliamperes: 0-1.2-12-120 at 250mV.
Decibels: —20 to +57.
Accuracy: ±2% DC; ±3% AC; (full scale).
Meter: Diode overload protected suspension movement.
Case: Molded, black, 5½"w X 3-11/32"d X 7½"h.
Batteries: NEDA 30V 210 (1), 1½V 13F (1).
Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt. 5 lbs.

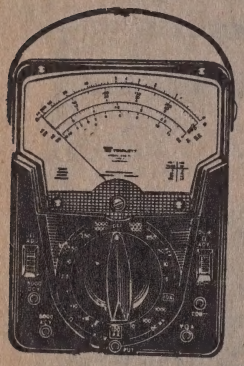
62F212 ..... **$94.00**

Model 630-A: Similar to Model 630 with mirror scale and ±1½% DC accuracy. **62F211** **$103.00**

ACCESSORIES

79-374: Replacement safety test lead set, 48", Model 630/630-A type 4. **62F2653** ..... **$ 6.10**
79-433: High Voltage Probe—6kVDC, Model 630/630-A type 4. **62F2651** **$16.50**
79-432: High Voltage Probe—6kVAC, Model 630/630-A type 4. **62F2652** **$16.50**

MODEL 630-PL/MODEL 630-PLK V-O-M SERIES



Model 630-PL

1. **27-range V-O-M with single range switch minimizes error; DC polarity reversing switch.**
2. **5" suspension meter with diode overload protection.**
3. **4 ohmmeter ranges with 4.4 Ohms center scale.**

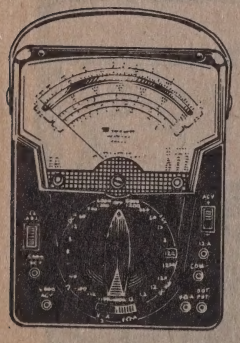
RANGES

DC Volts: 0-2.5-10-50-250-1,000-5,000 (20,000 Ohms per Volt); 0-0.25 at 100 ua.
AC Volts: 0-3-10-50-250-1,000-5,000 (5,000 Ohms per Volt). Frequency range 10Hz to 500kHz.
Ohms: 0-1k-10k-1MΩ-100MΩ (4.4 Ohm center scale on low range).
DC Microamperes: 0-100 at 250mV.
DC Milliamperes: 0-10-100-1,000 at 250mV.
DC Amperes: 0-10 at 250mV.
Decibels: —20 to +49.
Output Volts (AC): 0-3-10-50-250 (5,000 Ohms per Volt).
Accuracy: ±2% DC; ±3% AC; (full scale).
Meter: Diode overload protected suspension movement, DC polarity reversing switch.
Case: Molded, black, 5½"w X 3-11/32"d X 7½"h.
Batteries: NEDA 30V 210 (1), 1½V 13F (1).
Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt. 5 lbs.

Model 630-PL. 62F241 ..... **$101.00**

Model 630-APL: Similar to Model 630-PL with mirror scale and ±1½% accuracy. **62F242** **$110.00**
Model 630-PLK: Similar to 630-PL with solid-state switching circuit overload protection for burnout protection of entire tester. **62F1775** **$149.00**
Model 630-APLK: Similar to Model 630-PLK with mirror scale and ±1½% DC accuracy.
62F1777 ..... **$158.00**

MODEL 630-NA/MODEL 630-NS V-O-M



Model 630-NA

1. **70-range V-O-M with single range switch and DC polarity-reversing switch.**
2. **Accuracy 1½% DC and 3% AC; mirrored scale.**
3. **Diode overload-protected suspension movement; temperature compensation.**

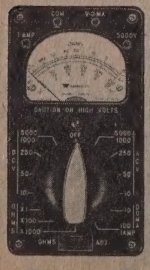
RANGES

DC Volts: 0-0.6-3-12-60-300-1,200-6,000 (10,000 Ohms per Volt). 0-0.3-1.5-6-30-150-600-3,000 (20,000 Ohms per Volt). 0-0.120 at 60 microamperes. 0-0.240 at 120 microamperes.
AC Volts: 0-3-12-60-300-1,200-6,000 (5,000 Ohms per Volt). 0-1.5-6-30-150-600-3,000 (10,000 Ohms per Volt). Frequency range 35Hz to 20kHz.
Ohms: 0-1k-10k-100k-1MΩ-10MΩ-100MΩ (4.4 Ohm center scale on low range).
DC Microamperes: 0-60-600 at 120mV; 0-120 at 240mV.
DC Milliamperes: 0-6-60-600 at 120mV; 0-1.2-12-120-1,200 at 240mV.
DC Amperes: 0-6 at 120mV; 0-12 at 240mV.
Decibels: —26 +51.
Output Volts (AC): 0-3-12-60-300 scale (5,000 Ohms per Volt).
Accuracy: ±1½% DC; ±3% AC; (full scale).
Meter: Diode overload protected suspension movement, DC polarity reversing switch, mirror scale, ½% resistors, switch for doubling range selection.
Case: Molded, black, 5½"w X 3-11/32"d X 7½"h.
Batteries: NEDA 30V 210 (1), 1½V 13F (1).
Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt. 5 lbs.

Model 630-NA. 62F228 ..... **$139.00**

Model 630-NS: Similar to Model 630-NA with 20,000 Ohms per Volt DC and 20,000 Ohms per Volt AC. Maximum AC/DC voltage range, 1200 Volts. **62F168** **$172.00**

MODEL 666-R V-O-M TYPE 1



Model 666-R

1. **Rugged 16-range V-O-M; single range switch minimizes error.**
2. **3 ohmmeter ranges reading to 3 megohms.**
3. **AC and DC voltage ranges from 10 to 5000 volts.**

RANGES

DC Volts: 0-10-50-250-1,000-5,000 (1,000 Ohms per Volt).
AC Volts: 0-10-50-250-1,000-5,000 (1,000 Ohms per Volt).
Ohms: 0-3k-300k-3MΩ (20 Ohm center scale on low range).
DC Milliamperes: 0-10-100 at 250mV.
DC Amperes: 0-1at 250mV.
Accuracy: ±3% DC; ±4% AC; (full scale).
Scale Length: 3".
Meter: Rugged spring-backed instrument jewels.
Case: Molded, black, 3-1/16"w X 2-9/16"d X 5⅜"h.
Batteries: NEDA 1½V 15A (2), 1½V 14F (1). Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt. 3 lbs.

Model 666-R. 62F209 ..... **$68.00**

MODEL 666-R ACCESSORIES

Model 669: Quality leather case, top opens with space for tester and leads. **62F210** **$14.60**
Model 669-OS: Quality leather case, flaps open to permit use of tester in case. **62F2647** **$25.60**
79-127: Replacement test leads, 48".
62F245 ..... **$5.70**

MODEL 3300 DIGITAL V-O-M

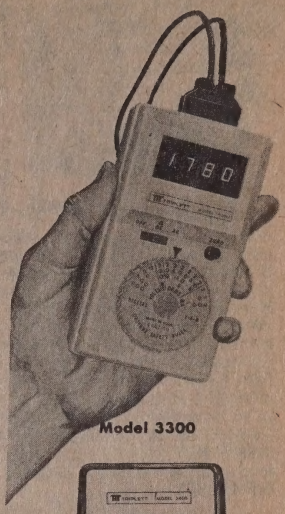
1. **HAND-SIZE, 3½ DIGIT—Easy operation, 22 ranges with Hi and Low Power Ohms. Auto-polarity.**
2. **OVERLOAD PROTECTION—Protected up to 600 volts on all ranges with special 1A/250V and 2A/600V fuse arrangement.**
3. **BATTERY PAC™—Easily removed, snap-in Battery Pac™ provides convenient field exchange for fully charged Pac. Battery Pac™ rechargeable in tester or externally.**

RANGES

DC Volts: 0-.2-2-20-200-600, ±.5% Rdg. ±1 Digit. Input resistance all ranges: 10 Meg. Full scale step response: 1 sec. typical.
AC Volts: 0-.2-2-20-200, 60Hz ±1% Rdg. ±2 Digits. 0-600, 60Hz ±1.5% Rdg. ±2 Digits. Input impedance all ranges. 10 Meg., Cap. 100pF. Full scale step response: 3 sec. typical.
Ohms—Low Power Ranges: 0-200-20k-2M, ±.5% Rdg. ±1 Digit, FS voltage 200mV. Full scale step response: 2 sec. typical all ranges.
Ohms—Hi Power Ranges: 0-2k-200k, ±5% Rdg. ±1 Digit, FS voltage 2V. 0-20M, ±1% Rdg. ±1 Digit, FS voltage 2V. Full scale step response: 2 sec. typical all ranges except 20M range 8 sec. typical.
DC Milliammeters: 0-2-20-200, ±1.25% Rdg. ±1 Digit, .2 volt burden FS. Full scale step response: 1 sec. typical.
AC Milliammeters: 0-2-20-200, 50-kHz ±1.5% Rdg. ±2 Digits, .2 volt burden FS. Full scale step response: 3 sec. typical.

CONSTRUCTION

Out of Range Indication: reading blinks.
.3" LED display with Polarity Indication.
CMRR: 90dB min. at 60Hz. NMRR: 40dB min. at 60Hz.
Batteries: NEDA 1½V 15NC (4), Ni. Cad. type AA.
AC Adaptor Charger for Ni. Cad. batteries.
Probe: Red/Gray probe houses fuses.
Case: Molded, gray high impact thermoplastic with non-slip "finger-tread" surface finish; easy access Battery Pac™; dimensions approx. 3"W X 5⅜"L X 1⅜"D. Weight Approx. 10 oz. with batteries.
Complete with one year warranty, 42" test leads, insulated alligator clips, rechargeable Ni. Cad. batteries, AC Adaptor Charger and instruction manual.
Model 3300. 62FX295 ..... $175.00



Model 3300

ACCESSORIES

10-2860 Leather carrying case. **62F2654**..... $17.60
Model 10-D Clamp-on AC Ammeter—Ranges 0-20, 0-200 Amps; Accuracy 5%. **62F2655**..... $33.00

MODEL 3400 DIGITAL V-O-M

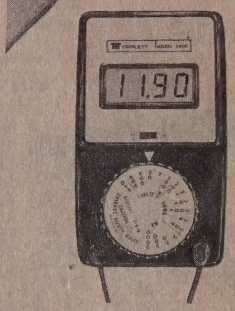
1. **HAND-SIZE, 3½ Digit—6 function, 24 ranges with Hi and Low Power Ohms. Auto-zero and Auto-polarity.**
2. **OVERLOAD PROTECTION—Protected up to 600 volts on all ranges with special 2A/250V and 3A/600V fuse arrangement.**
3. **BATTERY LIFE—200 hour minimum with 9V battery, display indicates "LOW BAT" with 50 hours battery life remaining.**

RANGES

DC Volts: 0-0.2-2-20-200, ±0.5% Rdg. ±1 digit. 0-600, ±0.75% Rdg. ±1 digit. Input resistance all ranges: 10 meg. Full scale step response: 1 sec. max.
AC Volts: 0-0.2-2-20-200, ±1% Rdg. ±2 digits. 0-600, ±1.5% Rdg. ±2 digits, frequency response 50Hz to 400Hz. Input impedance all ranges: 10 meg. Full scale step response: 5 sec. maximum.
Low Power Ohms: 0-200-20k-2M, ±0.5% Rdg. ±1 digit. Maximum open circuit voltage 300mV. Full scale step response: 2 sec. maximum.
Hi Power Ohms: 0-2-200k, ±0.5% Rdg. ±1 digit. 0-20M, ±1% Rdg. ±1 digit. Maximum open circuit voltage 4V. Full scale step response: 2 sec. max. except 20M range 10 sec. typical.
DC Milliammeters: 0-2-20-200, ±1% Rdg. ±1 digit. 0-2000, ±1.5% Rdg. ±1 digit, voltage drop across input: 200mV. Full scale, step response: 1 sec. max.
AC Milliammeter: 0-2-20-200 ±1.5% Rdg. ±2 digits. 0-2000 ±2% Rdg. ±2 digits, frequency response 50Hz to 400Hz, voltage drop across input: 200mV RMS. Full scale step response: 5 sec. maximum.

CONSTRUCTION

.5" LCD display with polarity indication.
Overange indications: display blanks M.S.D. with polarity indicated.
CMRR: 90dB min. at 60Hz. NMRR: 55dB min. at 60Hz.
Battery: NEDA 9V 1604A (1), 200 hours minimum life.
Low Battery Indication: "LOW BAT" shows on readout.
Case: Molded, brown high impact thermoplastic with non-slip "finger-tread" surface finish: dimensions approx. 3"W X 5⅜"L X 1½"D
Weight: Approx. 10 oz. with battery.
Complete with one year warranty, 36" test leads, insulated screw-on alligator clips, battery and instruction manual.
Model 3400. 62FX296..... $140.00



Model 3400

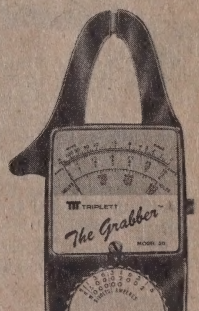
MODEL 30 CLAMP-ON AC VOLT AMMETER

1. **Drop-resistant, comfortable hand-size AC volt/ammeter with single range switch and diode overload protected meter.**
2. **Designed to rigid safety standards, completely insulated unit including newly designed safety leads.**
3. **One hand operation with pointer lock: optional ohmmeter adapter with 10 ohm center scale available.**

RANGES

AC Volts: 0-150-300-600 volts RMS (5,000 ohms/volt).
AC Amps: 0-6-12-30-60-120-300 amps RMS.
Accuracy: 3% of (full scale).

Pointer lock for readings in dark or hard-to-reach areas. Jaw opening handles wires to 1" diameter.
Meter: self-shielded, diode overload protected.
Case: Molded, black, high impact thermoplastic, overall size 3¾"W X 1½"D X 7½"H.
Complete with 48" leads, alligator clips and instruction manual.
Model 30. **62F2656**..... $65.00
Model 31: Similar to Model 30 with AC Amp ranges to 1200 Amps and jaw opening for wires to 2" diameter. **62F2657**..... $100.00



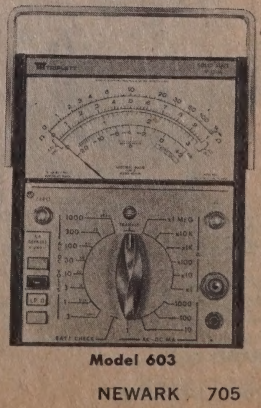
Model 30

MODEL 603 V-O-M—TYPE 2

1. **Exclusive TRIPLETT MICRO POWER—TMP™ battery life in excess of a year for carbon batteries with unit left ON continuously.**
2. **LOW-POWER OHMS—LPΩ™—6 ranges with 70 mV power source for in-circuit measurements without component damage.**
3. **FET V-O-M WITH AUTO-POLARITY—convenient and time saving, always reads up scale.**

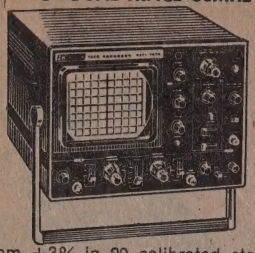
RANGES

DC Volts: 0-0.3-1-3-10-30-100-300-1,000. Input resistance 11.12 megohms with 1.12 Meg in Probe.
AC Volts: 0-0.3-1-3-10-30-100-300-1,000. Input impedance 10 megohms. Freq. range 20Hz to 10kHz.
Ohms—Low Power: 0-1k-10k-100k-1MΩ-10MΩ-1000MΩ. (70mV open circuit voltage, 123μW maximum power applied to device under test, 10 Ohm center scale on low range).
Ohms—Conventional: 0-1k-10k-100k-1MΩ-10MΩ-1000MΩ. (1.5V open circuit voltage, 56mW maximum power applied to device under test, 10 Ohm center scale on low range).
AC and DC Milliamperes: 0-1-10-100-1000 at 316mV.
Accuracy: ±3% all Voltage and Ohms ranges, ±4% all Current ranges; (full scale).
Meter: Diode overload protected susp. movement.
Case: Shielded, molded, black, 5⅛"wX3¼"dX6½"h.
Batteries: NEDA 9V 1604 (2), 1½V 13F (1).
Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt. 5 lbs.
Model 603. 62F2658..... $204.00


Model 603

Precision Test Equipment

5" DUAL-TRACE 30MHz TRIGGERED OSCILLOSCOPE



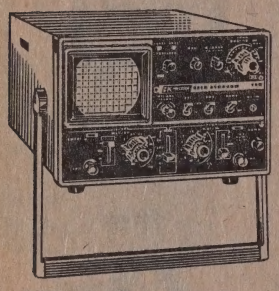
Model 1474P. Vertical Amplifier—Sensitivity: 5mV/cm. Response: DC, DC-30 MHz (−3 dB); AC, 10 Hz-30MHz (−3 dB). Rise time: 11.7 nS. Input Imped: 1MΩ±2%, 22 pF (±3 pF). Max. Input: 300V DC +AC peak or 600 V p-p. Modes: CH-A, CH-B, Dual, Add. Chop Freq: 200 kHz ±20%. Signal Delay: Fixed-12 nS. **Sweep System**—Type: Auto & triggered (NORM) Mode (X-Y oper) CH A = Y, CH B + X. Sweep time; 0.2 μS/cm-0.5 S/cm ±3% in 20 calibrated steps (1-2-5 sequence) with vernier plus 5X sweep magnifier. **Triggering**—Source: INT CH-A, CH-B and EXT; X1 and X10 Slope: + or −, continuously variable level control; pull for AUTO. Coupling: AC, DC, LF reject, HF reject. **Horizontal Amp** (input thru Ch B vertical Input)—Sensitivity: 5 mV/cm. Response: DC-1 MHz (−3 dB). Input Imped: 1 megohm, shunted by 22 pF (±3 pF). Input: 300 VDC + AC peak, or 600V p-p.—Calibration; 0.5 V p-p ±1% (squarewave at 1 KHz ±10%). CRT: 5" PDA (approx. 4kV) w P31 phosphor. Intensity Modul: More than +5V (TTL compatible). DC-5 MHz. **Power** 115/230 VAC, 50/60 Hz, 25 W. Size: (HWD) 18.4 x 25.3 x 36.9 cm (7⅜ x 10⅛ x 14¾"). **Weight:** 8.8 kg. (19.6 lbs.) **Includes:** Two PR-36 probes.

59F900. NET 999.00

Model LC-74. Protective cover.

59F910. NET 16.50

3" DUAL-TRACE 15 MHz PORTABLE OSCILLOSCOPE



Model 1432P. Sweep: Auto and triggered. 0.5μs/div.—0.5s/div. in 19 steps with vernier. Magnif: 5x. Linearity: 3% or better. **TRIGGERING:** Source: CH A, CH B, and Ext., autom or normal. TV Sync: TV-H (line) or TV-V (frame) sync switched automatically by SWEEP TIME/div switch. **Horizontal Amplifier:** Sensitivity: 2mV/div., to 10V/div ±5% in 12 ranges. Response: DC to 1 MHz (−3dB); AC, 10Hz to 1MHz. Input Z; 1MΩ (±5%), shunted by 22pF. Max. Input: 300VDC + AC peak or 600Vp-p. Z Axis Input: TTL compatible, DC-1MHz. **General**—Oper Temp: 0 to +50°C. Calibration: Internal 1Vp-p (square wave at 1kHz). Power: 117/124 50/60Hz AC or 15.5 VDC. Size: 14 x 21 x 36 cm (8.6 x 5.5 x 4.3"). Weight: 8.3 kg. (18.3 lbs.) Probes: Two PR-37 10:1/direct probes and accessory tips included. **Vertical Amplifier**—Sensitivity: 2mV/Div. to 10V/div., ±5% in 12 ranges. Response: DC, 15MHz (−3dB); AC, 10Hz-15MHz (−3dB). Rise Time: 24ns or less. Max. Input Voltage: 300V, DC + AC peak or 600V p-p. Oper Modes: CH A only; CH B only; A & B (dual) A + B (add); A − B. CH B Polarity; NORM; INV. Ch Sep: better than 60 dB at 1 kHz.

62F2663. NET 780.00

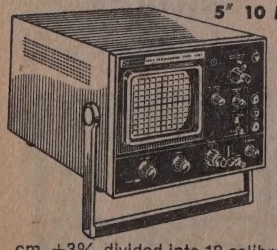
LC-132. Protective Carrying Case.

62F2664. NET 25.00

BP-32. Battery Pack.

62F2665. NET 50.00

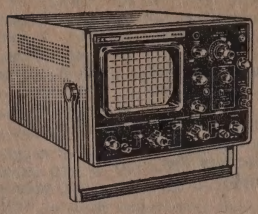
5" 10 MHz, TRIGGERED SWEEP SCOPE



Model 1461P. VERTICAL A P-LIFIER: Sensitivity: 10mV/cm-20 V/cm ±5%, divided into 11 calibrated ranges. **Response:** DC, DC-10MHz (3dB); AC, 2Hz-10 MHz (−3dB). **Risetime:** 35nSEC. **Input Impedance:** 1 megohm shunted by 22pF (±3 pF). **Max Input Voltage:** 300VDC plus AC peak, or 600V p-p. **SWEEP.** Automatic and triggered. **Sweep Time:** 1μSEC/cm-.5 SEC/cm, ±3%, divided into 18 calibrated ranges (1/2/5 step sequence). **Magnif:** 5X at all speeds; increases max sweep to .2μSEC/cm. **HORIZONTAL AMPLIFIER Sensitivity. Response:** DC-1MHz (−3dB) **Input Imped:** 1 Megohm shunted by 22 pf (nominal), **Max Input Voltage:** 300V (DC + AC Peak) or 600V p-p. **Input Resistance** 10KΩ (nominal). **Power:** 117 or 230 VAC, ±10%, 50/60 Hz, 20 watts. **Size:** (HWD) 19 x 26 x 36 cm (7 x 10.25 x 14.5"). **Weight:** 8 kg. (17.3 lbs.) **Probes** one PR-31 included.

59F909. NET 499.00

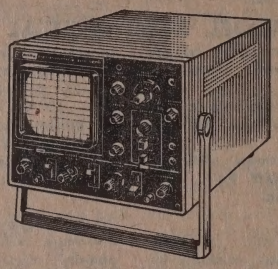
DUAL TRACE 5" 15MHz TRIGGERED SWEEP SCOPE



Model 1472CP. Vertical Amplifier Sensitivity: 10mV/cm to 20V/cm, ±5%, in 11 ranges, each with fine adjustment. Response: DC, DC-15MHz (−3dB); Risetime: 24 nSEC. Input impedance: 1 MΩ shunted by 22pF (±3pF). **Max Input Voltage:** 300V, DC + AC peak or 600 V p-p. **Oper Modes:** Ch A only; Ch B only; Dual Trace (A and B)—(single-trace algebraic sum of Ch A and B); A-B (single-trace algebraic difference of Ch A and B). **Sweep:** Auto and triggered. 0.5 μSEC/cm to 0.5SEC/cm in 19 ranges with Vernier. Magnification: 5x. **Triggering**—Source: CH A and CH B, 1 Cm Deflection min. EXT, 1V p-p sensitivity. Slope: + and −, continuously variable level control, continuously variable level control. Range: 20Hz-15 MHz guaranteed; 20Hz-27MHz typical, TV sync: Vertical and Horizontal sync separator. **Horizontal amplifier** (Input through CH B, vertical input)—Sensitivity: 0.01V/cm to 20V/cm, ±5% in 11 ranges. Two PR-35 probes supplied. **Size:** 18.4 x 25.3 x 36.9 cm (7⅜ x 10⅛ x 14¾"). Wt. 8.8 kg. (19.6 lbs.).

59F905. NET 780.00

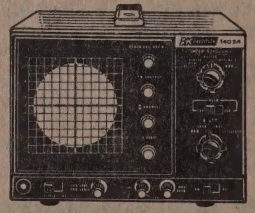
5" DUAL-TRACE 10 MHz SCOPE



Model 1471BP. Vertical Amplifier Deflection Factor: 10 mV/Cm to 20V/cm, ±5%, in 11 ranges, each with fine adjustment. **Response:** DC, DC—10MHz (−3dB) AC, 10Hz—10MHz, **Risetime:** 35 nSec. **Overshoot:** 3% or less. **Input Imped:** 1 megohm (approx.) shunted by 27pF (±3 pF). **Tilt:** Less than 5%. **Max Input Volt:** 300V, DC + AC peak or 600V p-p. **Oper Modes:** Ch A only; Ch B only; Dual Trace (A and B)—; **Chop Frequency:** 200 kH approx. **Channel Separation:** Better than 60dB. **SWEEP SYSTEM (Common to Ch A and Ch B) Type:** Auto and triggered; **Sweep Time:** 1μSec/cm to 0.5SEC/cm. **HORIZONTAL AMPLIFIER (Input through Channel B vertical input) Deflection Factor:** 10mV/cm to 20V/cm, ±5%, in 11 ranges, each with fine adjustment. **Response:** DC-1. MHz (−3dB). **Input Imped:** 1 megohm (nominal) shunted by 27pF (±3pF). **Input:** 300V, DC + AC peak, or 600V p-p. **Calibration Voltage:** 1kHz square wave, 1V p-p (±5%). **Intensity (Z-Axis) Modulation:** 5V TTL compatable, 470K nominal input resistance. **Probes:** Two PR-31 10-1 direct probes included. **Power:** 117 or 230 VAC, 50/60Hz, 23W; CSA-approved three-wire line cord; 50/60Hz. **Size:** (HWD) 19 x 25 x 36 cm (7.8 x 9.8 x 14.5"). **Net Weight:** 8.8 kg. (19.6 lbs.)

62F562. NET 599.00

3" PORTABLE "MINI-SCOPE"



Model 1403-A. Specifications: Vertical Amplifier: 10 mV/div. or better. **Response:** DC −5MHz (−3dB). AC 2 Hz—5MHz (−3dB). **Overshoot:** 5% or less. **Max Input:** 600 volts, peak-to-peak. **Input:** 1 megohm, shunted by 35 pF. **Attenuator:** 1, 1/10, 1/100 multiplier, ±5%. **Gain Control Range:** Continuously variable range greater than 22 dB. **Horizontal Amplifier: Sensitivity:** 300 mV/div. or better. **Response:** DC to 250 kHz. **Input Imped:** 1 megohm, shunted by 30 pF. **Sweep System:** Recurrent. **Time Base Ranges:** 10-100 Hz, 100-1 kHz, 1 kHz-10 KHz, 10 kHz-100 kHz; continuously variable between ranges. **Sweep Linearity:** ±5%. **Size:** 6x7.5x12" deep. **Net wt.:** 8½ bs. **Power:** 117/234 VAC, 50-60 Hz; 15 watts, 3-wire grounded AC ine cord. Leads, spare fuse, instructions.

62F576. NET 250.00

Model LC-14. Case for 1403-A.

62F577. NET 11.75

RACK MOUNTING KIT

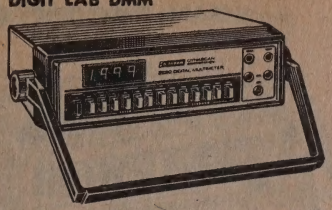
Model RM-14. Includes everytuing needed to mount the 1474, 1472C, 1471B or 1461 oscilloscopes in a standard 19" rack. Panel, hardware and complete instructions provided.

62F2666. NET 50.00

Test Equipment

B+K PRECISION DYNASCAN CORPORATION

3½ DIGIT LAB DMM

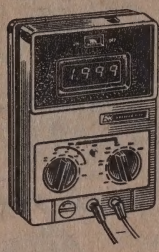


Model 2830. Bright 0.43" 3½ digit LED display. 0.5% accuracy DC. 100 μV, 100nA, .01 ohm resolution. 100 mV AC and DC ranges. All ranges and functions are push button selectable. Selectable high/low-power ohms. Autozeroing. Completely overload protected. AC operation standard with DC power pack option. Built-in 10 amp current shunt. Protected against RF interference, 100% overranging. AC-DC VOLTAGE Ranges: +100.0-1V, 1V, 10V, 100V, 1000V. Input Z; 10 megohms. Polarity: Automatic. Response: 50-1000 Hz. 50-400 Hz. 1000V range. Protection: ±1000VDC or AC peak, all ranges (50 Hz to 1 KHz). Includes two test leads, three-wire detachable line cord, three spare fuses, operating manual. CSA listed. 8.1x29x19cm. (3.25x11.6x7.5"). 1.5 kg. (3 lbs.)
62F2667. NET **235.00**

Model BP-30. Rechargeable battery pack for 8 hrs. continuous use.
62F2668. NET **50.00**

Model LC-50. Leatherette carrying case.
62F2669. NET **20.00**

3½ DIGIT DMM WITH .5% ACCURACY



Model 2810. Easy to read 3½" digit LED display 100 mV. .01 ohms resolution. 10 ohm range and control to zero lead resistance. Selectable High Low power ohms on four ranges. Completely overload protected on all 29 ranges. 100% overrange reading to 2000 counts full scale. Protected against RF interference. Portable. AC-DC VOLTAGE: Ranges: 100.0 mV, 1 V, 10 V, 100 V, 1000 V. Input Imped: 10 megohms. Circuit Protection: 1500 VDC or AC peak, all ranges. Pol. indic.: automatic. Response: 50-1000 Hz, 50-400 Hz, 1000 V range. Size (HxWxD): 16x11x5 cm. (6.4x4.4x2"). Power Required: 4 C cells—ni cad or alkaline.
62FX600. NET **130.00**

Model 2800. 3½ digit portable DMM.
62FX599. NET **99.95**

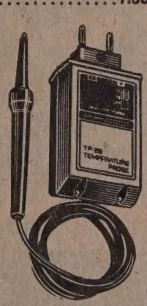
ACCESSORIES FOR 2800 2810

BP-28. Battery Pack. 4 "C" size N. Cads.
59F906. NET **20.00**

BC-28. 115 V. Adapter/Battery charger.
62F549. NET **9.00**

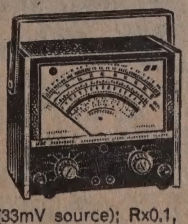
LC-28. Carrying case.
62F548. NET **7.50**

SOLID STATE TEMPERATURE PROBE



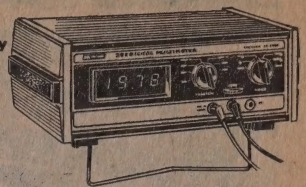
Model TP-28. Locates circuit "hot spots" where components are drawing excessive current. Isolate underwattage components. Monitor temp. for environ. tests. Measure temp. of walls, floors, ceilings before insulating. Drive chart recorder for long-term measurement. Use with any voltmeter—analog or digital. Fahrenheit or Celsius scales. Resolves to .01°. Measures liquid or gas. Low battery indicator. Range: −58° to +302° F, −50° to +150°C. Inexpen. 9V battery lasts 120 hrs. continuous use. Size: 8.75x5x2.8cm. (3½x2x1¼"). Cable length 1.2m(4'). Wt.: 2.25 kg. (5 oz.)
62F2670. NET **60.00**

SOLID-STATE ELECTRONIC MULTIMETER



Model 290. Ranges: DC: 0-50, 150, 500 mV; 1.5, 5, 15, 50, 150, 500, 1500 V; 0-50, 150, 500 μA; 1.5, 5, 15, 50, 150, 500 mA; 1.5A; **AC:** 0-50, 150, 500 mV RMS; 1.5, 5, 15, 50, 500, 1500 V RMS; 0-50, 150, 500 μA; 1.5, 5, 15, 50, 150, 500 mA; 1.5A. **Accuracy:** ±1.5% F.S. for DC Volts; ±3% F.S. @ 60 Hz; ±5%, 500 and 1500 V ranges for AC Volts; ±3% F.S., except ±4% on 1.5 A range for DC Current; ±4 F.S. @ 60 Hz; ±5% on 50μA and 1.5A ranges for AC Current. **Resistance: Low-Power Ranges** (33mV source): Rx0.1, Rx.1, Rx10, Rx100, Rx1K, Rx10K, Rx100K, Rx1M. **High-Power Ranges** (1.25 V source): Rx1, Rx10, Rx100, Rx1K, Rx10K, Rx1M. **Mid-Scale Reading:** 1 ohm, Rx0.1; 10 ohms, Rx1 range. **Accuracy:** ±3° of arc. **Power requirements:** 105-125 VAC, 50/60 Hz. **Size:** 7¼" x 8" x 3⅝". Net Wt. 4½ lbs.
62F558. NET **190.00**

3½ DIGIT MULTIMETER



- **High intensity 3½ digit LED display**
- **Selectable HI/LO ohms function**
- **Large, bright 7-segment digits**
- **DC accuracy, 0.5%**
- **Automatic polarity**
- **Full overload protection**
- **1 mV resolution**

Model 283. AC-DC VOLTAGE Ranges: ±1.000, 10.00, 100.0, 1000V. Maximum DC input: 1500VDC or DC plus AC peak. DC Accuracy ±.5% of reading, ±1 digit, 1, 10, 100V range. Automatic polarity. AC Response: 1V, 10V, 100V range: ±1% of reading, ±1 L.S.D., 40-400 Hz; 1000V range, ±1.5% of reading, ±1 L.S.D., 40-400Hz. AC-DC CURRENT RANGES: ±0-1.000, 10.00, 100.0, 1000mA. DC Accuracy, 1, 10, 100mA ranges, ±1% of reading; ±1 L.S.D. 1000mA range, ±1.5% of reading, ±1 L.S.D. AC Accuracy; 1, 10, 100mA ranges, ±1.5% of reading, ±1 LSD 1000mA range, ±2% of reading, ±1 L.S.D.
RESISTANCE RANGES: 0-100.0 ohms; 1.000K, 10.00K, 100.0K ohms; 1.00K, 10.00 megohms. Accuracy; 1K to 1000K ranges in HI ohms, ±1% of reading, ±1 L.S.D. 10 megohm range, and five lowest ranges in low ohms, ±2% of reading, ±1 L.S.D. Accuracy Temperature Coefficient (15°C to 35°C): ±.025% of reading/°C on DCV ranges; ±.05%/°C, all other ranges. Overrange: 100% to 1.999, 19.99, 199.9 and 1999mA. Overload Protection: 1000V on ohms ranges: to 3A on current shunts, to 1500V on voltage ranges. Power: 105-125 VAC, 50/60 Hz; With 3-wire grounded detachable AC line cord and test leads. Size: 9"W x 7"D x 3.5"H. Wt. 3 lbs.
62F561. NET **185.00**

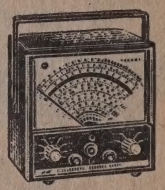
OPERATIONAL ACCESSORIES

Model BP-83. Rechargeable Battery Pack.
59F916. NET **50.00**

Model PR-21. Isolation/Direct Probe with switchable 100k resistor to prevent capacitive loading when measuring DC in RF circuits.
59F912. NET **15.00**

Model LC-83. Leatherette case for Model 283.
59F904. NET **15.00**

VACUUM TUBE VOLTMETER



Model 177. This VTVM has a total of 37 ranges with a special 0.5 volt DC scale for transistors. 100-microamp meter. Special dB scale for amplifier gain measurements. Zero center scale for FM alignments. Large 7" mirrored meter. 1% precision resistors in all critical circuits. DC polarity reversal switch. **Specifications: DC Volts:** ±0-0.5, 1.5, 5, 15, 50, 150, 500, 1500. **AC Volts: RMS:** 0-1.5, 5, 15, 50, 150, 500, 1500. **AC Volts, Peak-to-Peak:** 4, 14, 40, 140, 400, 1400, 4000. **AC Response:** ±1 dB, 40 Hz to 4 MHz (600 ohm source, 5 volt range). **Resistance, Full-Scale:** 1K, 10K, 100K ohms; 1, 10, 100, 1000 megohms: **Resistance, Mid-Scale:** 10, 100, 1K, 10K, 100K ohms; 1, 10 megohms. **Input Resistance:** 11 megohms (1 megohm in probe). **Accuracy: DC:** ±3% of full scale: **AC:** 5%. Power: 105-125 VAC, 50-60 Hz. Size: 7½" x 7¼" x 3⅝". Net wt. 6 lbs. Complete with the B & K PR-43 DC/AC Ohms test probe with switch and ground lead. Speeds signal-tracing and circuit-checking.
62F598. NET **150.00**

Model PR-43. Test Probe for Model 177.
62F581. NET **12.00**

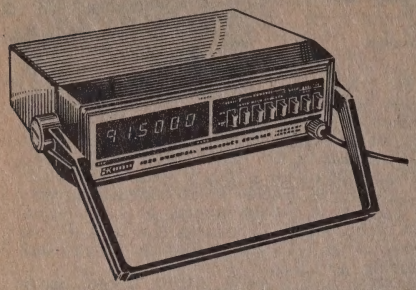
SOLID-STATE ELECTRONIC VOM

Model 277. Multipliers: 1% precision-type, frequency compensated. **Meter:** 4½"; 50-microampere movement; mirrored scale. **AC-DC Volts:** 0-.1, .3, 1, 3, 10, 30, 100, 300, 1000 V. RMS for AC-DC zero center capability on all ranges. **Accuracy:** ±2% F.S. **Input Resistance:** 15 megohms. **AC Volts:** 0-.1, .3, 1, 3, 10, 30, 100, 300, 1000 V RMS. **Peak-to-Peak Ranges:** 0-.28, .88, 2.8, 8.8, 28, 88, 280, 880, 2800 V. **Accuracy:** ±3% F.S. **Input Impedance:** 10 megohms shunted by approximately 100 pF. **Response:** Flat to 150 kHz. **DC Current:** 0-1, 10, 100, μA, 1, 10, 30, 100, 300 mA, 1.A, **Accuracy:** ±3% F.S. **Resistance: Low-Power Ranges:** Rx1, Rx10, Rx100, Rx1K, Rx10K, Rx100K, Rx1 megohm (.068 test volts). **High-Power Ranges:** As above, but 1.5 test volts. **Mid-Scale Reading:** 10 ohms (on Rx1 range). **Decibels:** From −20 dB to +60 dB. **Accuracy:** ±3% F.S. **Reference:** OdB—1 mV into 600 ohms. **Size:** 5⅛" x 7¼" x 3⅝" deep. **Net wt.** 2 lbs. Requires one 1.5V "D" cell and one 9V NEDA 1604 cell. With PR-21 probe, less batteries.
62F559. NET **130.00**

19

Counters and Power Supplies

80 MHz COUNTER WITH PERIOD MODE

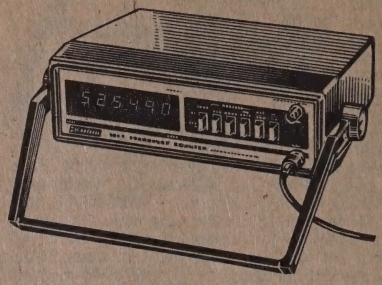


- 5 Hz to 80 MHz reading guaranteed
- Period measurement from 5 Hz to 1 MHz
- Bright .43" high LED readouts
- One PPM resolution
- Period average, auto and manual positions

Model 1820. Freq. Characteristics: Range: Normal 5 Hz to 80 MHz. Prescale: 10 MHz to 520 MHz. Function selects kHz or AUTO display reading. Gate Time Auto: 10 msec (MHz reading) and 100 msec and 1 sec (kHz reading). Gate Time manual: 1 sec (kHz reading, 1 Hz resolution). Resolution: ±0.0001% (i.e., 1 PPM of a 6 digit scale). **Period Char.:** Range: 5 Hz to 1 MHz. Period Average Auto: 1 period average (ms). 10 and 100 period averages (μs.) Period Average Manual: 100 period average (μs reading with 1 ns resolution). **Input Char.:** Imped.: 1 megohm. 25 pF. Sensitivity: 30 mV RMS, 5 Hz to 40 MHz; 50 mV max at 80 MHz. Max Input: 200 V(peak AC + DC) DC at 500 Hz, derate linearly to 30V(peak AC + DC) at 80 MHz. **General:** 105V to 130V and 212 to 258V, 50-60 Hz. Size (HxWxD): 8.1x29x19 cm (3.25x11.6x7.50"). Wt: 2.55 kg. (5 lbs).

55F4905. NET.....**260.00**

520 MHz FREQUENCY COUNTER



- 5 Hz to 520 MHz reading guaranteed
- Temperature compensated crystal oscillator
- Full period measurement capability
- 50 mV input sensitivity at 520 MHz
- Operates from 115 or 230 VAC, or 12 VDC

Model 1850. Freq. Characteristics: Range: Normal—5 Hz to 60 MHz. Prescale: 10 MHz to 520 MHz; Function switch selects kHz or AUTO display reading. Gate Time Auto: Normal 10 ms., 100 ms. and 1 sec. Prescale: 10 sec. Accuracy: ±0.0001% (i.e., 1 PPM of a 6 digit scale). **Period Char.:** (normal input) Range: 5 Hz to 1 MHz. Period Average Auto: 1 period average (ms), 10 and 100 period average (μs). Period Average Manual: 100 period average (μs reading with 1 ns resolution). **Input Characteristics:** Impedance: Normal—1 Megohm, 26 pF. Prescale: 50 ohms with less than 2V RMS input. **Sensitivity:** Normal: 30 mV. 5 Hz to 40 MHz; 50 mV max. at 60 MHz (5 Hz to 1 MHz in period). Prescale: 50 mV RMS. 10 MHz to 520 MHz with 50 ohms. **Max Input:** Normal: 200V (peak AC + DC) DC to 500 Hz, derating linearly to 30V. (peak AC + DC) at 60 MHz. **General:** Power: 105 to 130 V and 212 to 258 V, 50-60 Hz, 11 to 16 VDC. Automotive battery (accessory power cable provided) Size: 8.1x29x19 cm (3.25x11.6x7.50"). Wt: 2.55 kg (5 lbs.).

55F4906. NET.....**450.00**

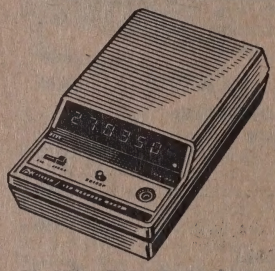
MODEL 1801 40 MHz AUTORANGING COUNTER

- 1 Hz Resolution
- Automatic Ranging
- 20 Hz-40 MHz Guaranteed

Discrete, reliable TTL circuitry automatically updates six-digit solid state readout up to five times per second. Auto Gate Time: 10mSEC or 100mSEC (MHz reading) or 1 SEC (kHz reading), chosen automatically. Manual Gate Time: 1 SEC (kHz reading, 1Hz resolution). Accuracy: ± time base, ±1 count. 1Hz resolution. Display: Input signal frequency, automatically positioned decimal point. Units (kHz, MHz) displayed on front panel by illuminated indicator. Temp: better than ±0.001%, 0-50°C. 105-130V, 60Hz, 25W max. Wt. 5.5 lbs. Model PR-25 probe (optional).

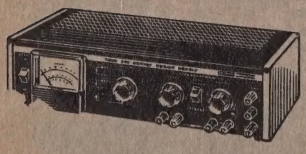
62F550. NET.....**200.00**

30 MHz PORTABLE FREQUENCY COUNTER



Model 1827. FREQUENCY CHARACTERISTICS Range: 100 Hz to 30 Hz (guaranteed); 50 MHz typical. Function switch selects kHz or AUTO display reading. Gate Time: (Auto) 10 ms, 100 ms or 1 sec. (kHz reading). (Manual) 1 sec. (kHz reading, 1 Hz resolution). Accuracy: 1 count. Resolution: 1 ppm of a 6 digit scale. INPUT CHARACTERISTICS. Impedance: 10KΩ min. Sensitivity: 100 mV RMS: 200 kHz-30 MHz 200 mV RMS: 100 Hz-200 kHz. Max. Input: 200 V (peak AC + DC) to 500 Hz, derate linearly to 25 V (peak AC + DC) at 30 MHz. TIME BASE (25°C) Type 4.0 MHz Crystal Oscillator. Setability: ±0.25 ppm (±1 Hz). Temp. Stability: Better than ±0.001% (i.e. ±10 PPM) from 0.50°C ambient. Display: Six .3" high LED digits with overflow, LED kHz and MHz indicators and anti-glare window. GENERAL Power: 6 to 9 V ("AA" battery operation) or 6.7 to 9.7 VDC at external power jack. Battery Life: Eight hours min. for normal usage pattern. Battery Charging Time: 14-16 hours. Batteries are not required when operated on external power. Size (H x W x D): 4 x 9.5 x 17 cm (1.75 x 3.75 x 6.6") Weight: Less than 0.45 kg (1 lb.) with batteries.

MULTIPLE-OUTLET POWER SUPPLY

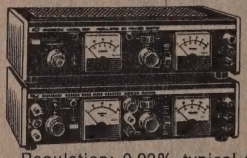


- Three Separate Power Supplies in One
- Opto-Isolator Tracking of Outputs
- Auto Current Limited Overload Protection

Model 1650. Designed for digital and microprocessor work, solid state engineering, industrial production testing, student labs, service applications, experimenters and hobbyists. Input Voltage: 105-125VAC, 60 Hz. Output Voltage: 5V fixed at 5A; A and B supplies—to 25 VDC at 0.5A. Regulation: load regulation better than 0.1% from no load to full load. Line regulation less than 0.2% for a line voltage change of 20 volts on 25V supplies. Tracking: (0-25V supplies) "B" supply tracks "A" supply at a fixed or selected ratio. All three outputs may be connected in series or parallel for higher current or voltage reqs. Size: 3.9x 14.1x10 cm (3.88x14.13x10"). Wt: 22 lbs. CSA listed.

55F4904. NET.....**250.00**

LABORATORY POWER SUPPLIES



Model 1601. Input Voltage: 105-125 VAC, 60 Hz. Output Voltage: 0-50 VDC, continuously variable. Two meter ranges, 0-25 and 0-50 VDC. Output Current: 0-2A in four ranges-0-50mA, 0-0.2A, 0-0.5A, 0-2A. Load Regulation: Minimum: 0.05%; maximum; 0.1%; typical; 0,07%. Line Regulation: 0.02% typical from 105 to 125 VAC with output of 50 VDC and 2A. Ripple: 5mV peak-to-peak. Size (HWD): 3.88x14.13x 10". Net weight 11 lbs. complete with leads and instruction manual.

62F111. NET.....**240.00**

Model 1602. Input Voltage: 105-125 VAC, 60 Hz. 400 VDC Supply-Output Voltage: 0-400 VDC, continuously variable. Output Current: 0-200mA. Load Regulation: 0.1%. Line Regulation: 0.1% for 105-125 VAC line. Noise and Ripple: Less than 10mV peak to peak. Protection: 0-200mA adjustable shutdown. BIAS SUPPLY (100 VDC) Output Voltage: 0 to 100 VDC continuously variable, floating. Output Current. 0-2mA Load Regulation: 1%; Line Regulation: 1%; Noise and ripple: Less than 10mV peak-to-peak; Protection; Current limiting resistance. Size (HWD): 3.88"x14.13"x10". Net Wt.: 11 lbs.

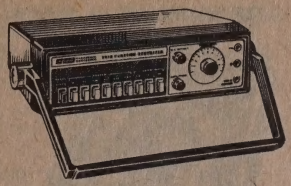
59F911. NET.....**260.00**

Precision Test Equipment

B+K PRECISION

LOW DISTORTION FUNCTION GENERATOR

- CSA listed
- 0-50° operating environment
- 99% linearity at 100kHz
- <.5% typical distortion



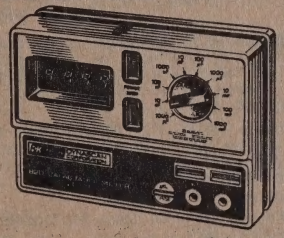
Model 3010. Frequency. Range: 0.1 to 1 MHz in six ranges. (Each range provides >100:1 frequency control, by dial or external. Accuracy: 5% of full scale. Stability: 5% (after 15 minutes.). Functions: Sine, Triangle, Square, TTL Square Wave. Square Wave: Variable amplitude or fixed TTL output. Symmetry: 99% to 100 kHz. Rise/Fall Time: <100 ns at maximum output. TTL square-wave response: <25 ns rise/fall time (0<.4 V: 1>2.4 V). Sine-Wave: Variable amplitude. Distortion: <1% 0.1 Hz to 100 kHz, <0.5% typical. **Output.** Amplitude: 20 V p-p open circuit 10 V p-p into 600 ohms. Control: Continuously variable, max. of ±10 V open circuit or ±5 V into 600 ohms (Max VAC + VDC offset without clipping is ±10 V open circuit, or ±5 V into 600 ohms). General Power: 105-130 VAC, 60 Hz, 8. Size: 8.1 x 29 x 20 cm. (3.2 x 11.3 x 7.8″) Wt: 1.3 kg. (2.9 lbs.).
55F4900. NET. 175.00

COMPACT VOMs

Model 110. DC Volts: 0-2.5, 10, 50, 250, 1000V. DC Current: 0.05, (250mV), 25, 250mA. DC Accuracy: ±3% full scale. AC Volts: 0-10, 50, 250, 500, 1000. AC Accuracy: ±4% full scale. Resistance: 0-1k, 100k, 1M. Meter: 20,000/VDC; 10,000/VAC. Power: 1.5V "AA" battery. Size (HWD): 2.0 x 1.4 x 0.6 cm (5x3.5x1.5″). Wt. .35 kg. (.4 lb.).
62FX297. NET 31.95

Model 115. DC Volts: 0-60, 300, 1200mV; 0-3, 12, 60, 300, 1200V. DC Current: 0-0.03, 0.06; 60, 600mA. DC Accuracy: ±3% full scale. AC Volts: 0-6, 30, 60, 300, 600, 1200. ±4% full scale. Resistance: 0-500, 50k, 500k, 5M ohms. Meter: 30,000 ohms/VDC; 15,000 ohms/VAC. Power: 1.5V "AA" battery, 15V W-10 battery. Size (HWD): 5x3.5x1.5″. Wt: .35 kg (.4 lbs.).
62FX298. NET 46.50

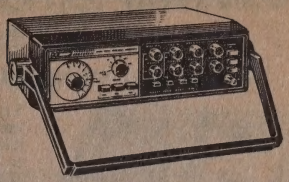
PORTABLE DIGITAL CAPACITANCE METER



Model 820. CAPACITANCE Range: 10 selectable ranges with full scale value from 999.9 picofarads to 999.9 millifarads (reads from 0.1 pF to 999.9 millifarads). Accuracy: 0.5% of full scale, ±1 digit to 100 μF; 1% of full scale, ±1 digit from 1 millifarad to 1 Farad. Resolution: 0.1 pF. Reading Time: 0.3 SEC up to 1000μF increasing to 35 SEC max. at 1 Farad. Overrange Indicator: (All Ranges) All bottom segments of the digits are "ON" when the capacitor value exceeds the value of the range selected. GENERAL Display: 4 digits LED display. Front Panel Controls: 10-position range switch, zero adjust, ON-OFF switch. Power Source: 4 standard "C" size cells operating from 4-6 volts, nicad, alkaline or zinc carbon, with provision for charger. (Note: batteries and charger are not supplied. Battery Life: 8 hours minimum. Operating Temperature: 0°C to 50°C (32° to 100°F). Dimiension: 16 x 11 x 6 cm (6.4 x 4.4 x 2⅜″). Weight: 675 g. (1.51 lbs.) with batteries. Includes: Manual, spare fuse.
55F4902. NET. 120.00

For Items Not Listed Contact Your Newark Distributor. Newark Stocks New Items As They Are Released For Your Immediate Availability.

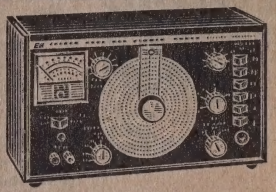
SWEEP/FUNCTION GENERATOR



- CSA Listed
- ±5% Accuracy
- .05% Stability
- <0.5% Typical Distortion

Model 3020. Frequency Range: .02 Hz to 2 MHz in 7 ranges. Accuracy: ±5%. Stability: .05% (after 15 min.) Functions: Sine, Triangle, Square, TTL Square Wave, Pulse, Tone Burst. Square Wave: Variable amplitude and fixed TTL output. Symmetry: 99% to 100 kHz. Rise/Fall Time: <100 ns at max. output. TTL Square Wave Response: <25 ns rise/fall time (logic 0 <0.4; logic 1 >2.4 V.). Sine Wave: Variable amplitude. Distortion: <1% 0.2 Hz to 100 kHz, <0.5% typical. Amplitude Flatness: Better than ±0.3 dB to 2 MHz at max. output. Triangle Wave: Variable amplitude. Linearity: 99% at 100 kHz. Variable Symmetry: 40:1 range, independent of frequency or output waveform. AM Modulation: 0-1.5 V p-p external signal provides 100% modulation; continuously variable. Capable of suppressed carrier operation. SWEEP: Internal: Linear or log. Rate: 0.5 Hz (2 SEC period) to 50 Hz (20 ms period). Width: Variable from 10:1 to 1000:1. Voltage Output: Proportional to sweep; at rear GCV connector. External Sweep: Rear panel VCO input provided. OUTPUT Amplitude: 20 V p-p open circuit; 10 V p-p into 50Ω. Control: Continuously variable, >20 dB. Fixed attenuation, 0-40 dB in 3 steps. This, together with 30 dB variable, provides 60 dB total attenuation. Impedance: 50Ω ±5%. D.C. Offset: Variable, ±0 max. of ±10 V open circuit or ±5 V into 50Ω. (Max. AC peak +VDC offset without clipping is ±20 V open circuit; ±10 V into Ω). GENERAL Power: 105-130 VAC, 60 Hz, 22 W. Three-wire cord. Size (H x W x D: 8.1 x 29 x 20 cm (3.2 x 11.3 x 5″) incl. handle. Weight: 1.35 kg. (3.1 lbs.) CSA listed.
55F4901. NET. 325.00

MODEL E200D RF GENERATOR



Calibrated meter monitors RF level and % modulation. Wide-range coverage from 100 KHz to 216 MHz in 5 bands. Completely shielded RF output with continuously variable monitored attenuation calibrated to less than 1 microvolt (on fundamentals to 54 MHz). Built-in crystal calibration for assured frequency accuracy. Easy-setting, 2-color 5″ vernier dial with anti-backlash 12:1 gear ratio. Accuracy ±1.5%. Output: 100,000 microvolts maximum. Four outputs: Unmodulated RF; modulated RF (400Hz); externally modulated RF; 400 Hz audio signal. FM and TV channels identified on dial. 3-wire grounded AC line cord. Attenuator system: 6 individually shielded step attenuators with a total capability of −96 dB. Outputs as low as 106 dB below 100,000 microvolts can be obtained with fine output level control and calibrated meter, which provides additional −10 dB to +dB output level indication (0 dB = 100,000 microvolts into 50 ohms). Shipping Weight: 10 lbs.
63F066. NET 275.00

MODEL DP-50 50 MHz DIGITAL PROBE

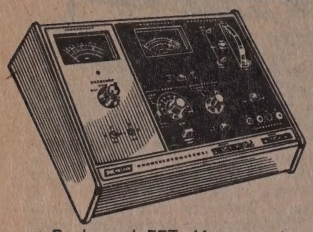
Three LED indicators display pulse and high and low-logic states. Indicates pulse presence through its maximum frequency of 50 MHz. For high-speed or intermittent pulses, the DP-50 offers a MEMORY mode to "freeze" and store the pulse display. In the PULSE mode, short duration pulses are "stretched" for a clear visual indication. To ensure no effect on the circuit under test, the DP-50 maintains a very high 2 megohm input impedance. Fully overload protected and will withstand ±50 VDC at the input tip. Reverse polarity protection is also 50 volts. Housed in a lightweight, rugged case with stainless-steel tip. Input: 50 MHz. Min. Input: 20 ns (10 ns typical). Duty Cycle: LED intensity is directly proportional to duty cycle observed, up to 50 MHz (and a 10 to 1 ratio). Pulse Standard Mode: Will detect and stretch any input pulse. Memory Mode: Will detect and latch any input pulse. LOGIC THRESHOLDS TTL/DTL: Logic One: 2.4 V; Logic Zero: 0.8 V. CMOS: Logic One: 70% of supply voltage; Logic Zero: 30% of supply voltage. Input Overload Protection: ±50 VDC. Input Impedance: 2 megohms in all modes. GENERAL Power: 5 to 15 VDC (40 ma @ 5 VDC; 150 ma @ 15 VDC) protected to +20 VDC. Reverse Polarity Protection: −50 VDC. Operating Temperature: 0-50°C. Size (HWD): 16.15 x 3.12 x 1.9 cm (6.5 x 1.25 x .75″). Lead Length: 75 cm (30″). Tip Length: 1.25 cm (0.5″). Weight: 98 g. (3.5 oz).
55F4903. NET. 50.00

19

Precision Test Equipment

SEMICONDUCTOR & TRANSISTOR TESTERS

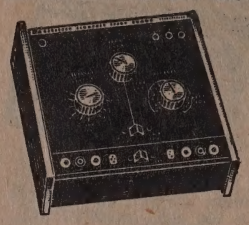
MODEL 530 SEMICONDUCTOR TESTER



Transistor cut-off frequency measurement capability permits high-frequency evaluation of transistors. Audible tone indicates good device—no weak borderline indication. Measures ICES and IDSS Color coded switch indicates base lead to free hands to connect difficult-to-reach in-circuit transistors. Base diagrams not required. Automatic identification of PNP/NPN types and N or P channel FET. Measures transistor beta using two collector current ranges (low power beta 20-600, high-power beta 20-200). FT: three ranges (0-100 MHz, 0-500 MHz, 0-1500 MHz). Collector: 125 mA @ 4% duty cycle. Base: 250 mA @ 4% duty cycle (HI drive); 1 mA @ 4% duty cycle (LOW drive). Test repetition rate: 10 per second. Voltage for leakage test, Variable from 10-100 VDC. Power required, 105-125 VAC, 60 Hz, 10 watts. Size; 7 x 13 x 3½". Weight, 5 lbs.

59F915. NET **310.00**

SEMICONDUCTOR MODEL 501-A CURVE TRACER



Tests transistors, unijunctions, Triacs, SCR's, tunnel diodes, Zener diodes, signal diodes, ordinary rectifier diodes, J-FET's, MOSFET's (both depletion and enhancement types). Compatible with all oscilloscopes. Pinpoints BAD devices in circuit. Insures full display of waveforms up to 100V at 100 mA—no IR drops to affect the curve. Sweep gen. range 0-100V. Step generator: 11 current ranges, 1-2-5-10-20-50μA and .1-.2-.5-1-2mA per step, ±3%. 5 voltage ranges: .05-.1-.2-.5-1 V per step, ±5%. Calibration source: ±.05 to 5V P to P; ±3% accuracy. Attenuator range: 1-2-5-10 mA per division vertically, ±3%. Two TO-5 type transistor sockets with each pin paralleled by a banana jack for external cables (3 pins per socket). Output terminals are banana jacks for vertical, horizontal and ground outputs to oscilloscopes. Supplied with FP-5 Probe Dimensions: 4" x 10" x 9½". Shipping weight 3 lbs.

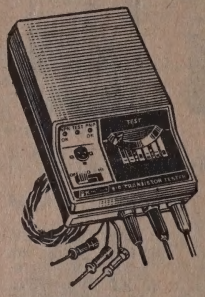
62F112. NET **198.00**

MODEL 520B INDUSTRIAL TRANSISTOR TESTER

Identifies all three transistor leads. Automatic NPN/PNP determination. Positive Si/Ge identification. Tests SCR's FET's, and Darlingtons. Audible "beep" signals a good transistor. LED lamps identify NPN or PNP devices and Ge or Si types. Meter scales; readable from 0.1μA to 5mA for ICE leakage. Applied test currents: Collector: 250 mA at 5% duty cycle. Base: 125 mA at 5% duty cycle. 10 per second test repetition rate. 2.0 V leakage test reverse voltage. Shunt resistance 10 ohms and shunt capacitances up to 15μF. Accessories: Color coded test leads with Mini Lock clips; detailed instruction manual; optional FP-5 Dynaflex three lead, one hand probe for easy in circuit testing available. Power: 105-125 VAC, 50-60 Hz. 8"H x 7"W x 3.5"D. 5 lb.

62F553. NET **175.00**

MODEL 510 TRANSISTOR TESTER



Portable Transistor Tester

Uses digital high-current, low duty-cycle pulse-testing technique to test semiconductors even with resistive and capacitive shunt impedances. Fast GO/NO-GO in-circuit transistor testing. GOOD/BAD out-of-circuit testing. Tests FET's and SCR's in-circuit or out-of-circuit. Connect any test clip to any component lead. Gives positive emitter-base-collector identification in LO drive, positive base identification in HI drive. Digital stability. FET as N-channel or P-channel. Base drive; 250mA (HI) or 1 mA (LO) at 2% duty cycle. Collector drive; 125 mA at 2%. Test repetition rate; 5 Hz. Carrying case and test leads supplied. Model FP-5 Dynaflex probe (optional) may be used in place of test leads. 3.75"W x 6.63"D x 1.75"H. Wt. 1 lb. Power Required: 4 Penlite (AA) cells. Not Supplied.

59F901. NET **97.00**

MODEL 747B TUBE TESTER

Tests all tubes with true dynamic mutual conductance test. Front panel overload reset indicates overload, eliminates need for fuse replacement. Tube chart has over 2,500 listings. Tests multisection tubes. Tests high-voltage and gas regulator types. Perform tests for shorts and leakage, grid emission and extended life. A jet-check section allows rapid checking of the mutual conductance of almost all TV and radio tubes (21 sockets for the most popular types). Diodes and rectifiers are tested for emission. Automatic line voltage compensation insures consistently reliable and repeatable test results. Pin straighteners for all tested types. Operates from 105-125 VAC, 60 Hz. Size: 5.3" x 20.5" x 11.5". Wt.: 13 lbs.

62F530. NET **350.00**

TEST PROBES

Model PR-23. RF Detector/Demodulator Probe. Usable with any electronic voltmeter or oscilloscope models 1403, 1431, 1440, 1460, 1465, 1470 and 1472. Typical freq. res. ±2 db 15kHz to 125 MHz. Within 6dB at 250 MHz.

62F531. NET **20.00**

Model PR-37. 10:1 Direct Probe designed for scopes and freq. counters up to 100 MHz. For models 1474, 1472C, 1471, 1471B, 1461, 1801, 1820, 1850.

55F4908. PR-37G. Green **38.50**
55F4909. PR-37R. Red **38.50**

Model PR-31. As above for Models 1461, 1471, 1471B and 1472C.

59F917. NET **26.00**

Model PR-35. 10:1/Direct Low-Capacitance Probe. 15 MHz bandwidth. Input Z: 10:1—10 megohms/18 pF; Direct—1megohm 120 pF. For 1471, 1471B, 1472C.

59F920. NET **31.00**

Model PR-36. As above, except designed for oscilloscopes with bandwidths beyond 30 MHz, such as Model 1474.

59F921. NET **36.50**

Model FP-5. Dyno-Flex 3 Point-Probe

62F567. NET **18.00**

19

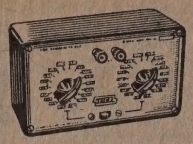
MAKE NEWARK ELECTRONICS YOUR ONE STOP SOURCE FOR INDUSTRIAL ELECTRONICS EQUIPMENT

CONTACT YOUR NEAREST NEWARK BRANCH FOR FAST, DEPENDABLE SERVICE

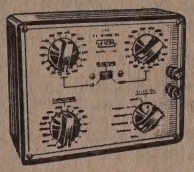
Test Equipment And Chart Recorders

EICO Test Equipment

1100 SUBSTITUTION BOX
36 EIA 1 watt, 10% resistors, arranged in Hi and Lo decades gives resistance ranges of 15 —10 megs in decade multiples of 15, 22, 33, 47, 68 and 100 ohms. Wt. 2 lbs.
62F806 Kit. **NET** **14.95**
62F807 Factory Wired **22.95**



1140 R-C BOX
Includes all values from 15 ohms to 10 megohms and capacitance values from .0001 to 0.22 mfd. ±10% accuracy. 1 watt resistors. Combines Models 1100 & 1120.
62F860 Kit. **NET** **29.95**
62F861 Factory Wired **39.95**



1120 CAPACITOR SUB BOX
For any standard size capacitor from 100 pF and 0.22μ F. Determines value needed for optimum performance and value of damaged or illegible caps. 5-way jack top binding posts.
62F840 Kit. **NET** **13.95**
62F841 Factory Wired **19.95**

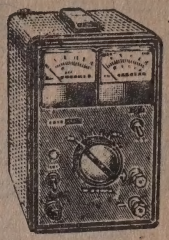
1171 RESISTANCE DECADE BOX
Range, 0-99,999 ohms in 5 decades. One ohm steps. Uses ½% resistors. Pin-points trouble and helps design new devices. With diagrams. Less solder and leads. Wt. 3 lbs.
62F795 Kit. **NET** **34.95**
62F802 Factory Wired **49.95**

1180 DECADE CONDENSER BOX
For rapid experimental determination of exact cap values. 1% caps, 100 pF to 0.111μ F are arranged in three decades in 100 pF steps. Each decade has 11 positions.
62F989 Kit. **NET** **29.95**
62F990 Factory Wired **39.95**

1064S BATTERY ELIMINATOR

- **Two DC Ranges**
- **Simultaneous monitoring of current & voltage**
- **Automatic Ammeter range switching with voltage range selection**

Automatic switching of ammeter range as voltage ranges are selected. Two DC voltage ranges; 0-8 volts and 0-16 volts. Simultaneous monitoring of both voltage and current on both ranges. Provides power for battery operated marine & automotive equipment.
62F742 Kit. **NET** **99.95**
62F871 Factory Wired **129.95**



1A1 1000 Ω/VDC VOM
1% resistors. Measures AC and DC. DC current and resistance in eleven direct-reading ranges. Res. 0-100,000 ohms. With test leads and batteries.
62F744 NET **11.95**

4A3 4000 Ω/VDC VOM
Pocket sized multimeter. 14 ranges of AC & DC. DC current, ohms and decibels. Accuracy: DC ±3%, AC ±4% of full scale. With leads and batteries.
62F745 NET **24.95**

20A3 20,000 Ω/VDC VOM
Multimeter with 10,000 /VAC. For general and accurate service. Accuracy: DC ±3%, AC ±4%. With test leads and batteries.
62F746 NET **29.95**

Rustrak Chart Recorders

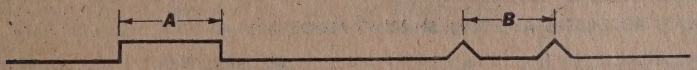
EVENT RECORDER

Model 292, four or eight channel event recorders provide a permanent record of four or eight individual channels of ON-OFF data. **Actuator specifications** (select when ordering): 6VDC-300mA; 12VDC-150mA; 24VDC-70mA; 48VDC-35mA AC-6, 12, 24, 48, 115, 240; unless otherwise specified, 24VDC type will be furnished. **Response time:** 10 ms (up to 20 Hz ON-OFF signal). **Record pattern:** continuous rectangular. **Standard Motor:** 2RPM, 115VAC, 60 Hz.

MODEL 292 EVENT RECORDS CHART SPEED DATA

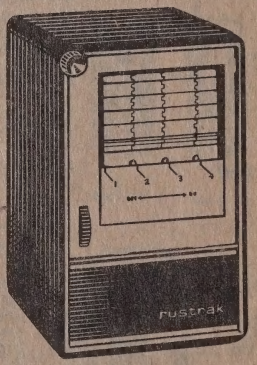
2 RPM MOTOR	Gear Train No.	#¼	#½	#1	#2	#3	#6	#10	#12	#15	#30	#60
	Chart Speed (In/Hr)	¼	½	1	2	3	6	10	12	15	30	60
	A or B (Sec)	720	360	180	90	60	30	18	15	12	6	3

In order to resolve pulses or pulse spacing, choose chart speed corresponding to nearest minimum event time (A), or chart speed corresponding to minimum time between event (B).



Example: Assume (A) is 15 second-chart speed is 12 in./hr. Use 2 rpm motor and a #12 gear train. Assume (B) is 3 seconds-chart speed is is 60 in./hr. Use standard 2 rpm motor and #60 gear train.

Stk. No.	Type	No. of Channels	Each
62F2181	292-4	4	149.00
62F2182	292-8	8	207.00



DC SINGLE CHANNEL RECORDER

Model 288. Measures and records electrical signals without amplification. Writes on pressure sensitive rectilinear chart paper by making a series of dots which form a continuous line representing the function being monitored. Inkless, dry writing offers wide range of sensitivities, writing speeds and chart speeds. Incorporates both chart tear-off and chart reroll. Chart can be reviewed and rerolled while recorder is operating. Sliding access window permits operator to make notations on chart. Die-cast aluminum case is finished in epoxy suede-like charcoal grey. Thumbwheel on front panel facilitates precise setting of timing lines or chart paper and permits quick discharge of recorded data when using tear-off operation. **Usable chart width:** 2-5/16". **Accuracy:** ±2% of full scale. **Response time:** less than 1.0 sec. **Dimensions:** 5⅝"H, 3⅝"W, 4⅛"D. **Wt.:** 3½ lbs. approx.
Range: 0-1 mA.
62F2193. NET **131.00**
As above except **Range:** 0-10mV.
62F2195. NET **146.00**

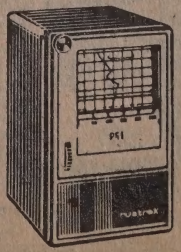


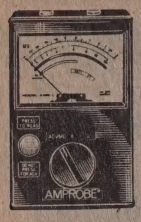
CHART PAPER (63 Foot Roll)

Stk. No.	Type	Description	NET
62F1262	WA	50 Divisions	3.25
62F1263	WB	75 Divisions	
62F1244	WD	20 Div. (Dual Channel)	

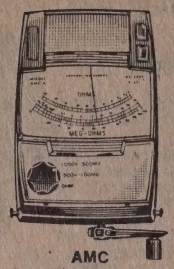
Stk. No.	Type	Description	NET
62F1329	EE	4-Channel Event	3.25
62F2186	WH	40 Divisions	
62F2188	WK	60 Divisions	

Amprobe Test Equipment

AMPROBE® MEGOHMMETERS



AMB-1



AMC

AMB-1 Measures high resistance of conductor and motor insulation and checks low resistance of motor windings and relay coils. **Model AMB-1** has a 0-100 megohm range (2.54 midscale), megohm test voltage 500 VDC, a 0-100 ohm range, (4 midscale), a 0-600 V test band and a "Battery OK" test band. Power supplied by 8 "AA" batteries, not included. Supplied with carrying case, test leads, adaptor clips, and manual.

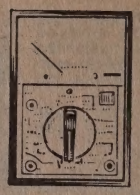
Model AMC-2. Features a 0-100 megohm range (1MΩ midscale), megohm test voltage 500 VDC, 0-200 ohm range (10Ω midscale), guard terminal to eliminate surface leakage current influences, spring-loaded terminal connections and constant voltage generator with an operating crank. Supplied with operations manual, three-piece test lead set (2 clip type, 1 probe type) and two-part carrying case.

Model AMC-3. Hand-cranked megohmmeter with same features as AMC-2. Test voltage is 1000 VDC. Ranges: 0-500 megohms (5 megohms midscale) and 0-200 ohms (10 ohms midscale).

Model AMC-4. Hand-cranked megohmmeter with a 0-100 megohm range (3 MΩ midscale), megohm test voltage 500 VDC, a 0-500 megohm range (6 MΩ midscale), megohm test voltage 1000 VDC, and a 0-200 ohm range. Combines same features as AMC-2 and AMC-3 in one unit.

Stk. No.	Model	Ranges	Test Voltage	Accuracy	Each
62F133	AMB-1	0-100 MΩ (2.5MΩ midscale) 0-100 ohms (4Ω midscale)	500VDC 6VDC	±5% from .1 to 10MΩ ±10% at all other points	134.85
62F2659	AMC-2	0-100 MΩ (1MΩ midscale) 0-200 ohms (10Ω midscale)	500VDC 6VDC	±5% from .1 to 50MΩ ±10% at all other points ±10%	199.85
62F2660	AMC-3	0-500 MΩ (5MΩ midscale) 0-200 ohms (10Ω midscale)	1000VDC 6VDC	±5% from .5 to 200MΩ ±10% at all other points ±10%	249.85
62F2661	AMC-4	0-100 MΩ (3MΩ midscale) 0-500 MΩ (6MΩ midscale) 0-200 ohms (10Ω midscale)	500VDC 1000VDC 6VDC	±5% from .1 to 50MΩ ±10% at all other points ±5% from .5 to 100MΩ ±10% at all other points ±10%	334.85

AM-1 MULTITESTER



- **Fully-insulated, Molded Case**
- **All-weather Test Leads**
- **Compact and Lightweight**
- **5, 50, 500, 5K Ohms Midscale**

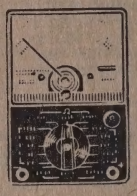
Helps in installing, maintaining and/or servicing electrical, climate control or refrigeration equipment. Voltage ranges: AC 0-30/150/300 (9000 ohms per volt); DC 0 3/15/30/300 (2000 ohms per volt). Temp. range accuracy with TC-3 (not supplied) +70° to 1200° F, accuracy ±2% F.S. Resistance ranges 0-200/2K/20K/200K (5 ohms midscale). Millivolt ranges 0-60/1200. Ohmeter accuracy ±3% of arc. Current ranges: 0-30/150 mA at 300 mV. Size: 3¾W x 5½H x 2⅝D. Shipping weight 14 oz.

62F131 NET **30.85**

TC-3 Thermocouple for AM-1

62F122. NET **16.95**

AM-2 MULTITESTER



- **3 Ohmmeter Ranges**
- **5 AC Voltage Ranges**
- **5 DC Voltage Ranges**
- **Meter Movement Overload Protective Circuitry**
- **95, 950, 9500 Ohms Midscale**

Used for troubleshooting controls and related circuitry found on equipment beyond the checking of current, voltage and continuity. Test leads remain flexible to −10°F. Features 3 ohmmeter ranges, 5 AC voltage ranges, 5 DC voltage ranges, 3 DC current ranges, 2 DB ranges, 1 capacitance range and 1 inductance range. Voltage ranges: AC 0-10/50/250/500/1000 (10,000 ohms/volt); DC 0-10/25/50/250/1000 (20,000 ohms/volt). Inductance 0-5,000H; capacitance 250pF-0.02uF. Size: 3½"Wx5"Hx1 13/16"D. Wt. 13 oz.

62F132 NET **23.85**

Type MM. Carrying use for AM-1 or AM-2

62F961 NET **5.50**

VOLTPROBE VOLTAGE TESTERS

VT Tester

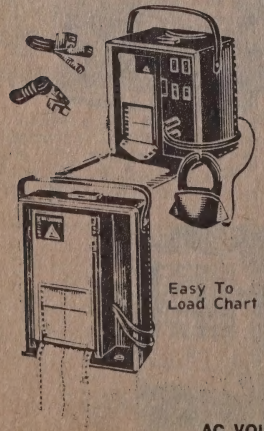
VC Case

Pocket-size voltage tester. Frequency range, 25 to 800 cycles. Features removable probe tips, extending coil cord for checks between points up to 50 in. apart, continuous int. contact and spring-loading on captive probe, test button for distinguishing true ground indications from indications due to distributed capacitance or high leakage. Type VC carrying case extra.

Ranges

Stk. No.	Type	Volts, AC	Volts, DC	Each
62F986	VT-100	115/220/277/440/550	115/220/400/600/750	10.85
62F1805	VT-124	24/48/115/220 277/440/550	115/220/400/600/750	16.50
62F974	VC	Carrying Case		3.50

STRIP CHART RECORDERS AND TIME SHARING RECORDERS



Easy To Load Chart

Compact, rugged recorders that satisfy requirements for OEM applications, service and maintenance work, process control and recording experimental data. AC or DC current, AC or DC voltage, or any variable that can be converted to an electrical signal. Power requirements: 115VAC, 60 cycles, 2.5 watts. Accuracy: AC amps and volts ±3%FS; AC expanded scale volts ±1.25% FS; Temperature ±3°F on +20°F to +100°F; ±4°F on −50°F to +20°F; ±5°F on +50°F to 250°F. Chart Speed is 12"/hr. Supplied with 1 roll each of the necessary strip charts. Other chart speeds available on special order. Weight 20 oz.

§With A-70FL Transducer
*With 3 Transducers

AC AMMETERS

Stk. No.	Type	Range	Net
62F678	LAA81§	0-10/50/250/500 AMPS AC	135.85

AC VOLTAMMETERS

Stk. No.	Type	Range	Net
62F980	LAVA83§	VOLTS: 95-130; 190-260; 380-520 AC AMPS: 0-10/50/20/500 AC	204.85
62F2455	LAVA87§	VOLTS: 0-150/300/600 AC Amps: 0-10/50/250/500 AC	185.85

TIME SHARING RECORDERS

Stk. No.	Type	Range	Net
62F125	LAA3*	MONITORS 3 AC CURRENTS 0-15/60/150/300 AMPS AC	285.85
62F126	LAV21	MEASURES AC VOLTAGE AND CURRENT 0-150/300/600VAC, 0-15/60/150/300 AMPS AC	249.85

AC VOLTMETERS

Stk. No.	Type	Range	Net
62F979	LAV3X	95-130/190-260/380-520 V., AC	145.85

STRIP CHARTS FOR RECORDERS

Perforated and printed 2 colors. Individually boxed 30' rolls.

Stk. No.	Type	Description	Net
62F128	300SVA	USE WITH LAA3, LAV21	2.35
62F689	850A	USE WITH LAA81, LAVA83, 87	2.10
62F690	835X3A	USE WITH LAV3X, LAVA83	2.10
62F962	3118	USE WITH LT8200R (-3.5° to + [118°F]	2.35

Amprobe Test Equipment

VOLT/AMP OHMMETER

RS-3

ROTARY-SCALE "RS" CLAMP-ON VOLT-AMMETER

Trigger operated, clamp-on transformer jaws permit current readings without interrupting electrical service. Rotary scale reduces reading errors as only selected range is visible in window. Pointer-lock permits measurements in hard-to-reach and darkened areas. Accuracy: ±3% F.S. based on sinusoidal waveform. RS-1000S/1007S have built in manually set, surge indicating capability for measuring starting current surges and voltage increases lasting one-sixth second. With VL-11R leads and "G" case. (*) With Extendo lead pack and "A" case.

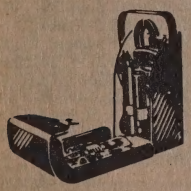
Stk. No.	Type	AC Volts	AC Amps	NET
62F659	RS-1	0-150/600	0-6/15/40/100	52.85
62F706	RS-2	0-150/300	0-6/15/40/100	52.85
62F658	RS-3	0-150/300/600	0-6/15/40/100/300	68.85
62F707	RS-300	0-150/300/600	0-6/15/40/100/300	63.85
62F708	RS-1000	0-150/300/600	0-15/40/100/300/1000	90.85
62F709	RS-1007	0-150/300/750	0-15/40/100/300/1000	90.85
62F941	RS-1A*	0-150/600	0-6/15/40/100	59.85
62F942	RS-2A*	0-150/300	0-6/15/40/100	59.85
62F943	RS 3A*	0-150/300/600	0-6/15/40/100/300	75.85
62F944	RS-300A*	0-150/300/600	0-6/15/40/100/300	70.85
62F964	RS-1000S	0-150/300/600	0-15/40/100/300/1000	92.85
62F965	RS-1007S	0-150/300/750	0-15/40/100/300/1000	92.85

AMPROBE JUNIOR

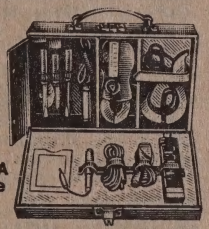
Only voltage testers in their price range that also measure amperage. Current measurements are made by merely snapping the trigger operated jaws around a single conductor (insulated or non-insulated). They are precision instruments that measure accurately on a calibrated scale ±3% full scale based on sinusoidal waveform (not just an indication). Junior models are the lightest and smallest clamp-on instruments available. Price includes VL-55R test leads.

Stk. No.	Type	Range	NET
62F963	Y25	0-25 Amps AC 0-125/250V AC	28.50
62F967	Y550	0-50 Amps AC 0-150/600V AC	28.50
62F968	Y500	0-100 Amps AC 0-150/600V AC	28.50
62F949	YT1025	0-10/25 Amps AC 0-150/300V AC	34.50

TEST MASTER KITS



TM-63 A Case



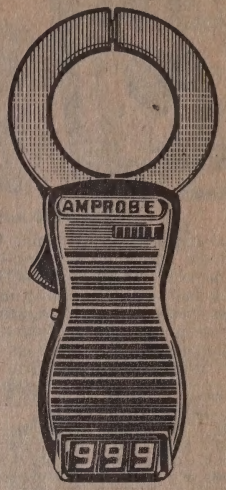
TM-43A U Case

Include **RS-3** clamp-on Volt-amp-ohmmeter except Model TM-60 contains only accessories. (See tab listing for type of accessories included). RS-3 Volt-amp-ohmmeter VLK-311R Extendo Lead Pack, **A45-L** Energizer, **A50-1** Deca-Tran, **PSA-1** Phase Sequence Adaptor.

Stock No.	Type	Contain	NET
62F985	TM-63	RS-3, VLK-311R, A45-L, A Case	83.85
62F983	TM-43A	RS-3, VLK-311R, A50-1, A45-L, U Case	136.85

DIGITAL CLAMP-ON VOLT/AMP/OHMMETER

- **Measures Amps/Volts/Ohms .1 to 999**
- **Auto-ranging**
- **50% Overload Protection**
- **"Continuous" or "Peak" Readings**
- **Extendo-type Test Leads**
- **Readings from 25 Hz. to 400 Hz.**



Provides measurements as low as .1 Amp/Volt/Ohm, as high as 999 Amp/Volt/Ohm. Digital Readout eliminates any possibility of reading errors. Motor starting currents and other surges or peaks are measured easily. Measures motor winding resistances, other low resistances.

SPECIFICATIONS

Ranges: AC Amps, AC Volts, Ohms 0.1 to 999. All readings below 100 are shown to the nearest tenth. **Accuracy:** AC Amps. AC Volts, Ohms ±2% of reading ±1 LSD. **Digit Size:** 7/16" high. **Operating Temperature:** +32°F to 120°F. **Fuse:** 8AG-361, 1 Amp Fast Blow (Littelfuse) supplied. **Power:** 1 Mallory No. MN1604, 9V Alkaline Battery or equal (not supplied). Supplied with All-Weather Test Leads with one Alligator Clip Adaptor, Fused Ohmmeter Test Lead and Carrying Case.

Stock No.	Type	NET
62F134	ACD-1	149.85

JUNIOR TEST MASTER KITS

Kit consists of a Model K case that contains one of the YO Amprobe Juniors, an Amprobe A-45L Energizer, battery attachment and All-Weather test leads VL-55R. Ohmmeter range is 25 Ω midscale.

Stk. No.	Type	Ammeter Range	2 Voltage Range	NET
62F966	TM-YO 525	0-25	0-150/600	46.50
62F958	TM-YO 500	0-100	0-150/600	

ENERGIZER

Model A-45L. Permits current readings on permanently wired low-current equipment. Increases ammeter sensitivity 5x or 10x for more precise reading. Cap. 10 amps. With pouch.

62F977 NET **9.50**

OHMMETER BATTERY ATTACHMENT

Model OHB-3. For use with Model RS-3, RS-3A, V Case, RS-1000, RS-1007 includes fuse.

62F946. NET **4.25**

EXTENDO LEAD PACKS

Model VLK-311R. A "Third Hand" for easier safer faster readings. Includes jaw adapter, extension probe leads and insulated clips.

62F988. For RS models except RS-1000, RS-1007. **NET** **5.50**

TEST LEADS

Model VL-11R. Bayonet Safety Type. Use with all RS models.

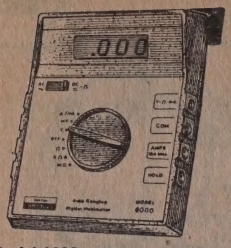
62F945. NET **3.75**

MODEL TM-YO

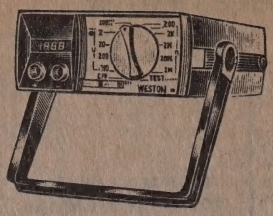
ENERGIZER

19

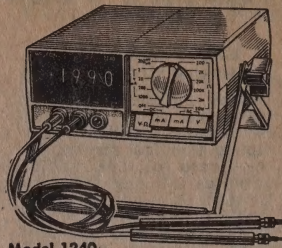
WESTON Digital Multimeters



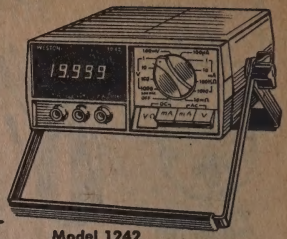
Model 6000



Model 4440



Model 1240



Model 1242

Model 6000 Autoranging Portable

Eliminates need for switching between scales on widely varying readings. LSI circuitry, long-life liquid display. Operates 300 hrs. on two 9V Alkaline transistor batteries. Low battery warning circuit flashes display during final 8-10 hrs. of operation. "Display" allows display of readings after removal of probes from circuit. Over-range indicated by flashing "1888" display: 3½ digit display w/auto-polarity. Full 10 amp AC/DC measurement capability. Oper. temp +5°C to 50°C. Size: 7" x 5.75" x 2.25".

Specs.	VDC	VAC	D.C. Amps	A.C. Amps	Resistance
Accuracy	.35%	.5%	.75%	1.5%	.5%
In. Imp.	10 Meg	9M/39pF	10 ohms	10 ohms	
Sensitiv.	100 μV	100 μV	1 A	1 A	.1 ohms
Max. Read.	1000 V	1000 V	10 A	10 A	20 Meg
Overload	1.5KV peak	1.5KV peak	¼ A fuse	¼ A fuse	350 V peak

54F906. Model 6000-0277899 ..... **195.00**

SUPER 6000
Opt. fea. extend 6000 versatility (Man. range hold, Backlight).
55F5182. Model 6000-0279800 ..... **225.00**

ACCESSORIES
HOLD PROBE allows permanent hold of any reading.
55F5183. Type 9740-0279407 ..... **25.00**
LIGHT METER ATTACHMENT reads illumination in ft. candles (0-125)
55F5184. Type 856-0280851 ..... **226.25**
CARRYING CASE. Leather grained, expanded vinyl, pouch style.
55F5185. Type 9740-0277854 ..... **15.75**

MODEL 4440 PORTABLE DIGITAL MULTIMETER

3½ digit. Solid-State. Light weight. Shock proof. Dual slope high impedance bipolar A/D converter. Single MOS LSI plug-in chip for logic circuits. Auto-polarity. Auto-blanking. Overload protection. RANGES: **DC Volts:** 0-199.9 mV, 50 meg inpt. imp; 0-1.999 V, 500 megs; 0-19.99-199. 9-999 V, 10 megs. ±0.3% rdg acc. ±1 digit. **AC Volts:** 0-199.9 mV, 0-1.999-19.99-199.999,V ±0.5% rdg acc. ±3 digits. Input Imp: 10 megohms. Freq.: 40 Hz-10kHz, 40 Hz-2 kHz on 1000 V range. **DC Current:** 0-199.9 μA, ±0.4% digit acc. AC Current: 0-199.9 μA, ±0.7% acc. ±5 digits. **Resistance:** 0-199.9-1999-19.99K-199.9K; 0-1.999 megohms, ±0.4% acc., ±3 digits. Voltage Drop; 0.2 V exc. 2 V for 1.999K and 1.999 meg. **Size:** 5.45" w x 7.25" d x 2.25" h. **Weight:** 2½ lbs.
62F1426. Model 4440. NET **339.00**

MODEL 4442 PORTABLE DIGITAL MULTIMETER

3½ digit. Solid-state. RANGES: **DC Volts:** 0-199.9 mV-1.999 V, .05% rdg ±1 digit. 0-19.99-199.9-1000 V, .1% rdg ±1 digit. **AC Volts:** 0-199.9 mV-1.999-19.99-199.9 V, .3% rdg ±1 digit. 40 Hz-10KHz. 0-1000V .5% rdg ±1 digit, 40 Hz-2 KHz. 199.9 mV-1.999-19.99-199.9 V, .6% rdg ±1 digit, 10 KHz-20 kHz. 0-1000 V, 1% rdg ±1 digit, 2 KHz-10 KHz. **DC Current:** 0-199.9 μA-1.999 mA, .2% rdg. ±1 digit. **AC Current:** 0-199.9 μA, .4% rdg ±1 digit, 40 Hz- 10 KHz, 0-199.9 μA-1.999mA, .75%rdg% ±1digit, 10KHz-20KHz. **Resistance:** 0-199.9Ω-1.999 K, 1 mA @ 0.2 + 2V, 25% rdg. ±3 digits. 0-19.99 K-199.9 K, 10 μA @ 0.2 + 2 V. .1% rdg ±1 digit. 0-1.999 M, 1 μA @ 2 V, .2% rdg ±1 digit. 0-19.99 M, .1 μA @ 2 V, .5% rdg ±1 digit.
57F1726. Model 4442. NET **370.00**

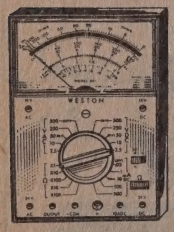
MODEL 1240 Digital AC/DC Multimeter

Compact, 26 ranges, single range selector. Overload protection. Overload protection through resistor diode network or fuses. Out of range indication by flashing light and polarity indication. High impact glass filled thermoplastic case for shock resistance. RANGES: DC Volts: 0.2-2-20-200-1000V ±1%; AC Volts: 0-200mV; 0-2-20-200-500V ±5%. DC current: 0-200μA; 0-2-20-200mA; 0-2 Amps. AC current: 0-200 μA; 0-2-20-200mA; 0-2 Amps. Resistance: 0-200-2K-20K-200K-2M-20M. Ohms, Temp. range: 10°C to 40°C. Common mode rejection: 80 db at 60 Hz. Readings: 5 per second (non-blinking display). Humidity: 85% at 36°C. Vibration: 5-10 Hz at 1 hour at 0.4G; 10-50 Hz at 11 msec at 2 G. Shock: 50 G on three axes. Power required: 115 or 230 VAC, 50-400 Hz, 6 watts. Size: 7"w x 7.9" d x 3" h.
55F5187. Model 1240 ..... **635.00**

MODEL 1242 AC/DC Digital Multimeter

Full 4½ digit bipolar digital multimeter features dual slope integration. Overload protection by resistor network, fuses, or both. Carrying handle serves as tilt stand. Ranges; DC Volts: 0-0.1-1-10-100-1000 V ±.5%; AC Volts: 0-100mV; 0-1-10-100-500 V ±0.2%; DC current; 0-100μA; 0-1-10-100mA ±0.15%; AC current: 0-100μA; 0-1-10-100 mA ±0.35%. Oper. Temp.: 10°C to 40°C. Overrange: 100% except 1000 VDC and 500 VAC; Common Mode Rejection: Greater than 80dB at 60Hz with 1000Ω. Normal Mode Rejection: 40dB at 60Hz. Readings: 10 per second (non-blinking display). Humidity: 85% at 36°C. Vibration: 5-10 Hz for 1 hr. at 0.4 G; 10-50 Hz for 11 msec at 2 G; Shock: 50 G on three axes; Power required: 115 or 230 VAC, 50-400 Hz, 8.5 watts; Size: 7"w x 7.9" d x 3" h. Weight: 4½ lbs.
55F5186. Model 1242 ..... **740.00**

SERIES 660 "DROP-PROOFED" VOMs



Major design advancement. Warranted in writing to work even after five accidental drops. Rugged self-shielded taut-band mechanism. Diode protected movement. Temperature compensation. Pluggable circuit boards for easy repair. Scales calibrated for dB measurements. Recalibration without disassembling. External fuse replacement. Controls flush with end of case. Single range switch. Self storing handle. Input terminals spaced for use with double banana jacks. All models supplied with leads and batteries.

MODEL 660 VOM

Precision instrument built for service in most demanding field environments. Completely "drop-proofed." Rugged self-shielded taut-band mechanism. Temperature compensated. Diode protected meter movement. Polarity reversal switch for AC voltages. Critical circuits employ 1% precision resistors. Specially calibrated scales for dB measurements. Externally replaceable fuse and single range switch. Full range coverage provided.

SPECIFICATIONS
Accuracy: 2% DC (1.5% on 50 A range); 3% AC.
Sensitivity: 20,000 per Volt DC. 5,000 per Volt AC.

RANGES	
DC Millivolts	0-250
DC Volts AC Volts	0-2.5-10-50-250-500-1000-5000 0-2.5-10-50-250-500-1000-5000
VAC Output DC Microamps DC Milliamps DC Amps	0-2.5-10-50-250 0-50 0-1-10-100-500 0-10
OHMS	RX1, 0-2K, 20Ω center; RX10, 0-20K, 200Ω center; RX100, 0-200K, 2,000Ω Center: RX1K, 0-2 megs, 20KΩ center: RX10K, 0-20 megs, 200 KΩ center.
dB Scales*	−10 to +10; +2 to +22; +16 to +36; +30 to +50; +36 to +56.

(*) 1 mW, 600 ohm line.
Size: 5"w x 2¼"d x 7"h. **Weight:** 2 lbs. (batteries incl.).
62F1420. Model 660. NET **101.00**

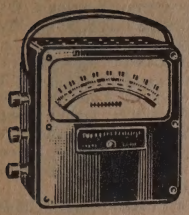
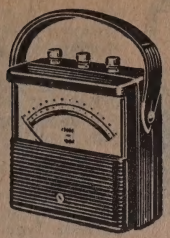
MODEL 661 HIGH ACCURACY VOM

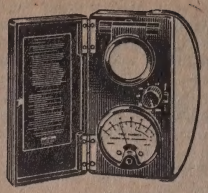
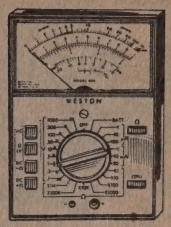
Same as Model 660 with the addition of a mirror scale and improved basic accuracy to 1% DC and 2% AC. ½% precision resistors. Ranges the same as 660.
62F1421. Model 661. NET **110.00**

MODEL 662 OVERLOAD-PROTECTED VOM

Same as Model 660 but with built-in overload protection up to 220 V. AC/DC (exc. 10 A DC range). or to 1000 V on higher ranges. Ranges the same as 660.
62F1422. Model 662. NET **148.00**

19

432 433 901 904 749 633 615 666

MODEL 931 DC INSTRUMENT

Compact, light weight and accurate within ½ of 1%. Hand calibrated mirror scales and knife-edge pointers eliminate parallax errors. Scale length 4.04". Self shielded perm. magnet moving coil. Size, 5¼" x 5" x 3¼". Approx. Wgt. 2 lbs.

DC VOLTMETERS 1000 OHMS/VOLT

Stock No.	Type 931-	Range	Scale Division	NET
55F4933	1915003	30/7.5/3	150	212.50
55F4934	1915005	300/150/3	150	
55F4935	1915006	750/300/150	150	

DC MILLIAMMETERS

62F1102	4914003	150/15/1.5	150	208.50
62F435	4914002	1500/150/15	150	
62F1101	4914001	3000/300/30	150	

DC AMMETERS (SELF-CONTAINED TO 50 AMPS)

55F4936	2912008	5/2.5/0.5	100	221.25
62F1133	2912009	10/5/1	100	

MODEL 432 DC AND SINGLE-PHASE WATTMETERS

Electrodynomometer accurate within ½ of 1%. Power consumption: Potential circuit at 115V, 60 Hz, 1.2 watts, 1.2 volt-amperes; current circuit at 5 amperes, 60 Hz, 0.65 watt, 0.68 volt-ampere. Scale 4.04" 1. Scale division: 75. Size, 5¼" x 5" x 3¼". Wgt., 3¼ lbs.

Stock No.	Type 432-	Normal Volts	Normal Amps	Watts Max.	Watts Min.	Each
55F4937	9911005	150/75	5	750	375	395.75
62F1472	9912005	150/75	10/5	1500/750	750/375	482.50
62F1348	9912007	300/150	10/5	3/1.5 kW	1.5/.75 kW	482.50

MODEL 433 AC VOLTMETERS

Movable iron type, horizontal operation, shielded from external magnetic fields. Power consumption: 150V range at 115V, 60 Hz, 2.5 watts, 2.5 VA. Rated Accuracy: .75%. Frequency coverage: AC from 25 to 1000 Hz available. Self contained ranges: single, double, and triple up to 750 volts. Range extension: with multipliers or Model 311 Potential transformer in con. with 150V range. Size: 3¼" x 5" x 5¼". Wgt. 2½ lbs.

Stock No.	Type 433-	Range	Approx. Res. Ohms	Scale Div.	NET
62F441	1913009	300/150	22K/11K	150	200.50
62F442	1916002	600/300/150	44K/22K/11K	150	254.75
62F1096	1916003	750/300/150	55K/22K/11K	150	254.75

MODEL 433 AC AMMETERS

Power consumption: 5 amps range at 5 amps, 60 Hz, 0.50 watt 0.52 VA. Single, double, and triple ranges cover frequencies 25-500 Hz. Higher frequencies coverage available. Triple range instruments have internal current transformer. All have two binding posts, double and triple range instruments have range selector switch. Above 50 amps use Mod. 461 Cur. transformer.

Stock No.	Type 433-	Range	Approx. Res. Ohms	Scale Div.	NET
62F436	2911002	5	0.020	100	187.00
62F1099	2916002	3/1.5/.75	0.18/0.43/0.59	150	356.50
62F438	2916005	10/5/1	0.030/0.070/0.37	100	356.50
62F2662	2919002	50/20/10	0.0073/0.0080/0.010	100	356.50

MODELS 901 AND 904 INSTRUMENTS

Scale, 5½". Size 7½" x 7¼" x 3⅝".
Model 901 DC Instruments: Self shielded, perm. magnet, moving coil operation. Accuracy: 0.25% F.S. Wgt. 3¾ lbs. approx.
Model 904 AC Instruments: Movable iron type. Accuracy: 0.5% F.S. Wgt. 4¾ lbs. approx.

MODEL 901 DC INSTRUMENTS

Stock No.	Type 901-	Meter	Range	Scale Div.	Each
62F1344	2904001	DC Amps	50mV/20/5/2 amps	100	418.25
62F1136	1905001	DC Volts	750/300/150/75/30/15/3	150	461.50
62F1146	4905001	DC Milliam.	1K/500/200/100/50/20/10	100	434.25

MODEL 904 AC INSTRUMENTS

62F1149	2905002	AC Amps	50/20/10/5/2/1	100	545.50
62F1143	1906001	AC Volts	750/300/150/75/30/15/7.5/3	150	625.50

MODEL 749 AC POCKET SIZE CLAMP VOLT-AMMETER

Light weight, compact, hand-fitting design. Precision ground faces provide positive jaw contact. Accommodates conductors up to 1" Round or 1¼" x ⅜" rectangular. Large, smooth action trigger. Satin finish, black bakelite case. Positive action range selector switch. Shatterproof wrap-around plastic window. One scale for all ranges. Accuracy ±3% of full scale @ 50-60 Hz, ±5% of full scale @ 400 Hz. Size: 7½" x 3" x 1¼". Scale length 2.36". Approx. wgt. 14 oz.
62F481. Model 749. **NET** 88.00

Model 9886, plug-in adaptor for Model 749. Facilitates current measurement of double conductor feeds. Use on direct reading or as 10-to-1 divider for low cur. measurement.
62F482. Type 9886. **NET** 10.50

MODEL 633 AC CLAMP AMMETER AND VOLT-AMMETER

Measures AC voltage and current without breaking the circuit. **TYPE VA-1** has three voltage ranges (700/350/175 volts full scale) and five AC current ranges (1000/250/100/25/10 amps full scale). Completely covers voltages and currents most frequently encountered in industrial and utility service. Safety trigger designed for glove or bare hand. Insulated for 750V. Size: 13⅜" x 4⅜" x 2½". Wgt. 3¾ lbs.
62F1111. Type A-1. Range 10-500 Amps. **NET** 248.50
62F1112. Type A-2, Range 10-1000 Amps. **NET** 248.50
62F1118. Type VA-1. **NET** 264.00

MODEL 615 BROAD RANGE LIGHT METER

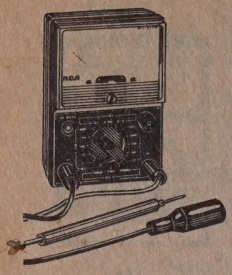
General purpose standard for business, industry, and government agencies where monitoring over wide ranges of illumination is necessary. The Phototronic cell is corrected by visual and cosine filters, and the built-in battery operated amplifier allows seven ranges of light measurement. The Phototronic cell is hermetically sealed for long life and is hinged for convenience in making directional measurements. The selector switch has a provision for battery test and an interlock to insure the switch is off when the case is closed. Ranges: 0-1.2, 3, 12, 30, 120, 1200 foot candles. Viscor and cosine correction supplied. More than one year of operation from one 9 volt battery. Size: 7" x 3½" x 2½". Weight: 2 lbs.
57F2759. Model 615. **NET** 459.00

MODEL 666 SOLID STATE CIRCUIT TESTOR VOM

For semi circuit troubleshooting. 10 meg input imp. Features differential pair FET input to high gain IC op amp. Fully freq. compensated. Input rev. switch. Accur. 2% VDC; 3% VAC; 3% DC cur; 4% AC cur. Sensitivity: 10 meg DC; 10% meg, 100 pF, AC. **Ranges: DC mV**, 0-100-300; **DC-V**, 0-1-3-10-30-100-300-1000; **AC mV**, 0-100-300; **AC V**, 0-1-3-10-30-100-300-1000; **DC μA**, 0-1-10-100; **DC mA**, 0-1-10-30; **AC μA**, 0-1-10-100; **AC mA**, 0-1-10-30; **Ohms**, RX1, RX10, RX100, RX1K, RX10K, RX100K, RX1 Meg; **dB Scales**, −40 to −18, −30 to −8, −20 to +2, −10 to +12, 0 to +22, +10 to +32, +20 to +42, +30 to +52, +40 to +62. Size: 5"w x 2¼"d x 7"h. Wgt. 2 lbs. (bat. incl.).
62F1424. Model 666. **NET** 202.00

19

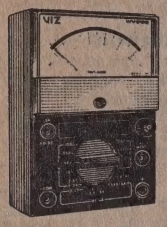
Test Equipment



WV-517B VOLT-OHM-MILLIAMMETER

Large taut-band meter. Diode-protected against burnout. Measures DC and AC to 600 volts in six ranges each. DC current to 300 mA in three ranges. Resistance from 1 ohms to 5 megohms in three ranges. Decibels from −20 dB to +37 dB in two ranges. Accuracy: DC ±3%; AC ±4%. Sensitivity: DC 20K ohms/volt; AC 10K ohms/volt. Uses two 1.5 volt penlite cells (not supplied). Includes test leads. Size: 4¾" x 3¼" x 1½". Wt. 12½ oz.

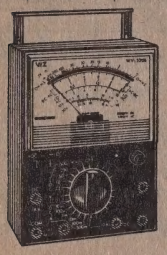
62F1676. NET **36.50**



WV-518B VOLT-OHM MILLIAMMETER

Type WV-518B Mirror scale and panel-mounted fuse to protect ohms divider resistors from burnout. DC from .01 to 500V in four stages. AC (RMS) from .05 to 500V in four stages. DC current from 10A to 500 mA in four ranges. Resistance from 1 ohm to 2 megohm. Accuracy; DC ±3%, AC ±4%. Sensitivity; 20K per volt, DC. 10 K per volt AC. With test leads and 2 batteries. Size: 5⅛" x 3½" x 1⅞". Wt. 1½ lbs.

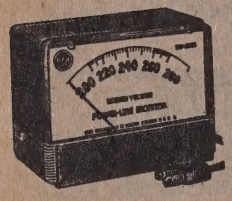
62F1677 ..... **49.00**



WV-520B VOLT-OHM MILLIAMMETER

High sensitivity: DC; 100K ohms/volt, AC; 10 K ohms/volt 3 color aluminum panels and meters with mirror scales. 1% precision resistors for all ranges. Meter movements protected against burnout. DC range: 0 to 1500V in 8 stages. ±3% accuracy. AC range 0 to 1500V in 6 stages. ±4% accuracy. DC current 0 to 15 μA to 5A in seven stages. Resistance: 1 ohm to 20 megohm in four stages. Complete with test leads and two 1.5 volt batteries. Size: 5¼" x 7½" x 2⅜". Shpg. wt. 3 lbs.

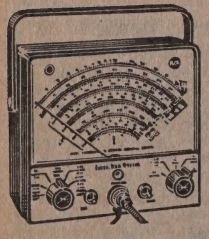
62F1679 ..... **79.00**



WV-120B POWER LINE MONITOR

Provides a continuous indication of the AC line voltage without handling probes and switches. 2-color scale, 100 to 140 volts. Use on AC lines w/freq. from 25 Hz to 400 Hz. Moving vane meter gives accurate rms readings when line voltage is not pure sine wave. Meter Accuracy: ±2% at center scale; ±3% at both ends. Three-wire power cord. Can be installed between AC line and unit to be monitored. Size: 3 15/16" x 3" x 3 1/16". Wt. 1½ lbs.

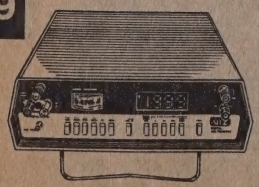
62F1657. NET **29.00**



WV-98C SENIOR VOLTOHMYST

All measurements made with single unit probe adapted to either DC, AC and resistance measurements by a built in switch. Input resistance of 11 megohms on all DC ranges reduces loading of the test circuit. DC/AC range of 0 to 1500V in 7 stages. Overall accuracy of +3%. Measures peak to peak sine, complex waveforms to 4200V. Size: 6½"h x 7"w x 3¾"d. With probe, cable, clip, battery, insulator, and book. Shpg. wt. 8 lbs.

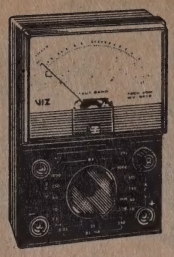
62F060 ..... **129.00**



WD-750A DIGITAL VOLTOHMYST

Provides a "total service capability" approach to digital multimeters. Features automatic zeroing, automatic polarity indication, over-range indication, and "Low Ohms" function. A special feature is the "null/peak" analog panel meter for nulling or peaking adjustments without trying to interpret rapidly changing digital readouts. Impedance: 10 megohms. 3⅛" x 10⅜" x 11". Wt. 6 lbs.

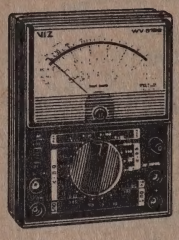
54F800. NET **267.00**



WV-547B TECH VOM

Accurate taunt band meter. Full diode protection prevents accidental overload. **DC Voltage.** Ranges: 0 to 0.5V, 2.5V, 10V, 50V, 250V, 1000V. Sensitivity: 20,000Ω/V. Accuracy: ±3% F.S. **DC Current.** Ranges: 0 to 0.05mA, 25mA, 250mA. Accuracy: ±3% F.S. **AC Voltage.** Ranges: 0 to 10V, 50V, 250V, 500V, 1000V. Sensitivity: 9000Ω/V. Accuracy: ±4% F.S. **Frequency response.** (10V range): 10Hz to 100 kHz ±1 dB. **Resistance.** Ranges: R x 1, R x 10, R x 100 (2Ω to 1MΩ). Uses 1.5V Penlite cell.

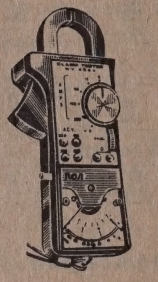
55F4981. Type WV-547B. **NET** **33.00**



WV-519B VOLT-OHM MILLIAMMETER

Type WV-519B. Three color aluminum panels and meters with mirror scales. Has DC polarity switch. 1% precision resistors for all ranges. DC range from 0 to 1500V in 8 stages. AC range from 0 to 1500V in 6 stages. DC current from 5 μA to 6A in five ranges. Resistance from 1 ohm to 100 megohm in four ranges, and decibels from −20 to 57 dB. Accuracy, DC; ±3%, AC; ±4%. With test leads and two 1.5V +1-22.5V batts. 12 month warranty on parts and labor. Size: 6¾" x 4¼" x 1⅞". 2 lbs.

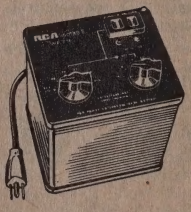
62F1678 ..... **59.00**



WV526B AC CLAMP TESTER

Measures AC current up to 300A in seven ranges, accuracy of ±3%. AC voltage to 600V in three ranges with ±3% accuracy. Resistance from 1 ohm to 1K ohms (30 ohms center scale) with ±3% accuracy. Requires no direct connection to the electrical circuit. "Stop lock" permits you to measure current in a dark or hard-to-get-at area, lock the reading, remove the tester, and evaluate the results at your convenience. Supplied with line splitter/current transformer, test and clip leads, shorting plug, case, battery, and extra fuse. 2¾"W x 7½"L x 1½"D. Wt. 9½ oz.

86F651. NET **79.00**



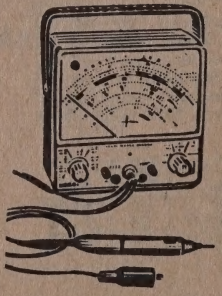
WP-25A, WP-26A, WP-27A ISOTAPS

Protect against shock, isolate power line. WP-25A and WP-26A provide for high-low-medium line voltage testing. Isolated secondary windings have high volt-ampere rating. Match extreme line voltages over wide range. WP-25A: 500VA/750VA, 275VA/450VA. WP-26A: 500VA/750VA, 400VA/450VA. The WP-27A Isotap II provides isolated AC output 25 to 150 V in 5V steps, AC input of 105-130V, 50-60Hz.

55F4982. Type WP-25A. **NET** **52.50**

62F1666. Type WP-26A. **NET** **59.70**

62F150. Type WP-27A. **NET** **69.75**

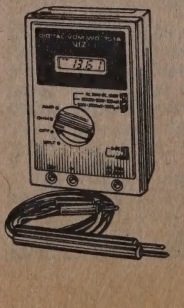


WV-510A MASTER VOLTOHMYST

- **All Solid State**
- **Battery/AC Operation**
- **6½" 2-Color Meter**

Operated from internal batteries (not included) or from 120V AC power line. On battery operation power cord can be removed for complete portability. 0 to 1500V range; 8 stages in DC, 7 stages in AC, DC current from 0 to 1500 mA. Overall accuracy ±3%. Megohm resistance of 21 on all DC ranges. Size: 6½"h x 7"w x 3¾"d. Wt. 6 lbs.

62F1667 ..... **159.00**

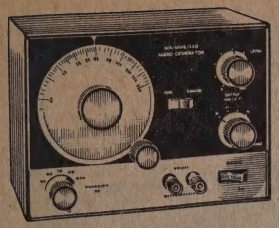


WD-751A DIGITAL VOM

High-quality electronic multi-meter that utilizes a 3½ digit Field Effect type Liquid Crystal for its display. Can be operated from its internal battery supply. The liquid crystal display coupled with its CMOS LSI circuit results in extremely low power consumption (300 mW) and long battery life. One set of four alkaline penlite "AA" cells will render over 30 hours of continuous use. Black numerals against gold background gives sharp strong readings. Unit is semi-auto-ranging for fast, easy operation. Compact size and light weight make it ideal for portable operation.

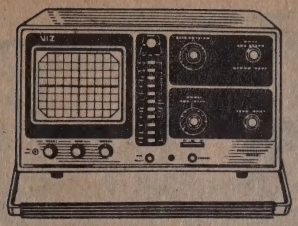
54F801. NET **150.00**

VIZ



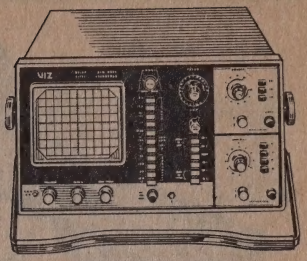
WA-504B/44D AUDIO SINE/ SQUARE-WAVE GENERATOR

Solid-state. Constant 600-ohm output impedance.
Specifications (At line voltage of 120 V, 60 Hz.) Frequency—Range: 20 Hz to 200 kHz in four ranges. Stability: less than ±0.5%. Dial Calibration Accuracy: ±5%.
Output Voltage—Ranges: 0 to 0.01, 0.1, 1 and 10 V P-P. Amplitude Variation with Frequency (ref. 10 V P—P at 2 kHz): ±1.5 dB. Output Impedance: 600Ω. Sine Wave Total Harmonic Distortion (Typical): 0.15%.
Power Requirements: 108-132 V, 50-60 Hz. Dimensions: 7⅞ in. x 5⅝ in. x 4¾ in. (20 cm x 14.3 cm x 12.1 cm). Weight: 4 lbs. (1.8 kg).
62F1656. NET.....129.00



WO-527A 15 MHZ TRIGGER SWEEP SCOPE

Freq. resp. DC to 15MHz (−3 dB) sensitivity 10mV/cm to 20V in 11 ranges. Rise time 24 n. sec. Hors. Osc. Freq. DC to 1MHz. Trigger mode normal or auto freq. resp. DC to 30MHz. Calibrated time base 0.5μ sec. to 0.5 sec., 19 ranges. Preset TVV and TVH plus special TV line selector to display single line of TV video frame. Times 10 sweep Mag. advanced I.C. circuitry thru-out full shield CRT with P-31 Phos. Unique simplified trig. level adjust system with LED indicators show trig. polarity at a glance. Includes WG-478 Direct and X10 Compensator Probe.
86F677. Type Wo-527A. **NET.....525.00**



WO-555 15 MHZ DUAL-TRACE OSCILLOSCOPE

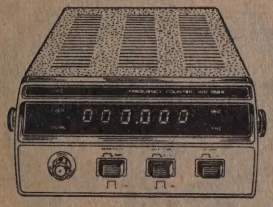
DC to 15 MHz at 10mV/cm, smooth roll-off for use to 27 MHz. Times 10 sweep magnification. I.C. circuitry thru-out. Full CRT shield, 8 x 10cm display with P-31 phosphor. Built-in delay line for viewing full input signal. A plus B, A minus B, and calibrated X-Y Capability. Preset TVV and TVH plus special TV line selector to display line or frame of TV video frame. Extremely stable trig. action and simplified trig. level adj. system with LED indicators tell trig. polarity at a glance. Direct operator selection of vert. display mode permits use of alternate or chopped mode at all sweep speeds.
86F678. Type Wo-555. **NET.....750.00**

WR-50C

RF Signal Generator

Tunable on fundamental 6 ranges 85 kHz to 40 MHz

For aligning and signal tracing. Variable oscillator covers frequencies from 85KHz to 40MHz in six stages. Built-in crystal calibrating oscillator circuit with front panel crystal socket. Sweep output at 10.7MHz and 455kHz for sweep alignment of radio receivers. RF output modulated with internal 400Hz oscillator or ext. audio signal. RF output: 0.04V rms. ±2% calibrated accuracy. Rating: 105-130V, 50-60Hz. 15W consumption. Wgt: 5 lbs.
62F086. Type WR-50C. **NET.....120.00**

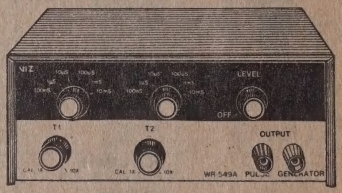


WD-752A FREQUENCY COUNTER

Ideally suited for making frequency measurements in audio, video, CB, and Ham radio, plus all other communication equipment operating between 10Hz and 80MHz. It displays the measured frequency with six full, bright, seven segment LED's, plus an overflow light. Selectable input sensitivity and selectable 3 gate automatic time switch. Audible side tone can be used to modulate SSB transceivers so carrier frequency can be measured.
54F806.....200.00

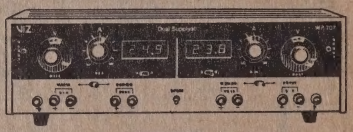
WR-549A PULSE GENERATOR

Compact, source of digital pulses. These pulses can be varied continually over range from 5Hz to 5MHz, positive, or negative square wave. Output is also adjustable for both TTL and CMOS, covering a range to 15 volts P-P, at an impedance of 100 ohms. Pulse rise time is held to 15 nanoseconds on all ranges.
54F804.....119.00



DC Power Supplysts

WP-705, WP-706,

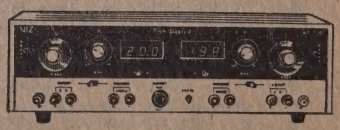


WP-707

DC power supplies (WP-707 is a dual supply). Designed to give laboratory type performance. Each supply has adjustable current limiting and dual concentric controls for setting output voltage. Both voltage and current can be monitored simultaneously on the two digital panel meters provided on the WP-705 and WP-706. On the WP-707 dual supplyst the two digital panel meters can be switched to moniter voltage and/or current of either output, also the two outputs can be externally connected in series to give 0-50V at up to 2A. Specs: Output voltage: 0-25VDC (0-50V, WP-705), 5 switched ranges, continuously variable between ranges; fully regulated. Output current: 0-2 Amps (0-4A, WP-706) over entire voltage range; full load. Load regulation: 0.075% max. (0.1%, WP-706) over full operating range. Line regulation: 0.05% max. at full output voltage and current from 105V AC to 130V AC. Ripple: 5mV peak to peak, max. Overshoot: none. Output impedance: 1 Ohm DC to 10Khz. Load protection: Current foldback and auto-shutdown. DC voltmeter input: 99.9V DC full scale, 0.1V resolution. Input impedance: 5 Megohms. Panel meters: 3 digit .43" LED, resolution 0.1V and 0.01A, accuracy 1% ±1 digit. Size (HWD): 4" x 15" x 9½" (10 x 38 x 24 cm).
55F4983. Type WP-705. **Net.....240.00**
55F4984. Type WP-706. **Net.....240.00**
55F4985. Type WP-707. **Net.....299.00**

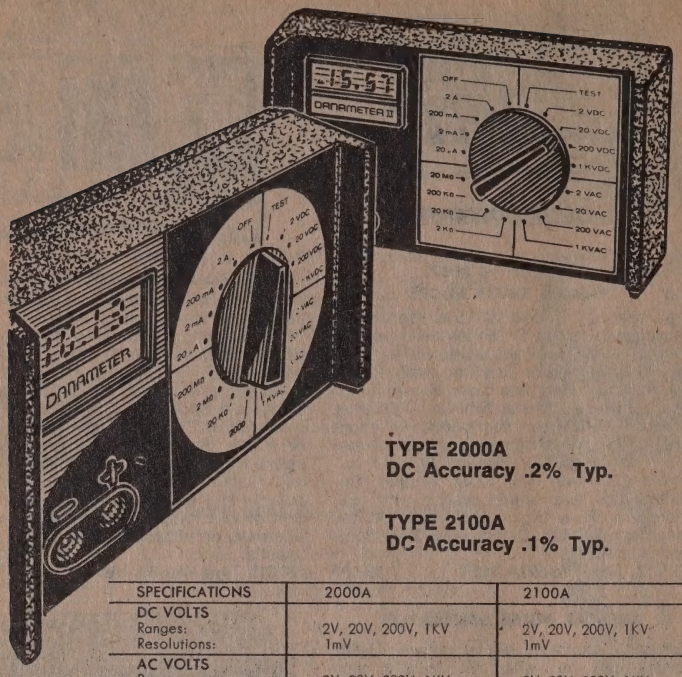
WP-708 DC POWER SUPPLYST

Triple DC power supply designed to give laboratory type performance. Ideal for circuit breadboarding, production testing, service, repair and educational applications. Output voltage: 0-20VDC in four switched ranges, continuously variable, fully regulated. Output current: 0-2Amps over entire range, full load. Load regulation: 0.075% Max. Line regulation: 0.05% max. Ripple: 5mV peak to peak. Size (HWD): 4" x 15" x 9.5".
55F4986. Type WP-708. **Net.....333.00**



19

RACAL-DANA Digital Test Equipment



TYPE 2000A
DC Accuracy .2% Typ.

TYPE 2100A
DC Accuracy .1% Typ.

SPECIFICATIONS	2000A	2100A
DC VOLTS		
Ranges:	2V, 20V, 200V, 1KV	2V, 20V, 200V, 1KV
Resolutions:	1mV	1mV
AC VOLTS		
Ranges:	2V, 20V, 200V, 1KV	2V, 20V, 200V, 1KV
Resolution:	1mV	1mV
OHMS		
Ranges:	200, 20K, 2M, 200M	2K, 20K, 200K, 2CM
Resolution:	.1	1
DC CURRENT		
Ranges:	20μA, 2mA, 200mA, 2A	20μA, 2mA, 200mA, 2A
Resolution:	.01A	.01A
AC CURRENT (optional shunts)		
Ranges:	2mA, 1A Full Scale	2mA, 1A Full Scale
Resolution:	1μA, on 2mA range	1μA on 2mA range

26 or 36 double break switches

TYPE: 2000A & 2100A

3½ Digit LCD display. Digital readout and automatic decimal point tell you exactly what you re reading. Automatic polarity saves time. 10,000,000 ohms-per-volt sensitivity on the lowest ranges eliminates loading errors. Single control switch and single set of jacks. Super LCD is bigger, brighter, faster and higher in contrast. Easily viewed from any angle, in the dimmest lighting conditions or the brightest sunlight. All active circuitry is contained on two monolithic LSI chips. Full overload protection. Completely free from outside power requirements. Battery requires no charging. Designed for true remote field service. The 9V transistor battery lasts about 3000 hours. The battery condition is displayed in the test position. All solid state design uses state-of-the-art LSI/CMOS circuitry for maximum speed, accuracy and reliability. Temp. range 0° to +50°C.

TYPE 2000A has .2% DC accuracy and ohm ranges: 200, 20K, 2M, 200M. **TYPE 2100A** has .1% DC accuracy and ohm ranges: 2K, 20K, 200K, 20M.

67F5910. Type 2000A Net.....**199.50**
67F5911. Type 2100A Net.....**249.80**
Type 2002 same as 2000A except extended temp. range —10° to +70°C.
67F5912 Net **224.50**
Type 2102 same as 2100A except extended temp. range —10° to +70°C.
67F5913 Net **274.80**

ACCESSORIES

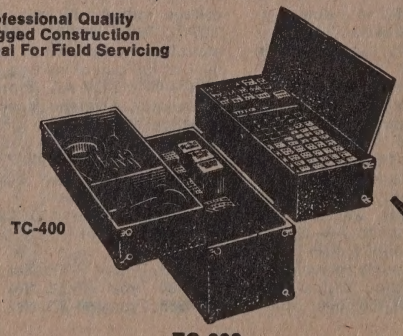
Stk. No.	Type	Description	Net
67F5914	61	Carrying Case	20.00
67F5915	80	Input Cable (shielded)	25.00
67F5916	82	H.V. Probe 5KV	40.00
67F5917	83	H.V. Probe 50KV	45.00
67F5918	84	R.F. Probe 200 MHz.	60.00
67F5919	86	AC Current Shunt Set.	35.00
67F5920	88	Deluxe Test Lead Set.	10.00

ARGOS TUBE CADDIES

Provides compact, safe storage and transportation of tubes and service tools.

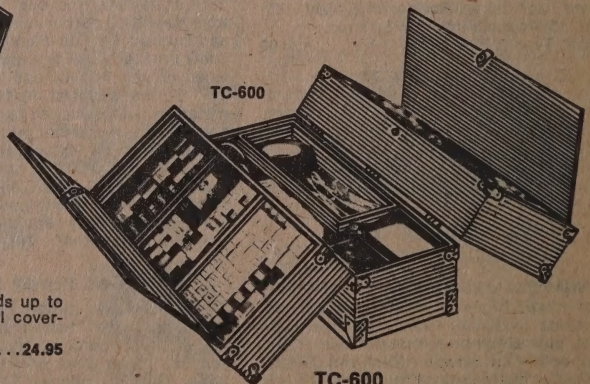
- **Professional Quality**
- **Rugged Construction**
- **Ideal For Field Servicing**

- **Provides Added Tool Space**
- **Durable Vinyl Covering**
- **Compact Design**



TC-200

Junior Tube Caddy. Small, easy-to-carry size. Holds up to 143 tubes. Can carry tools, meters, etc. Grey vinyl covering. 16″ x 12½″ x 8″. Shipping weight 7¼ lbs.
86F774. NET **24.95**



TC-600

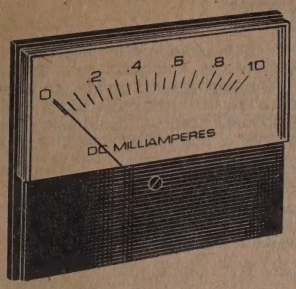
Most rugged, strongest tube caddy in the line. Steel runners protect the caddy. Offers more than 3300 cubic inches for more than 300 tubes with space for tools, meters and accessories. Grey vinyl covering. 24″W x 16½″H x 8½″D. Shipping weight 20 lbs., 8 oz.
86F748. NET **59.95**

TC-400

Carry-all Tube Caddy. A must item for all electronic service men, this case is a complete tube and tool kit. Holds up to 260 tubes with space for accessories. Grey vinyl covering. 21″ x 15″ x 8″. Shpg. wt. 11 lbs.
86F747. NET **34.95**

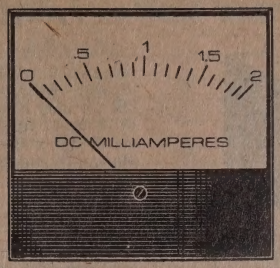
Moving-Magnet Panel Meters

MODUTEC



MODEL MS

- **Moving-Magnet Movement**
- **Accuracy 5% of full scale**



MODEL MSQ

- **High Torque, Powerful Ballistics**

Model MS. 3½" surface-mount style meter features movement with dual moving magnets and large coil. Adjustable jewel screw minimizes pivot friction error. Integral coil and pivot support for precision alignment. Accuracy 5% of full scale. Translucent case with black covers for easy back-lighting. Includes mounting hardware.
Model MSQ is a 2" meter with all features of Model MS.

MODEL ME

- **Dual Moving Magnets**
- **Space-Saving Style**

Edge reading style meter makes the most of panel space. Flush-to-panel covers eliminate bulge. Movement features dual moving magnets and large coil. Adjustable jewel screw minimizes pivot friction error. Integral coil and pivot support for precision alignment. Accuracy 5% of full scale. Includes mounting hardware and instructions.

AC VOLTMETERS

Stock No.	Type	Range	Res. (Ohms) ±20%	Each
54F1004	DME-AVV-150-SP	0-150	200 per volt	**6.07**
54F1005	DME-AVV-300-SP	0-300	200 per volt	**6.02**
54F1006	DMSQ-AVV-150-SP	0-150	200 per volt	**7.40**
54F1007	DMSQ-AVV-300-SP	0-300	200 per volt	**7.46**
54F1008	3DMS-AVV-150-SP	0-150	200 per volt	**7.95**
54F1009	3DMS-AVV-300-SP	0-300	200 per volt	**7.88**

DC VOLTMETERS

54F1010	DME-DVV-015-SP	0-15	200 per volt	**5.78**
54F1011	DME-DVV-050-SP	0-50	200 per volt	**5.60**
54F1012	DMSQ-DVV-005-SP	0-5	100 per volt	**7.22**
54F1013	DMSQ-DVV-015-SP	0-15	200 per volt	**7.22**
54F1014	DMSQ-DVV-030-SP	0-30	200 per volt	**7.10**
54F1015	DMSQ-DVV-050-SP	0-50	200 per volt	**7.10**
54F1016	DNSQ-DVV-100-SP	0-100	200 per volt	**7.10**
54F1017	DMSQ-DVV-300-SP	0-300	500 per volt	**7.10**
54F1018	3DMS-DVV-015-SP	0-15	200 per volt	**7.87**
54F1019	3DMS-DVV-050-SP	0-50	200 per volt	**7.76**

DC AMMETERS

Stock No.	Type	Range	Res. Ohms) ±20%	Each
54F1020	DME-DAA-005-SP	0-5	.002	**5.47**
54F1021	DME-DAA-025-SP	0-25	.002	**5.47**
54F1022	DMSQ-DAA-001-SP	0-1	.04	**7.05**
54F1023	DMSQ-DAA-002-SP	0-2	.02	**7.05**
54F1024	DMSQ-DAA-005-SP	0-5	.002	**7.05**
54F1025	DMSQ-DAA-010-SP	0-10	.002	**6.68**
54F1026	DMSQ-DAA-030-SP	0-30	.002	**6.68**
54F1027	3DMS-DAA-005-SP	0-5	.002	**7.63**
54F1028	3DMS-DAA-025-SP	0-25	.002	**7.16**

DC MILLIAMMETERS AND MICROAMMETERS

54F1029	DME-DMA-001-SP	0-1 m	2300	**6.62**
54F1030	DMSQ-DUA-500-SP	0-500 μm	4700	**7.76**
54F1031	DMSQ-DUA-2.5H2.5-SP	250-0-250 μm	4700	**7.87**
54F1032	DMSQ-DMA-001-SP	0-1 m	2300	**7.10**
54F1033	DMSQ-DMA-005-SP	0-5 m	500	**6.92**
54F1034	DMSQ-DMA-500-SP	0-500 m	.12	**6.80**
54F1035	3DMS-DMA-001-SP	0-1 m	2300	**7.65**

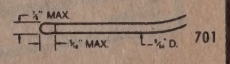
ILLUMINATION KIT

Model KM6-25P. For MS/MSQ type meters only. Consists of two 6V lamps and two holders, with spacers and instructions. For 6V or 12V use, parallel or series hookup.
54F1036. NET **3.95**

YSI SERIES "700" INTERCHANGEABLE PROBES

Electrically equivalent to Thermivolt Thermilinear Thermometer (See YSI thermistors). If a 700 Series Probe is to be used as a substitute for the component, it is necessary to acquire a resistor composite as a separate item. Length of lead 10 ft.; max. temperature 212°F (100°C).

Stock No.	Type	Application	Material	Time Const.	Net
29F246	701	Esophageal or rectal temperature in humans and larger lab animals. Often buried for sub-soil readings.	Vinyl tip	9.0 Sec.	**32.50**
29F247	703	Rugged duty in liquid immersion. Immersible to cap.	Stainless steel	1.6 Sec.	**48.75**
29F248	709	Easy to tape on skin or flat surface for reading.	Stain. steel cup, epoxy backed	1.1 Sec.	**39.00**
29F249	710	Readings in pipes or inside closed vessels.	Stainless steel	3.6 Sec.	**50.40**
29F250	705	Test rooms, remote air readings monitor gas streams.	Stainless steel	0.6 Sec.	**49.00**
29F251	731	(Non immersible.) Suitable for surface temp.	Epoxy tip	0.6 Sec.	**39.00**



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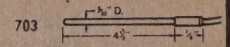

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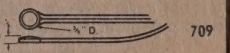

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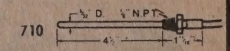

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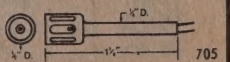
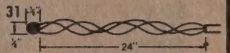


705

RESISTORS

Stock No.	Type	Temperature Range	Each	Stock No.	Type	Temperature Range	Each
29F252	44301	0 to 100°C	**4.40**	**29F254**	44303	−30 to +50°C	**4.40**
29F253	44302	−5 to +45°C	**4.40**	**29F255**	44304	30 to 100°F	**4.40**

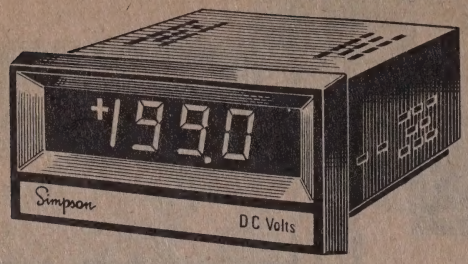


31

19

Simpson Digital Panel Meters

MODEL 2850 DIGITAL PANEL METERS



Compact, ruggedly built digital panel meter utilizes 0.55" Planar gas discharge display. Features automatic zero and polarity. Provides BCD output. Input/output edge connector is included. LSI circuitry insures reliability. Instrument fits 3.622" x 1.68" (92 x 42.72 mm) output. With optional adaptors (listed below) fits 3.622" x 1.77" (92 x 45 mm) or 3.92" x 1.68" (99.57 x 42.72 mm) cutouts. Manual included with meter.

- **3½ digit readout**
- **0.1% of reading accuracy**
- **120/240 VAC, 50-400 Hz operation**
- **0.55" Planar gas discharge display**
- **BCD output is standard**

DC VOLTAGE METERS

Stock No.	Range	Maximum Ind.	Input R	Overload Prot.	Each
55F1642	200mV	±199.9mV	100M	350V	144.90
55F1643	2V	±1.999V	100M	350V	
55F1644	20V	±19.99V	10M	350V	
55F1645	200V	±199.9V	10M	350V	

DC CURRENT METERS

Stock No.	Range	Maximum Ind.	Voltage Drop FS	Maximum Input I	Each
55F1646	20μA	±19.99μA	200 mV	20mA	144.90
55F1647	200μA	±199.9μA	200 mV	20mA	
55F1648	2mA	±1.999mA	200 mV	20mA	
55F1649	20mA	±19.99mA	200 mV	100mA	
55F1650	200mA	±199.9mA	200 mV	1A	

OPTIONAL MOUNTING HARDWARE

Type 22992. Adapter for IEC/DIN cutouts. Panel cutout 3.622" x 1.77" (92 x 45 mm).
55F1651. NET.....3.15

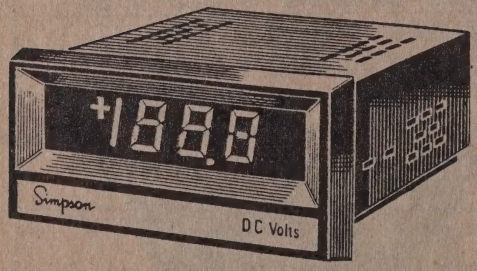
Type 22993. Adapter for 1.682" x 0.920" cutout.
55F1652. NET.....3.15

Type 22991. "U" type mounting bracket.
55F1653. NET.....3.15

SPECIFICATIONS

Accuracy: ±(0.1% of reading + 1 digit), from 15°C to 35°C.
Temp. Coefficient: ±(0.01% of reading +0.05 digit) per °C, from 0°C to +55°C.
Sensitivity: 100 μV for 200 mV unit; 10 nA for 20 μA unit.
Resolution: 1 part in 2,000.
Input Bias Current: 40 pA maximum at reference conditions.
Response Time (to rated accuracy): Less than 800 milliseconds.
Normal Mode Rejection: 55 dB minimum at 60 Hz.
Common Mode Rejection (with 1kΩ unbalance at 60 Hz): 90 dB min.
Rated Circuit-to-Ground Voltage (Max. Common Mode Voltage): 350 VDC between either input terminal and power line ground.
Conversion: Technique, Charge Balance.
Rate, 4 samples per second, nominal.
Display: Type: 7 segment planar gas discharge, 0.55".
Number of digits: 3½.
Polarity: Automatic with "+" or "−" indication.
Out-of-Range: All digits blink.
Decimal Point: Fixed with range.
Oper. Temp.: 0°C to +55°C.
BCD Outputs: Logic Form: C-MOS compatible, positive logic, parallel-bit, serial-digit format.
Logic Levels: "0" = 0 to +0.4VDC
"1" = +2.4 to +5.25VDC
Weight: 1 lb. (435 g) Approx.
Dimensions: 3.9" wide x 1.93" high x 4.27" deep (99 x 49 x 109 mm).
Power Requirement: 120 or 240 VAC ±10%, 50-400 Hz.

MODEL 2860 DIGITAL PANEL METER



Single LSI chip contains all analog to digital circuitry and provides high reliability. Compact units are available for 5 VDC (Model 2861) or 120 VAC (Model 2860) input power. Input/Output edge connector included.

SPECIFICATIONS

Accuracy: ± (0.1% of reading +1 digit) at reference conditions. **Temperature Coeff.:** ± (0.01% of reading +0.05 digit) per °C from 0°C to 55°C. **Resolution:** One part in 2,000. **Sensitivity:** 100 μV for 200 mV unit; 10 nA for 20 μA unit. **Input Bias Current:** 100 pA max. at reference conditions. **Response Time (to rated accuracy):** Less than 800 msec. **Common Mode Rejection (with 1k ohm unbalance at 60Hz):** 90 dB min. **Normal Mode Rejection:** 50 dB minimum at 60Hz. **Rated Circuit to Ground Voltage (Maximum Common-Mode Voltage):** 350 VDC between either input terminal and power line ground. **Conversion:** Technique, up-down integration. Rate, 4 samples per second. **Display:** Type, 7-segment, LED, 0.43" high numerals. 3½ digit. Automatic polarity, with "-" indication. Decimal point fixed with range. All digits blank except for "1" indicates Out-of-Range. **Power Requirement:** 120 or 220-240 VAC ±10%, 50-400Hz, 3 VA (Mod 2860). 5 VDC ±5% at 100 mA (Mod. 2861). **Operating Temperature Range:** 0°C to +55°C. **Warm-up Time:** Less than 2 minutes at reference conditions. **Reference Conditions:** Temperature: 23°C ±2°C Atmospheric Pressure: 575 to 800 mmHg. Relative Humidity: 30 to 60%. **Dimensions:** 3.9" wide x 1.93" high x 4.27" deep (99 x 49 x 109mm). **Weight:** Approximately 1 lb. (453 g).

DC CURRENT

MODEL 2860

Stock No.	Type No.	Range	EACH
55F1692	24304	20 μA	88.20
55F1693	24305	200 μA	
55F1694	24306	2 mA	
55F1695	24307	20 mA	
55F1696	24308	200 mA	

MODEL 2861

55F1701	24404	20 μA	77.85
55F1702	24405	200 μA	
55F1703	24406	2 mA	
55F1704	24407	20 mA	
55F1705	24408	200 mA	

DC VOLTAGE

MODEL 2860

Stock No.	Type No.	Range	EACH
55F1688	24300	200 mV	88.20
55F1689	24301	2 V	
55F1690	24302	20 V	
55F1691	24303	200 V	

MODEL 2861

55F1697	24400	200 mV	77.85
55F1698	24401	2 V	
55F1699	24402	20 V	
55F1700	24403	200 V	

Wide-Vue Panel Meters

Simpson

SPECIFICATIONS OF WIDE VUE METERS

Size	Type and Model No. DC	AC Rectifier	AC Iron Vane	RF	Watt
1½"	1212, 1212T	1214	.....	.....	.....
2½"	1227, 1227T	1247	1257	.....	.....
3½"	1327, 1327T	1347	1357	1337	.....
4½"	1329, 1329T	1349	1359	1339	1379

DC VOLTMETERS Self-Shielding Meter Movements

Range	Approx. Resistance (ohms)	Model 1212 1½" Stock No.	Model 1212 1½" NET	Model 1227 2½" Stock No.	Model 1227 2½" NET	Model 1327 3½" Stock No.	Model 1327 3½" NET	Model 1329 4½" Stock No.	Model 1329 4½" NET
0-5	1000 ohms per volt	55F436	28.95	55F1143	30.90	55F1146	32.10	.....	.....
0-10		55F437	28.95	55F1500	30.90	55F1550	32.10	55F1600	34.95
0-15		55F438	28.95	55F1501	30.90	55F1551	32.10	55F1601	34.95
0-25		55F439	28.95	55F1502	30.90	55F1552	32.10	55F1602	34.95
0-30		55F440	28.95	55F1503	30.90	55F1553	32.10	55F1603	34.95
0-50		55F441	28.95	55F1504	30.90	55F1554	32.10	55F1604	34.95
0-100		55F442	28.95	55F1505	30.90	55F1555	32.10	.....	.....
0-150		55F443	28.95	55F1506	30.90	55F1556	32.10	55F1606	34.95
0-200		.....	.....	.....	.....	55F1148	32.10	.....	.....
0-500	2000 ohms per volt	.....	.....	.....	.....	55F1558	32.10	.....	.....

DC AMMETERS Self-Shielding Meter Movement (*) require external shunt.

Range									
0-1	.050	55F447	28.95	55F1172	29.70	.....	.....	.....	.....
0-1.5	.033	.....	.....	55F1173	29.70	55F1181	30.90	55F1191	33.45
0-2	.025	55F448	28.95	.....	.....	55F1560	30.90	.....	.....
0-3	.0166	55F449	28.95	.....	.....	55F1561	30.90	.....	.....
0-5	.010	55F466	28.95	55F1512	29.70	55F1562	30.90	55F1612	33.45
0-10	.005	55F467	28.95	55F1513	29.70	55F1563	30.90	55F1613	33.45
0-15	.0033	.....	.....	55F1176	29.70	55F1564	30.90	55F1614	33.45
0-25	.0020	.....	.....	55F1177	29.70	55F1565	30.90	55F1615	33.45
0-30	.0017	.....	.....	.....	.....	55F1182	30.90	55F1192	33.45
0-50	.001	.....	.....	55F1178	29.70	55F1566	30.90	55F1616	33.45
0-100	10.0	.....	.....	55F1179	29.70	55F1183*	30.90	55F1193*	33.45
0-200	10.0	.....	.....	.....	.....	55F1185*	30.90	55F1195*	33.45
0-300	10.0	.....	.....	.....	.....	.....	.....	55F1196*	33.45
0-500	10.0	.....	.....	.....	.....	.....	.....	55F1197*	33.45

DC MILLIAMMETERS Self-Shielding Meter Movement

0-1	43	55F481	27.60	55F1517	29.25	55F1567	30.00	55F1617	32.10
0-3	2.0	.....	.....	55F1198	29.25	55F2501	30.00	.....	.....
0-5	2.0 (20†)	55F482	27.60	55F1518	29.25	.....	.....	.....	.....
0-10	10-0(2.2†)	55F483	27.60	55F1519	29.25	.....	.....	.....	.....
0-15	6.6 (2.2†)	.....	.....	.....	.....	55F2502	30.00	.....	.....
0-20	5.0	.....	.....	.....	.....	55F2503	30.00	55F2508	32.10
0-25	4.0 (6.0†)	55F485	28.95	55F1520	29.70	55F1570	30.90	.....	.....
0-50	2.0 (3.0†)	55F486	28.95	55F1521	29.70	55F1571	30.90	.....	.....
0-100	1.0 (1.5†)	55F487	28.95	.....	.....	55F1572	30.90	55F1622	33.45
0-200	.50 (.75†)	55F489	28.95	55F1524	29.70	.....	.....	55F1624	33.45
0-250	.40 (.60†)	.....	.....	55F2500	29.70	.....	.....	.....	.....
0-300	.33 (.50†)	55F491	28.95	.....	.....	.....	.....	.....	.....
0-500	.20 (.30†)	55F492	28.95	55F1527	29.70	55F1577	30.90	55F1627	33.45

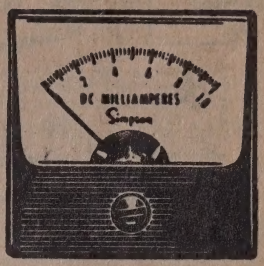
DC MICROAMMETERS Self-Shielding Meter Movement

0-50	1800 (5500†)	55F473	36.15	55F1529	37.20	55F1579	38.10	55F1629	40.80
0-100	1800	55F474	32.40	55F1530	33.45	55F1580	34.95	55F1630	38.10
0-200	1100	.....	.....	55F1531	30.45	55F1581	32.10	55F1631	34.95
25-0-25	1800 (5500†)	55F477	36.45	.....	.....	.....	.....	.....	.....
50-0-50	1800	55F478	32.70	55F1533	34.20	55F1583	34.95	55F1633	39.00
100-0-100	1100	55F479	29.70	55F4850	30.90	55F2513	32.40	.....	.....

TAUT BAND DC MICROAMMETERS

Range	Approx. Ω	Model 1212T	Model 1227T	Model 1327T	Model 1329T
0-10	4900	.....	.....	55F2228 61.80	.....
0-25	1960	.....	55F2225 51.45	55F2230 53.85	.....
0-100	500	.....	.....	.....	55F2237 42.00

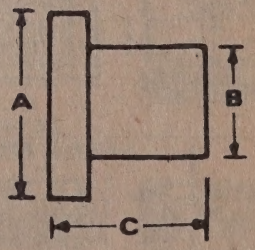
(†) Resistances of Model 1212



Accuracy
DC; RF; AC Iron Vane Wattmeters ±2%
AC Rectifier Meters ±3%

Scale Length	Pointer
1.50" (38.1mm)	Lance, Black
2.30" (58.4mm)	Spade, Black
3.14" (79.7mm)	
3.93" (100mm)	

All meters have self shielded type movement (calibration not affected by magnetic fields or magnetic mounting). DC ammeters up to 50 amps are self contained. All meters are accurate ±2% of F.S. Plastic covers for maximum protection of meter face. Average shipping weight 1 lb.



SIZE CHART

Model	A	B	C
1212	1.76"	1.50"	.87"
1227	2.47"	2.17"	1.06"
1327	3.25"	2.73"	1.08"
1329	4.68"	2.75"	1.08"

Simpson

Panel Meters

WIDE-VUE PANEL METERS

AC VOLTMETERS from Vane Type Movement

Range	Approx. Impedance (ohms) @60 Hz	Model 1257 Stock No.	Model 1257 Net	Model 1357 Stock No.	Model 1357 Net	Model 1359 Stock No.	Model 1359 Net
0-10	133	55F1534	28.05	.....	.....	.....	.....
0-50	3,333	.....	.....	55F2527	29.55	55F2534	32.85
0-150	25,000	55F1535	29.55	55F1585	31.35	55F1635	33.45
0-300	50,000	55F1536	29.55	55F1586	31.35	55F1636	33.45
0-500	83,333	.....	.....	55F2530	39.90	55F2537	42.45

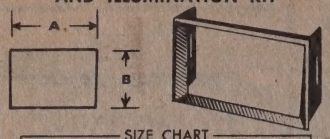
AC AMMETERS Iron Vane Type Movement

0-1	.213	.....	.....	55F1537	28.05	55F1587	29.85
0-2	.065	.....	.....	55F2589	28.05	55F2596	29.85
0-3	.028	.....	.....	55F2590	28.05	55F2597	29.85
0-5	.008	55F2582	26.85	55F1538	28.05	55F1588	29.85
0-10	.004	55F2583	26.85	55F1539	28.05	55F1589	29.85
0-15	.0025	55F2584	26.85	55F1540	28.05	55F1590	29.85
0-25	.002	55F2585	27.60	55F1541	29.25	55F1591	30.90
0-50	.001	55F2586	27.60	55F1542	29.25	55F1592	30.90
0-75	.0002	.....	.....	55F1008	31.35	.....	.....
0-100	.008	.....	.....	55F2591	28.05	55F2598	29.85
0-200	.008	.....	.....	.....	.....	55F2600	29.85
0-300	.008	.....	.....	55F2594	28.05	.....	.....

AC MILLIAMMETERS Iron Vane Type Movement

0-50	80	.....	.....	55F2539	28.05	.....	.....
0-100	17.2	.....	.....	55F2540	28.05	.....	.....
0-250	3.15	.....	.....	55F2541	28.05	.....	.....
0-500	.9	55F2538	26.85	.....	.....	.....	.....

WIDE VUE MOUNTING BEZEL AND ILLUMINATION KIT



SIZE CHART

Part No.	A	B
1253	3.390	2.078
1123	4.812	2.750

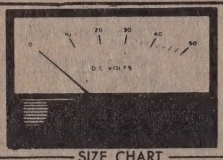
Type 01253—use with Models 1327, 1337, 1347, 1357.

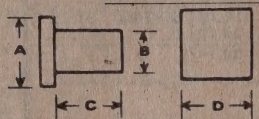
Type 01123—use with Models 1329, 1339, 1349, 1359, 1379.

Type 01165. Illumination kit for abv.

Prices

Stk. No.	Type	Net
55F4353	01253	3.75
55F4354	01123	3.75
62F1446	01165	3.60





SIZE CHART

Model	A	B	C	D
523	2.67	2.16	1.31	3.95
524	2.90	2.16	1.31	4.50

2% FS accuracy. Black phenolic with glass windows. Hardware.
523: scale length 79mm.
524: scale length 89mm.

VU METERS Self-Shielding

Scale	Model 543 3½" Stock No.	Model 543 3½" Net	Model 544 4½" Stock No.	Model 544 4½" Net
"A" Scale	55F748	49.50	55F764	54.15
"A" Scale, Illuminated	62F3337	54.60	62F3338	58.80

DESIGNER SERIES PANEL METERS

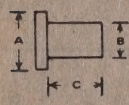
DC VOLTMETERS Self-Shielding

Range	Approx. Resistance (ohms)	Model 523 3½" Stock No.	Model 523 3½" NET	Model 524 4½" Stock No.	Model 524 4½" NET
0-5	1000 ohms per volt	62F3315	32.10	.....	.....
0-10		.....	.....	62F3320	34.95
0-15		55F735	32.10	.....	.....
0-30		55F736	32.10	.....	.....
0-150		62F3318	32.10	.....	.....

DC MICROAMMETERS Self-Shielding

0-25	2100	55F717	46.95	.....	.....
0-50	1800	55F718	38.10	55F724	40.80
0-100	1800	55F719	34.95	55F725	38.70
50-0-50	1800	55F721	34.95	55F727	39.00
100-0-100	1100	55F722	32.40	.....	.....

CENTURY SERIES METERS



SIZE CHART

Model	A	B	C
2121	1½"	1.51	2.04
2122	2½"	2.16	2.04
2123	3½"	2.69	2.04
2124	4½"	2.69	2.04
2152	2½"	2.16	2.04
2153	3½"	2.69	2.04
2154	4½"	2.69	2.04

DC VOLTMETERS—Self-Shielding Meter Movement

Range	Res. ohms	Model 2121 1½" Stock No.	Model 2121 1½" Net	Model 2122 2½" Stock No.	Model 2122 2½" Net	Model 2123 3½" Stock No.	Model 2123 3½" Net	Model 2124 4½" Stock No.	Model 2124 4½" Net
0-5	1000 ohms per volt	.....	.....	55F5357	30.90	.....	.....	.....	.....
0-10		.....	.....	55F5358	30.90	.....	.....	.....	.....
0-15		55F5412	28.95	55F5359	30.90	55F5368	32.10	55F5377	34.95
0-25		.....	.....	55F5360	30.90	.....	.....	.....	.....
0-30		55F5413	28.95	.....	.....	55F5370	32.10	.....	.....
0-50		.....	.....	55F5362	30.90	55F5371	32.10	.....	.....
0-100		.....	.....	55F5363	30.90	.....	.....	.....	.....
0-150		.....	.....	55F5364	30.90	55F5373	32.10	.....	.....

DC AMMETERS

Range	Ohms	Model 2122 2½" Stk. No.	Model 2122 2½" Net	Model 2123 3½" Stk. No.	Model 2123 3½" Net	Model 2124 4½" Stk. No.	Model 2124 4½" Net
0-3	.0166	55F5252	29.70	55F5259	30.90	.....	.....
0-5	.010	55F5253	29.70	55F5260	30.90	.....	.....
0-10	.005	55F5254	29.70	.....	.....	.....	.....
0-15	.0033	55F5255	29.70	.....	.....	.....	.....
0-25	.0020	55F5256	29.70	55F5263	30.90	.....	.....
0-50	.001	55F5257	29.70	.....	.....	52F5272	33.45
0-100	10.0	.....	.....	55F5265	30.90	52F5273	33.45

DC MICROAMMETERS

0-50	1800(5500†)	55F5300	37.20	.....	.....	55F5322	40.80
0-100	1800	55F5301	33.45	55F5311	34.95	55F5324	38.70
0-200	1100	.....	.....	55F5313	32.10	55F5326	34.95
25-0-25	1800(5500†)	.....	.....	55F5315	38.40	55F5328	40.95

(†) Resistance of Model 2121

AC VOLTMETERS

Range	Approx. Imp. (ohms) @ 60 Hz.	Model 2153—3½" Stock No.	Model 2153—3½" NET	Model 2154—4½" Stock No.	Model 2154—4½" NET
0-150	25,000	55F5387	31.35	55F5392	33.45
0-250	41,166	55F5388	31.35	.....	.....
0-300	50,000	55F5389	31.35	.....	.....

DC MILLIAMMETERS

Range	Res. ohms	Model 2122 2½" Stock No.	Model 2122 2½" NET	Model 2123 3½" Stock No.	Model 2123 3½" NET
0-3	2.0	.....	.....	55F5341	30.00
0-5	2.0(20†)	.....	.....	55F5342	30.00
0-25	4.0(6.0†)	.....	.....	55F5344	30.90
0-100	1.0(1.5†)	55F5337	29.70	.....	.....
0-500	.20(.30†)	.....	.....	55F5349	30.90

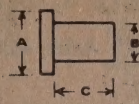
AC AMMETERS

Range	Imp. Ohms @ 60 Hz	Model 2152 2½" Stock No.	Model 2152 2½" NET	Model 2153 3½" Stock No.	Model 2153 3½" NET	Model 2154 4½" Stock No.	Model 2154 4½" NET
0-5	.008	55F5275	26.85	55F5284	28.05	55F5291	29.85
0-10	.004	55F5276	26.85	55F5285	28.05	55F5292	29.85
0-15	.0025	55F5277	26.85	55F5286	28.05	.....	.....
0-25	.002	55F5278	27.60	55F5287	29.25	.....	.....
0-50	.001	55F5280	27.60	55F5288	29.25	55F5295	30.90

Round and Rectangular Panel Meters

Simpson

SIZE CHART			
Model	A	B	C
25, 55	3.50″	2.75″	1.31″
27, 47, 57	3.12″	2.75″	1.36″
29, 59	4.20″	2.75″	1.00″
77	3.12″	2.75″	2.11″
79	4.20″	2.75″	1.68″
142	3.94″	3.25″	1.00″



All DC meters have the Simpson self shielded movement and are self contained for ranges up to and including 50 amperes. Higher range DC ammeters (50MV) listed are calibrated for 5 ft. leads and require external shunts. Accuracy ±2% of full scale.

Model 27

Model 25

Model 29

DC VOLTMETERS Self-Shielding Meter Movement

Range	Res. ohms	3½″ Case Model 25	3½″ Case Model 27	3½″ Case Each	4½″ Case Model 29	4½″ Case Each
0-5	1000 ohms per volt	.....	55F039	32.10	55F251	34.95
0-15		.....	.....			
0-25		.....	55F038		.....	.....
0-30		55F1112	.....	32.10	55F145	34.95
0-50		55F1015	55F043		55F183	
0-100		62F3253	.....		55F252	
0-150		.....	55F045		55F170	
0-250		55F1018	.....	32.10	.....	.....
0-300		.....	.....	.....	55F184	34.95
0-3000†	2000 ohm/vt.	.....	.....	.....	55F255	46.65

(†) External multipliers model 183 furnished with meter.

DC MICROAMMETERS Self-Shielding Meter Movement

0-50	1800	55F1031	.....	38.10	.....	.....
0-50	1800	.....	55F071	38.10	55F176	40.80
0-100	1800	.....	55F072	34.95	55F177	38.70

DC AMMETERS Self-Shielding Meter Movement

0-2	.025	.....	.....	30.90	55F259	33.45
0-3	.0166	55F1057	.....		55F260	
0-5	.010	.....	.....		55F210	
0-10	.005	.....	55F064	30.90	55F211	33.45
0-25	.0020	55F1060	.....		55F261	
0-30	.0017	.....	55F4828		.....	
0-50	.001	.....	.....	30.90	55F212	33.45
0-200*	10.0	62F3268	.....		.....	
0-300*	10.0	.....	.....		62F3279	
0-500*	10.0	.....	.....		62F3280	
30-0-30	.0017	55F1062	.....	32.70	.....	.....

(*) Require external shunt.

AC VOLTMETER Iron Vane Type Movement

Range	Approx. Imp. Ohms 60 Hz	3½″ Case Model 55	3½″ Case Model 57	3½″ Case Each	4½″ Case Model 59	4½″ Case Each
0-10	133	55F1067	.....	29.55	.....	.....
0-50	33,333	55F1069	.....	29.55	.....	.....
0-150	25,000	55F1071	55F115	31.35	55F181	33.45
0-250	41,166	.....	55F273	31.35	62F3296	33.45
0-300	50,000	55F1072	62F3291	31.35	55F191	33.45
0-500†	83,333	.....	.....	.....	55F192	42.45
0-1000†	166,666	.....	55F275	46.20	.....	47.70

(†) External multipliers model 183 furnished with meter.

AC AMMETERS Iron Vane Type Meter Movement

0-3	.028	.....	.....	28.05	55F194	29.85
0-5	.008	55F1088	.....	28.05	55F195	29.85
0-10	.004	55F1089	55F134	28.05	55F196	29.85
0-15	.0025	55F1119	55F156	28.05	55F282	29.85
0-25	.002	55F1090	55F135	29.25	55F197	30.90
0-50	.001	55F1091	55F136	29.25	55F219	30.90
0-100**	.008	55F1121	.....	28.05	55F284	29.85
					62F3305	29.85
					62F3306	29.85

(**) Require external transformer.

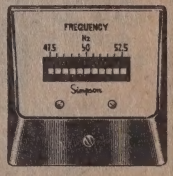
WATTMETERS Dynamometer Type Single Phase Accuracy ±2%

Range	Maximum Volts	Maximum Amps	Model 79 Stock No.	Model 79 Each
0-75	150	1.0	55F232	76.65
0-150	150	2.0	55F233	
0-300	150	4.0	55F234	
0-750	150	10.0	55F235	81.45
0-1500	300	10.0	55F236	
0-3000	300	20.0	55F1140	

FREQUENCY METERS—RESONANT TYPE

Stock No.	Hz Rating	Case Mod.	Case Size	Case Style	No. Reeds	Hz Between Reeds	Type No.	Each
57F2463	55-60-65	2163	3½″	Century	11	1	03496	69.90
55F5180	47.5-50-52.5	2163	3½″	Century	11	.5	03490	69.90
55F5181	57.5-60-62.5	2163	3½″	Century	11	.5	03491	64.80

Frequency: 50, 60, or 400 Hz. nom. No. of reeds: 11 general purpose, 21 high resolution. Accuracy ±0.3% of mid-scale. Temp. Coeff. −0.017% per°C max. Operating voltage 100-150VAC. Uses tuned steel reeds to indicate AC frequency.



2½″ and 3½″ AC ELAPSED TIME METERS

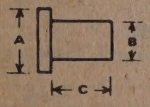
55 ET

57 ET

108 ET

1357 ET

2153 ET



SIZE CHART			
Model	A	B	C
108 ET	2.69	2.20	2.30
55 ET	3.50	2.75	2.55
57 ET	3.12	2.75	2.60
1357 ET	3.25	2.75	2.37
2153 ET	3.00	2.69	1.34

Widely used by research laboratories, manufacturing plants, and broadcast stations. 120 or 240 V AC operation. Synchronous accuracy. Model 55 ET; Standard round styling. Model 57 ET; Standard rectangular styling. Model 108 ET; Interchangeable round and square front mounting bezels. Model 1357 ET: Wide-Vue styling. Model 2153 ET: Century Series styling.

120 VAC Models (±10%) 60 Hz

Maximum Indication (Hours)	Power Req.	Acc.	Model Size	Model (Type) No.	Stock No.	Each
9,999.9	2.5 W	synch.	2½″	108 ET	57F2472	61.20
99,999.9	5 W	synch.	3½″	55 ET	55F4359	36.90
99,999.9	5 W	synch.	3½″	1357 ET	55F4360	36.90
99,999.9	5 W	synch.	3½″	57 ET	55F4361	36.90
99,999.9	5 W	synch.	3½″	2153 ET	57F2473	36.90

240 VAC Models (±10%) 60 Hz

Maximum Indication (Hours)	Power Req.	Acc.	Model Size	Model (Type) No.	Stock No.	Each
99,999.9	5 W	synch.	3½″	55 ET	55F4363	37.20
99,999.9	5 W	synch.	3½″	57 ET	55F4364	
99,999.9	5 W	synch.	3½″	1357 ET	55F4365	
99,999.9	5 W	synch.	3½″	2153 ET	57F2475	

Simpson Meter Relays and Controllers

METAL CASED "RUGGED SEAL" CONTROLLERS AND METER RELAYS

3½"

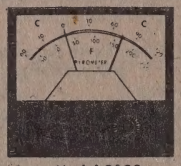
4½"

Contactless type. Photoconductor sensing. High gain transistor switch circuit. Fail safe circuitry. DPDT output relays, 10 amp contacts. Sealed metal case. Glass window. Self-shielding annular movement. 115 VAC, 50-500 Hz. Acc. ±2% FS.

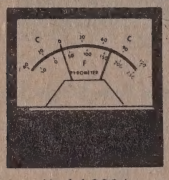
Range	Approx. Res. (ohms)	3½" Single Control Pt. (High Limit) Stock	3½" Single Control Pt. (High Limit) 1-9	3½" Double Control Pt. Stock	3½" Double Control Pt. 1-9	4½" Single Control Pt. (High Limit) Stock	4½" Single Control Pt. (High Limit) 1-9	4½" Double Control Pt. Stock	4½" Double Control Pt. 1-9
DC MICROAMPERES TAUT BAND		Model 3323TXA				Model 3324TXA			
0-50	2000					55F2467	154.95		
0-100	570			55F754	186.75	57F2540	150.15		
DC MILLIAMPERES		Model 3323XA				Model 3324XA			
0-1	43					57F2527	144.15		
DC MILLIVOLTS						Model 3324XA			
0-50	50							57F2508	186.75

PYROMETERS

Model 29



Model 2123



Model 3324

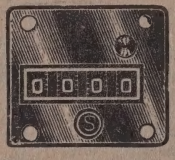
Available in a variety of styles and ranges, all models are manufactured with ambient (bimetal) cold-junction and circuit copper compensation. Accuracy: 2%. Each pyrometer furnished with external, adjustable series resistor to permit use of lower resistance thermocouples in the field. Thermocouples not included. Thermocouples required are either Iron/Constantan (I/C) or Chromel/Alumel (C/A). Model 29-standard phenolic. Model 2123-3½" Century series style. Model 2124-4½" Century series style. Modest 3324-Rugged seal, metal cased for extreme conditions.

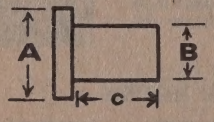
Temperature Range °F	Temperature Range °C	Approx. Sen. (mA)	Model 29 Stk. No.	Model 29 Each	Model 2123 Stk. No.	Model 2123 Each	Model 3324 Stk. No.	Model 3324 Each
-150/+250*†	-100/+120*†	.40			62F3216	53.55		
0/+300*†	-20/+150*†	.40	55F701	55.35	62F3217	53.55		
0/+500*†	-20/+260*†	.35	55F702	55.35	62F3218	53.55	55F706	75.45
0/+750*†	-20/+400†	.30	55F703	55.35	62F3219	53.55	55F707	75.45
0/+1000†	-20/+540†	.28					62F3232	75.45
0/+1500**	-20/+820**	.42			62F3221	49.50		
0/+2000**	-20/+1200**	.43					62F3234	71.55
0/+2500**	-20/+1380**	.40			62F3233	71.55	62F3235	71.55

(*) Taut Band. (†) I/C Thermocouple. (**) C/A Thermocouple.

ELECTRO-MECHANICAL COUNTERS

MODELS 103 & 104 4-DIGIT COUNTERS





SIZE CHART

Model	A	B	C
103+104	1.84"	1.03"	1.88"

Four-Digit Counters, rated at 10 counts per second. Are reset to 0000 with a single push-button control. The black matte finish bezel is made from tough thermosetting materials which withstand high impacts. Min. pulse duration is 500 millisec. "on" and 50 millisec. "off". Power Consump; 4.2 watts (nominal).

Stock No.	Type	Voltage	NET
55F4853	103	117VAC	32.40
55F4854	104	6VDC	
55F4855	104	12VDC	

THERMOCOUPLES, SHUNTS AND TRANSFORMERS

SHUNTS FOR DC AMMETERS

For use with switchboard and panel meters where external shunts are required. Includes 5" leads. Shpg. wt. 1 lb.

EXTERNAL PORTABLE

Stock No.	Type	Amps	Each
55F294	6700	1	17.40
55F295	6703	5	
55F264	6704	10	
55F265	6705	15	
55F296	6707	25	

EXTERNAL PORTABLE (Cont'd)

Stock No.	Type	Amps	Each
55F266	6709	50	17.40
55F267	6711	75	
55F2569	6713	100	
55F2570	6715	200	

SWITCH BOARD SHUNTS

55F2572	6504	200	18.60
55F2573	6506	300	18.60
55F298	6508	500	26.85

CURRENT TRANSFORMERS FOR AC AMMETERS

Inserted one turn primary type for use with switchboard and panel ammeters where external transformers are required.

Stock No.	Type	Pri.	Sec.	Each
55F269	1293	50 amps	5	15.75
55F2575	1306	75 amps	5	
55F270	1297	100 amps	5	
55F2576	1298	150 amps	5	
55F2577	1299	200 amps	5	
55F2578	1300	300 amps	5	
55F2579	1301	500 amps	5	

THERMOCOUPLES

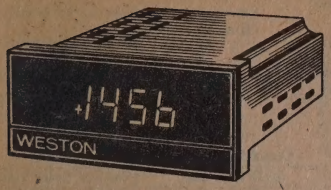
Types 21221 and 21224. Iron-constantan thermocouple wire in stainless steel overbraid. Glass cloth overbraid. Wt. ¼ lb.

Types 21222 and 21233. Glass cloth overbraid. For gen. purpose use.
Types 21231 and 21232. C/A types.

Stock No.	Type	Resistance	Each
55F708	21221	5 ohms	24.15
55F709	21222	10 ohms	8.80
55F710	21223	10 ohms	7.35
55F711	21224	10 ohms	43.55

Digital Panel Meters

WESTON



SERIES 2460 DC VOLTMETERS

3½ digit LED AC line powered digital panel meters. **Features:** Dual Slope integration A/D conversion, .6" high brightness LED display, Isolated input sections, Immunity to common mode and ground loop effects, External sync input terminals for synchronous A/D conversions up to 25 per second. Resolution of .05%. Accuracy of .05% Rdg. ±1 count. Series Mode Rej.: 30 dB min. Common Mode Rej.: 80 dB min. Measurement rate: Internal- 2/Sec., External- 25/Sec. Power Required: 117/234 or 220/240VAC, 50-400 Hz, 3.5 W. Operating ambient: 0-50°C. **TYPE 2461:** Input config.: Floating single-ended. Input bias current: 3nA max. BCD fanout: 2 Low Power TTL. **TYPE 2462:** Input config.: Floating single-ended. Input bias current: 3 nA max. BCD fanout: 2 TTL unit loads. **TYPE 2463:** Input config.: Floating balanced diff. Input bias current: 3 nA max. Input offset current: 1 na max. BCD fanout: 2 low power TTL. Common mode voltage: 1.5V max. **TYPE 2464:** Input config.: Floating balanced differential. Input bias current: 3 nA max. Input bias current: 1nA max. Input offset current. BCD fanout: 2 TTL unit loads. Common mode voltage: 1.5 V max. **TYPE 2465** Input impedance: 100 Meg. Max. overload: 60 V. **TYPE 2466:** 5 VDC, 2 W. to operate. Input impedance: 100 Meg. Max. Max overload: 60V. **TYPES: 2461, 2462, 2463, 2464** Require: 117/234 VAC, 50-400 Hz., 3.5 W. **Panel Cut-out:** 4"D x 3.924"W x 1.682"H. **WT.** 13 oz. approx. *UL recognized.

Stk. No.	Type	Range	Input Imp.	Each
62F483	2461-0278383	100 mV	100 meg	**127.50**
62F484	2461-0278384	1 V	100 meg	**127.50**
62F485	2462-0278387	100 mV	100 meg	**137.50**
62F486	2462-0278388	1 V	100 meg	**137.50**
62F489	2463-0278375	100 mV	15 meg	**130.00**
62F490	2463-0278376	1 V	150 meg	**130.00**
62F491	2464-0278379	100 mV	15 meg	**140.00**
62F492	2464-0278380	1 V	150 meg	**140.00**
55F4910	2465-0278603	100 mV	100 meg	**89.00**
55F4911	2465-0278604	1 V	100 meg	**89.00**
55F4912	2466-0278607	100 mV	100 meg	**90.00**
55F4913	2466-0278608	1 V	100 meg	**90.00**
55F4914	2461-0279982	100 mV	100 meg	**139.00**
55F4915	2462-0279986	100 mV	100 meg	**149.00**
55F4916	2463-0279990	100 mV	15 meg	**141.00**

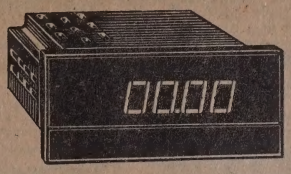
9790-0267253. PC Bd. Connector.
62F274. NET **4.75**

MODEL 9744 RMS TRANSDUCER

Solid state single range provides DC output signal proportional to rms of input signal. 5 voltage ranges. Input impedance 1 megohm suitable for signal or power applications. 0-1 VDC output for D or A indicating devices. Less than 0.5% error on 40-10 kHz; iess than 0.35% on 50-400 Hz; no more than 1.5% in the 30-20,000 Hz range. 4:1 crest factor. 4"w x 2.88"d x 1.94"h. Wgt. 9 oz.

Stk. No.	Type 9744-	AC Input	DC Output	Input Imp.	Each
55F4931	0274785	100 mV	1 V	1 MΩ	**180.00**
55F4932	0274786	1 V	1 V	1 MΩ	**190.00**

9760-0267432. PC Bd. Connector.
62F275. NET **4.75**



SERIES 2470 DC VOLTMETERS

Line powered Digital panel meters. Bi-polar integration eliminates dead band around zero. Automatic zero calibration. Temp. controlled voltage reference. Unit within spec 10 min. after turn-on. High brightness 0.6" LED display. 3.5 W power consumption. Cool running operation. Dual Slope Integration rejects noise. Universally accepted and patented Weston Dual Slope Integration (U.S. Patent 3,051,939). Size: 3.875"w x 1.75"h x 4.56"d. Panel cut-out dim. 3.924" x 1.682". Depth behind panel: 4". Wgt. 12.7 Oz. (360 grams)

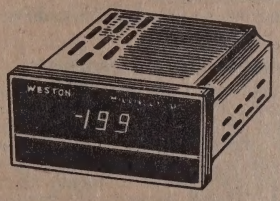
Model 2471 without BCD

Stk. No.	Type 2471-	Range	Input Imp.	Each
55F4917	0280561	100 mV	1000 MΩ	**215.00**
55F4918	0280562	1 V	1000 MΩ	**182.00**
55F4919	0280563	10 V	1 MΩ	**190.00**
55F4920	0280564	100 V	5 MΩ	**192.00**

Model 2472 with BCD

Stk. No.	Type 2472-	Range	Input Imp.	Each
55F4921	0280581	100 mV	1000 MΩ	**235.00**
55F4922	0280582	1 V	1000 MΩ	**202.00**
55F4923	0280583	10 V	1 MΩ	**210.00**
55F4924	0280584	100 V	5 Ω	**212.00**

9790-0267253. PC Board Connector.
62F274. NET **4.75**
9760-0277371. PC Board Connector for BCD output.
55F4925. NET **4.75**



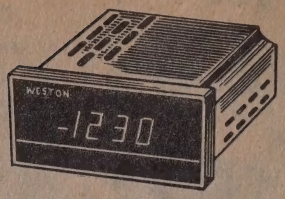
MODEL 1295 BI-POLAR DIGITAL PANEL METER

Bi-polar 3½ digit panel meter features dual slope A/D conversion technique for long term stability. All digital logic on single 24-pin LSI MOS chip. Non-blinking display and 100% overrange (except 1000V range). Automatic bi-polar operation and utilizes only 7 sq. in. of panel space. Accuracy: ±0.1% of reading, ±1 digit. Overrange: 100% (reads 1999). Readout: 7 segment LED's. Op. Temp. range: 0° to 60°C (32° to 140°F). Common mode rejection: 100 dB with 1000 ohm unbalance at 60 Hz. Normal Mode Rejection: 30 dB at 60 Hz. Sampling rate: 3/sec. Response time: Less than 1.5 sec. Power required: 117 VAC, 50-400 Hz; 230 VAC optional. Size: Front, 4"w x 0.56"d x 1.75"h; behind panel, 4.25"d. Wgt. 13 oz.

Model 1295 DC Voltmeters

Stk. No.	Type 1295-	Range	Input Imp.	Each
57F2749	0273561	100 mV	100 Meg	**185.00**
57F2750	0273562	1 V	100 Meg	**185.00**

9760-0267432. PC Bd. Connector.
62F275. NET **4.75**

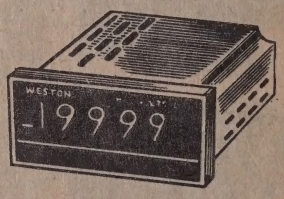


MODEL 1230 DC VOLTMETER

Digital panel meter. TTL logic: 0 to +5 volt output. Parallel BCD output, except during conversion which is identified by print command output, available when specified. BCD to drive 2 loads TTL (sink 3.2 mA). Operating temp: 0-50°C. Storage temp: −40°C to +70°C. Temp. Coefficient: 100 ppm/°C, full scale. Input Bias Current: 2 nA max. Ratio operation: External reference 1.0 nominal or 0.1 V ±20%. Automatic zero setting. Power required: 117/234 VAC ±10%, 4.7 watts, 50-60 Hz. Size: Front, 4"w x 0.56"d x1.75"h; behind panel, 4.25"d; panel cutout, 3.924"w x 1.682"h. Wgt. 1 lb.

Stk. No.	Type 1230-	Range	Input Imp.	Each
57F2720	0274871	100 mV	100 meg	**155.00**
57F2721	0274872	1 V	100 meg	**155.00**
55F4926	0274900	100 mV	100 meg	**160.00**
55F4927	0274901	1 V	100 meg	**160.00**

9790-0267253. PC Bd. Connector.
62F274. NET **4.75**



MODEL 1234 DC VOLTMETERS

4½ digit panel meter with 0.55" high, seven segment gas plasma characters. Accuracy: ±0.01% reading ±0.025% f.s. at 23°C. AC rejection: 40 dB min. at 60 Hz. Common Mode Rejection: 80 dB min. 60 Hz and 1000 ohm unbalance. Reading rate: 7.5 per sec. (15/sec. or 30/sec. optional). Step input response: 2 sec. max. for full-scale step. Op. temp: 0° to 50°C. Power required: 117 VAC ±10%, 50-60 Hz, 6 watts (options of 100, 220, or 240 volts available). Size: 1.75"h x 4"w x4.25"d behind panel. Weight: Approx. 2 lbs.

DC Voltmeters without BCD

Stk. No.	Type 1234-	Range	Input Imp.	Each
62F493	0276493	100 mV	10 meg	**250.00**
62F495	0276495	10 V	5 meg	**250.00**
DC Voltmeters with BCD				
55F4928	0276513	100 mV	10 meg	**260.00**
55F4929	0276514	10 V	5 meg	**260.00**
DC Voltmeter with Buffered BCD				
55F4930	0277698	199.99 mV	10 meg	**295.00**

9790-0267253. PC Bd. Connector.
62F274. NET **4.75**

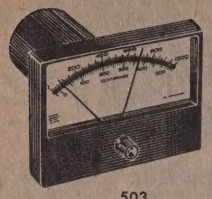
9760-0277-371. Digital BCD Connector.
55F4925. NET **4.75**

19

ALL DIGITAL VOLTMETERS HAVE 100% OVER-RANGE

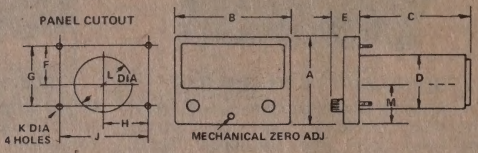
api Indicators and Controllers

COMPACK METER RELAY CONTROLLERS



503

All items listed on this page are single high set point. All circuit components wired fail safe below set point. SPDT relay contacts load rating: 5A resistive at 115 VAC, dial arc: Model 503—4", Model 603—5".



Dimensions (Max.)	A	B	C	D	E
503-K	4.27	4.71	5.50	2.79	1.39
603-K	4.36	5.75	5.50	2.79	1.39

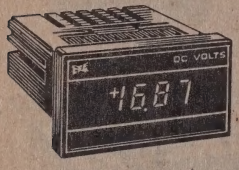
Compact Controller Model Numbers

Style and Size	Optical	Solid State
4½" black phenolic panelist	503-K	503-X
5½" black phenolic panelist	603-K	603-X

CURRENT AND VOLTAGE RANGES	OPTICAL COMPACK CONTROLLERS Stock No. 503-K	Each	Stock No. 603-K	Each	SOLID STATE COMPACK CONTROLLERS Stock No. 503-X	Each	Stock No. 603-X	Each
0 to 50 μADC	55F4501	184.00	55F4698	187.00	62F2517	188.00	55F4754	191.00
0 to 100 μADC	55F4502	178.00	55F5699	181.00	62F2519	188.00	55F4755	191.00
0 to 1 mADC	55F4503	166.00	55F4702	169.00	62F2520	188.00	55F4758	191.00
0 to 10 mVDC	55F4504	182.00	55F4717	182.00	62F2521	181.00	55F4773	184.00
0 to 50 mVDC	55F4505	168.00	55F4718	171.00	62F2522	181.00	55F4779	184.00
0 to 5 AAC	55F4682	187.00	55F4709	191.00	55F4736	208.00	55F4766	211.00
0 to 10 AAC	55F4683	187.00	55F4710	191.00	55F4737	208.00	55F4767	211.00

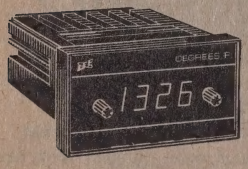
TEMPERATURE RANGES (THERMOCOUPLE) °F	°C	T/C	OPTICAL COMPACK CONTROLLERS ON-OFF CONTROL Stk. No. 503-K	Each	Stk. No. 603-K	Each	SOLID STATE COMPACK CONTROLLERS ON-OFF CONTROL Stk. No. 503-X	Each	Stk. No. 603-X	Each
0 to 300	0 to 150	J	55F4789	210.00	55F4520	213.00	55F4814	229.00	55F4867	232.00
0 to 500	0 to 260	J	55F4790	196.00	55F4521	199.00	55F4815	219.00	55F4868	222.00
0 to 800	0 to 400	J	55F4791	196.00	55F4522	199.00	55F4816	219.00	55F4869	222.00
0 to 1000	0 to 500	J	55F4792	196.00	55F4523	199.00	55F4817	219.00	55F4870	222.00
0 to 1500	0 to 800	K	55F4799	196.00	55F4524	199.00	55F4818	219.00	55F4872	222.00
0 to 2000	0 to 1100	K	55F4801	196.00	55F4831	199.00	55F4819	219.00	55F4873	222.00
0 to 2500	0 to 1370	K	55F4803	196.00	55F4525	199.00	55F4820	219.00	55F4874	222.00

DIGITAL INDICATORS AND CONTROLLERS



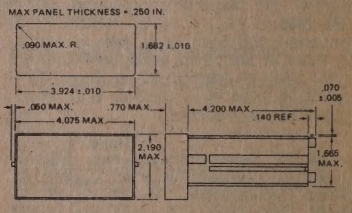
DIGITAL PROCESS INSTRUMENTATION

LFE offers pre-designed signal conditioning boards that allow measurement of temperature and precision AC current and voltage. This approach provides instrumentation to meet many requirements with exceptional performance at low price. The boards are self-contained within the digital panel instrument.
Special OEM requirements for other process parameters can also be met.



DIGITAL CONTROL INSTRUMENTATION

Digital control instrumentation provides adjustable setpoints for alarm and/or control applications in a manner similar to a meter-relay. LFE can provide these adjustable setpoints with signal conditioning, all in one digital panel instrument. Electro-mechanical relays actuated by the setpoints are sufficient to drive large contactors for controlling heavy loads. Optional external AC solid-state relays allow switching up to 40 amperes.



RANGES	Stock No.	INDICATORS Model 4424	Each	Stock No.	CONTROLLER Type Model 4424-K	Each
0 to 199.9 mVDC	55F5676	AF-4700-0400	140.00	65F976	AF-4700-8402	255.00
0 to 1.999 VDC	55F5677	AF-0401-0400		65F977	AF-0401-8402	
0 to 19.99 VDC	65F960	AF-4301-0400		65F978	AF-4301-8402	
0 to 199.9 VDC	55F5678	AF-7701-0400		65F979	AF-7701-8402	
0 to 19.99 μADC	65F961	AF-0802-0400	140.00	65F980	AF-0802-8402	255.00
0 to 199.9 μADC	55F5679	AF-4702-0400		65F981	AF-4702-8402	
0 to 1.999 mADC	55F5680	AF-1003-0400		65F982	AF-1003-8402	
0 to 19.99 mADC	55F5681	AF-4303-0400		65F983	AF-4303-8402	
0 to 199.9 mADC	55F5682	AF-7703-0400		65F984	AF-7703-8402	
0 to 199.9 mVAC	65F962	AF-4705-0400	205.00	65F985	AF-4705-8402	290.00
0 to 1.999 VAC	65F963	AF-0408-0400		65F986	AF-0408-8402	
0 to 19.99 VAC	65F964	AF-4308-0400		65F987	AF-4308-8402	
0 to 199.9 VAC	65F965	AF-7708-0400		65F988	AF-7708-8402	
0 to 500 VAC	65F966	AF-8808-0400		65F989	AF-8808-8402	
0 to 19.99 μAAC	65F967	AF-0807-0400	205.00	65F990	AF-0807-8402	290.00
0 to 199.9 μAAC	65F968	AF-4707-0400		65F991	AF-4707-8402	
0 to 1.999 mAAC	65F969	AF-1008-0400		65F992	AF-1008-8402	
0 to 19.99 mAAC	65F970	AF-4308-0400		65F993	AF-4308-8402	
0 to 199.9 mAAC	65F971	AF-7708-0400		65F994	AF-7708-8402	
THERMOCOUPLE RANGES						
0 to 1000 F (J)	65F972	AF-8204-0400	235.00	65F995	AF-8204-8402	310.00
0 to 550 C (J)	65F973	AF-8004-0410		65F996	AF-8004-8412	
600 to 1800 F (K)	65F974	AF-8804-0400	235.00	65F997	AF-8804-8402	310.00
300 to 1000 C (K)	65F975	AF-8804-0410		65F998	AF-8804-8412	

SPECIFICATIONS FOR DIGITAL CONTROL

Relay: 1 form C (SPDT) for each setpoint, 2 amp resistive load at 28 VDC or 0.5 amp resistive load at 120 VAC.

Latching: Standard on all units. Shorted external connection latches relay whenever de-energized conditions occur. Opening external connection (with an external switch or relay) allows relay to function in on-off mode. Relay will latch in de-energized position upon power failure when external connection is shorted.

ACCESSORIES

Stk. No.	Description	Type	EACH
65F999	Main Bd. Conn.	1125-243	3.50
65F1000	Conversion Bd. Conn.	1125-329	3.50
65F1001	Bezel	241-65	2.00

SPECIFICATIONS: 3½ digits; Accuracy: ±0.05% of reading; Reading rate: 3.3/sec; Noise rejection: 120 dB, DC-60 Hz common; Oper. temp: +5 to +55°C; Power: 105-130 VAC, 50/60 Hz at 4 watts.

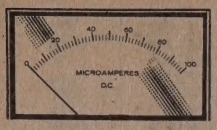
Panel Meters

api

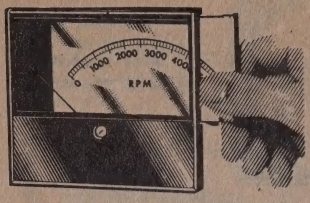
- **Scratch-proof glass windows**
- **Taut band; 1% tracking**

Series 7000 brings you distinctive style, functional flexibility and outstanding performance. Basic stock of meters is easily modified with slide-out scales. Choice of front mount or bezel mount. Glass windows are scratch-proof and static free. Has phenolic fronts and cases. Self shielding for mounting on either magnetic or non-magnetic panels. Accuracy is ±2%.

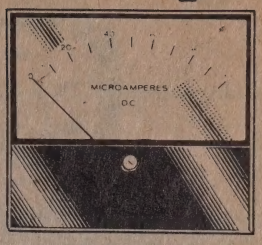
SERIES 7000 DC PANEL METERS



Optional Bezel Mount



Changeable Scale



Standard Front Mount

METER DIMENSIONS

Model	Flange	Body dia.	Depth
7035	3.01x3.51"	2.79"	1.94"
7045	4.05x4.61"	2.79"	1.94"

DC MILLIAMMETERS

Range	Stock No.	7035-3½" Scale 1-up	Stock No.	7045-4½" Scale 1-up
0-1	62F2627	29.75	62F2633	31.75
0-10	62F2629	29.75	.....	.....

DC VOLTMETERS

Range	Stock No.	7035-3½" Scale 1-up	Stock No.	7045-4½" Scale 1-up
0-15	62F2611	31.25	62F2577	33.25

DC MICROAMMETERS

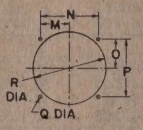
0-10	66F550	56.75	66F554	58.75
0-20	.....	.....	62F2605	47.50
25-0-25	66F551	39.00	.....	.....
0-50	62F2600	39.00	62F2606	41.00
0-100	62F2601	34.25	62F2607	36.25
100-0-100	62F2604	32.00	62F2610	34.00
0-200	.....	.....	62F2609	34.00
0-500	.....	.....	66F556	31.75
500-0-500	66F553	29.75	.....	.....

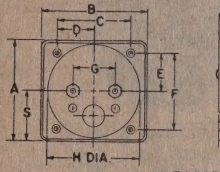
BEZEL AND LENS KITS

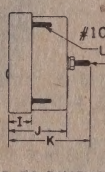
	Stock No.	Type 7035	NET	Stock No.	Type 7045	NET
Bezel Kits	55F5672	1125-226	3.00	55F5674	1125-223	3.00
Lens Kit	55F5673	1125-225	1.50	55F5675	1125-222	1.50

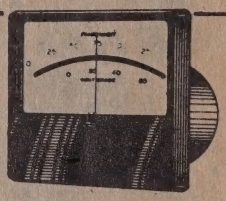
MODEL 503 PYROMETER-2% ACCURACY

Thermocouple actuated with copper error compensation. Automatic bimetal gold junction correction. External resistor adjusts for thermocouples up to 10 ohms. I/C for Iron-Constantan: C/A for Chromel-Alumel; Cu/C, Copper constantan Phenolic case. Scale arc, 4". 21 lbs.









Stock No.	Temperature Range °F	°C	Thermo-Couple	Type	Each
55F4605	−75/+225	−60/+100	I/C	J	71.00
55F4606	0/300	0/150	I/C	J	67.50
55F4607	0/500	0/260	I/C	J	67.50
55F4608	0/800	0/430	I/C	J	67.50
55F4609	0/1000	0/500	I/C	J	67.50

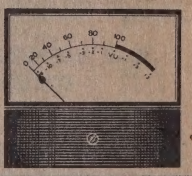
TABLE OF DIMENSIONS IN INCHES

A	B	D	E	F	G	I	J	K	N	P	Q	R
4.27 Max.	4.71 Max.	2.00 ±.005	2.02 ±.005	3.56 ±.005	1.25 ±.01	.76 Max.	1.88 Max.	2.55 Max.	4.00 ±.005	2.25 ±.005	.125	2.82 ±.01

STYLIST VU METERS

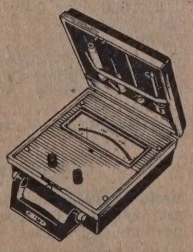
Stock No.	Scale	Type	Size	1-up
55F4662	A	361		
55F4663	B	361	3 1/32" x 1⅞"	62.00
55F4664	A	561		
55F4665	B	561	4 13/16" x 2¾"	62.00
55F4666	A	7025		
55F4667	B	7025	2 7/16" x 2½"	
62F2571	A	7035		56.00
62F2572	B	7035	3" x 3½"	
62F2573	A	7045		
62F2574	B	7045	4 1/16" x 4½"	

Models 361 and 561 measure amplitude of audio signals. Two scales, Type A scale; for recording uses. Type B scale emphasizing percent modulation for broadcasting. Illuminated from behind thru a lucite window at top of case. Conforms to ASA C16.5-1954 specs.
Series 7000 meters are similar to 361 and 561 with added panel mounting versatility. Glass windows are scratch proof and free of static electricity.



PORTABLE PYROMETERS

Model 6020. For checking laboratory ovens, furnaces, refrigeration equipment, solder pots and oil baths. Scales indicate Fahrenheit and Centigrade. Fully compensated for ambient and copper error with bimetal and thermistor. 1% accuracy. 5.5" meter scale. Aluminum trimmed plastic case. 8.5 x 6.5". Shpg. wt.: 2 lbs.



Temperature Range

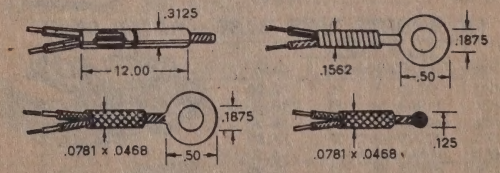
Stk. No.	°F	°C	Each
55F4775	−100+1100	−70/+550	125.00
55F4777	0/300	0/150	
55F4778	0/500	0/260	

PROBES FOR MODEL 6020

Carried inside meter case. Lead length is 3.5 feet, armored wire.

Stk. No.	Description	NET
55F4793	Straight Surface	52.00
55F4794	Right-Angle	58.00
55F4795	Needle	52.00
55F4796	General Purpose	52.00
55F4797	Beaded Wire	15.00
55F4798	Extension Handle	16.00

OPEN THERMOCOUPLES

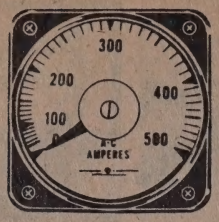


With Washer Stk. No.	Type	W/O Washer Stk. No.	Type	Description	Each
.....	.....	62F3120	2055-13	J-Iron-Constantan, 20 gauge, solid	7.50
62F3121	2055-1	62F3122	2055-9	J-Iron-Constantan, 20 gauge, stranded*	7.50
.....	.....	62F3128	2054-7	K-Chromel-Alumel 14 gauge**	9.50

5' length. Fiberglass insulation except (*) asbestos, (**) ceramic and asbestos.

19

General Electric Switchboard Instruments



AB-40

- ±1% Accuracy
- Ideal Where Space Is Limited
- Dustproof Cases

±1% accuracy switchboard instruments intended for general switchboard service on both large and small equipment. Excellent for control stations, test equipment, and other installations where space is limited. Cases are dustproof and designed for semiflush mounting. While scales with black markings standard. AB-30 are pivot and jewel, 60Hz. rated, and have a maximum of 3 digits; AB-40 have a maximum of 4 digits.

• For additional sizes and ranges contact your local Newark branch.

A.C. AMMETERS

40/70 Hz. Transformer rated. Iron vane type. Taut band.

AB40

Stk. No.	Scale	Rating	Type 50-	Net
56F1200	0-100	5A	103131LSPK	153.00
56F1201	0-150	5A	103131LSPZ	153.00
56F1202	0-200	5A	103131LSRL	153.00
56F1203	0-300	5A	103131LSRX	153.00
56F1204	0-400	5A	103131LSSC	153.00
56F1205	0-600	5A	103131LSSJ	153.00
56F1206	0-800	5A	103131LSSN	153.00
56F1207	0-1200	5A	103131LSSV	153.00
56F1208	0-3000	5A	103131LSVA	153.00

D.C. VOLTMETER

PB40

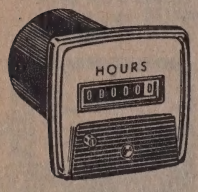
Stk. No.	Scale	Type	Net
54F589	0-150V	50-103011PZPZ	171.00

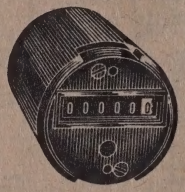
A.C. FREQUENCY METERS

Taut band. Accuracy ±0.1 Hz. 120 V rating.

Stk. No.	Scale	Ctr. Freq.	Type	Net
54F593	55-65 Hz	60 Hz	50-103372ANAN	473.00

SERIES 240 ELAPSED TIME METERS



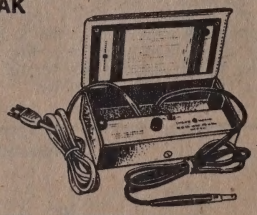


- Elapsed Time in Hours and Tenths of Hours or Minutes and Tenths of Minutes
- Synchronous Motor
- 6 Digit Readout
- Weather Resistant

Elapsed time meters without reset button. Features include synchronous motor with gear connected to digital readout counter. Meters display elapsed time in hours and tenths of hours or minutes and tenths of minutes by 6 digits. Weather resistant. One piece Lexan case and window with no-through screw holes for flange or back-of-panel mounting protect motor, counter, and gearing from rain or panel wash-down. Accuracy: Matches frequency control of power system. Vibration-Shock: Meets ANSI Specifications C-39.1. Input Range: 120/240 VAC, 50/60 Hz: 208/480 VAC, 60 Hz. Insulation Level: 2000 volts rms hi-pot for one minute. Burden Data: 2.5 volt-amps maximum. UL approved. For 50 Hz units add $2.75 to price of 60 Hz units and specify when ordering.

Stk. No.	Type	VAC	Readout	Each
BACK OF PANEL				
54F499	50-240003AAAA	120	Minutes	26.25
54F500	50-240003ABAA	208/240	Minutes	27.50
54F501	50-240001AAAA	120	Hours	26.25
54F502	50-240001ABAA	208/240	Hours	27.50
2½-INCH BIG LOOK				
54F503	50-240213AAAB	120	Minutes	33.90
54F504	50-240213ABAB	208/240	Minutes	35.05
54F505	50-240211AAAB	120	Hours	33.90
54F506	50-240211ABAB	208/240	Hours	35.05
3½-INCH BIG LOOK				
54F507	50-240313AAAB	120	Minutes	33.90
54F508	50-240313ABAB	208/240	Minutes	35.05
54F509	50-240311AAAB	120	Hours	33.90
54F510	50-240311ABAB	208/240	Hours	35.05
2½-INCH ROUND CASE				
54F511	50-240633AAAE	120	Minutes	38.00
54F512	50-240633ABAE	208/240	Minutes	39.15
54F513	50-240634AAAE	120	Hours	50.30
54F514	50-240634ABAE	208/240	Hours	50.80
3½-INCH ROUND CASE				
54F515	50-240733AAAE	120	Minutes	38.00
54F516	50-240733ABAE	208/240	Minutes	39.15
54F517	50-240731AAAE	120	Hours	38.00
54F518	50-240731ABAE	208/240	Hours	39.15

H-10 REFRIGERANT LEAK DETECTOR



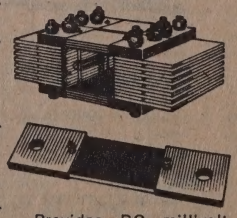
AC voltage powered for 120-volt use. Finds halogen gases and R-12, R-22, etc., refrigerant leaks down to 0.5 oz. per year. Actually inhales a sample of the gas for fast, dependable leak detection.

Type 50-420805AAAA H-10 Refrigerant Leak Detector.

54F498 NET 132.60

140 SHUNTS WITH BASE — RATED 50mV

Stk. No.	Type 50-140-031-	Rated Amps	Each
54F470	MTAA	10	16.50
54F471	NDAA	15	16.50
54F472	NGAA	20	16.50
54F473	NLAA	30	16.50
54F474	NPAA	40	16.50
54F475	NTAA	50	16.50
54F476	NWAA	60	16.50
54F477	PBAA	75	16.50
54F478	PDAA	80	16.50
54F479	PKAA	100	16.50
54F480	PZAA	150	16.50
54F481	RLAA	200	16.50
54F482	RSAA	250	17.65
54F483	RXAA	300	18.80
54F484	SCAA	400	23.50
54F485	SFAA	500	27.20
54F486	SJAA	600	31.80
54F487	SNAA	800	36.55
54F488	SSAA	1000	42.65



Provides DC millivolt signal proportional to DC amps. Accuracy: ±¼% calibrated accuracy. Minimum Rating: 10 amps, 50 mV or 100 mV. Maximum Rating: 10 kA, 50 mV or 100 mV.

"SNAPPER" AC HOOK-ON METERS

Measure AC volts, amps, and resistance (with optional resistance probe). Selectable ranges with rotary drum type or flat scales. Slim jaws are double insulated. Built-in pointer lock. Complete with voltage leads and carrying case.

Type 50-190611AAAA1 Snapper 150. Measures 0-150/600 volts; 0-30/150 amps; 0-1000 ohms (with optional probe).

54F495 NET 58.95

Type 50-190911AAAA1 Resistance Probe. Measures 0-1000 ohms DC resistance when used with the Snapper meter. Two "AA" cells not included.

54F496 NET 7.50

Type 2626K17G2 Voltage Lead Assembly.

54F497 NET 9.35

ELECTRICAL TRANSDUCERS

Volts Transducer: Converts AC output into a proportional DC output. **Amperes Transducer:** Converts AC current output into a proportional DC output.

Stk. No.	Type 50-47	Descr.	Input Rating	Output mA	Each
54F489	2101DFDC	Volts	0-150 VAC	0—1	91.00
54F490	2201TFDC	Amps	0-5 amps	0—1	91.00

NEWARK Your Dependable Source For all Your Electronic Needs

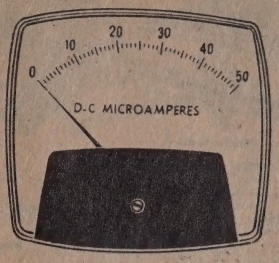
19

Panel Meters

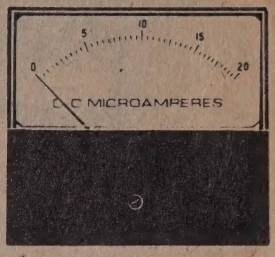
SERIES 250/251 AC PANEL METERS — PIVOT AND JEWEL

Handsome, easy-to-read meters in two styles for all panel and control applications. All meters meet ANSI specifications. C-39.1. Accuracy: AC iron vane type, ±2% FS; AC rectifier type, ±3% FS.

Size	250 BIG LOOK® Scale Length	251 HORIZON LINE® Scale Length
1½"	1.32"	1.50"
2½"	2.06"	2.06"
3½"	2.88"	2.88"
4½"	3.93"	3.93"



250 Big Look



251 Horizon Line

3½" AC VOLTMETERS — IRON VANE TYPE
SERIES 250 BIG LOOK

Stock No.	Type	Scale Volts	Term. Resis. Ohms	Each
54F400	50-250344PZPZ	150	15000	30.85
54F401	50-250344RXRX	300	70260	33.20
54F402	50-250344SJSJ	600	140000	41.50

SERIES 251 HORIZON LINE

Stock No.	Type	Scale Volts	Term. Resis. Ohms	Each
54F403	50-251344PZPZ	150	15000	30.85
54F405	50-251344SJSJ	600	140000	39.50

3½" AC MILLIAMMETER — RECTIFIER TYPE DC TAUT BAND MECHANISMS
SERIES 251 HORIZON LINE

Stock No.	Type	Scale	Term. Resis. Ohms	Each
54F416	50-251310FAFA	1mA	555	38.75

3½" AC AMMETER
SERIES 251 HORIZON LINE

54F422	50-251340MTMT	10A	0.0024	28.55

3½" AC AMMETERS
SERIES 250 BIG LOOK

Stock No.	Type	Scale Amps	Term. Resis. Ohms	Each
54F418	50-250340LSLS	5	0.007	28.20
54F419	50-250340MTMT	10	0.0024	28.20
54F420	50-250340NTNT*	50	0.0004	33.20

*With external magnetic shield on meter base; without sealed terminal studs.

AC AMMETERS — TRANSFORMER RATED, 0-5 AMPS

Scale Amps	Term. Resis. Ohms	Stock No.	250 BIG LOOK 3½" Type 50-250340-	NET
75	0.007	54F425	LSPB	28.55
100	0.007	54F426	LSPK	28.55
200	0.007	54F427	LSRL	28.55

Scale Amps	Term. Resis. Ohms	Stock No.	250 BIG LOOK 4½" Type 50-250440-	NET
100	0.007	54F431	LSPK	31.70
200	0.007	54F432	LSRL	31.70
500	0.007	54F433	LSSF	31.70

Scale Amps	Term. Resis. Ohms	Stock No.	251 HORIZON LINE 3½" Type 50-2 1340-	NET
75	0.007	54F435	LSPB	28.55
100	0.007	54F436	LSPK	28.55
200	0.007	54F437	LSRL	28.55

SERIES 254/255 DC PANEL METERS — PIVOT AND JEWEL

Pivot and jewel DC panel meters. All meters meet ANSI specifications C-39.1. Accuracy: ±2% of full scale. Overload: DC voltmeters, 20% momentary and sustained; DC ammeters (momentary), 10 times the rated current for 10 consecutive intervals of ½ second with one minute interval between successive applications: DC ammeters (sustained), 20% for 8 hours.

Size	254 BIG LOOK Scale Length	255 HORIZON LINE Scale Length
2½"	2.06"	2.06"
3½"	2.88"	2.88"
4½"	3.93"	3.93"

3½" DC AMMETERS — 50 mV SHUNT-RATED
SERIES 254 BIG LOOK

Stk. No.	Type	Scale Amps	Each
54F529	50-254324ECSF	500	30.35

SERIES 255 HORIZON LINE

Stk. No.	Type	Scale Amps	Each
54F532	50-255324ECPK	100	30.35

Term. Resis. ohms—12.5 ohms calibrated for use with two-way shunt lead resistance of 0.065 ohms.

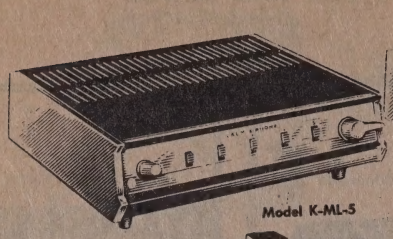
NEWARK Your Dependable Source For All Your Electronic Needs

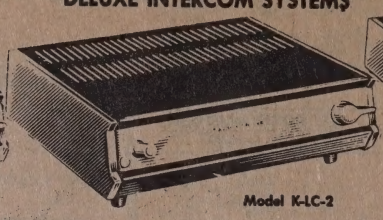
3½" DC AMMETER
SERIES 255 HORIZON LINE

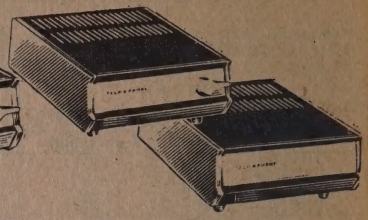
Stk. No.	Type	Scale Amps	Each
54F539	50-255300MTMT	10	30.35

TALK-A-PHONE Intercoms

DELUXE INTERCOM SYSTEMS


Model K-ML-5


Model K-LC-2


Model K-LR-2(M)

Model K-LS-5

Model K-ML-5

Model K-CL-5

SUPER SELECTIVE ALL MASTER SYSTEMS

Intercom system consisting entirely of Masters. Permits several separate conversations to be carried on without interfering with each other. System provides privacy. Stations may be located up to 1000 feet apart. Operates on 110-120 volts, AC-DC. Complete with instructions. Transistorized. Charcoal gray and brushed chrome. Cabinet size, 10½"x8¾"x3⅛". Shpg. wt. 7 lbs.

95F406. Model K-LS-5. For 5 stations **NET** **75.50**
95F407. Model K-LS-10. For 10 stations. **NET** **93.00**

HI-VOLUME MASTERS

Operate the same as the above masters with the added feature of 10 times volume output. For 120 volts, AC only. Masters K-AC 510 and K-AC-505 may not be intermixed with any other Master.

95F437. Model K-AC-505. Hi-Volume, 5 station. **NET** **94.00**
95F438. Model K-AC-510. Hi-Volume, 10 stations. **NET** **109.00**
36FX441. 5506 (6-conductor) cable. For interconnecting K-LS-5 or K-AC-505. **NET** per foot ..... .14
36FX442. 9911 (11-conductor) cable. For interconnecting K-LS-10 or K-AC-510. **NET** per foot ..... .26

WIRELESS 6 AND 12-STATION SELECTIVE SYSTEM

Incorporates the exclusive "Sonic Gate" together with the "Squelch" circuit to effectively suppress line noises and hum. Simple to install. Requires no wiring, no cable. Use where any 110V AC or DC electrical outlets are available on the same transformer. Each Master Station equipped with a Six or 12-channel Selector. Any Master can transmit on any of its channels, and receive calls on the channel it elects to use. Each Master with tubes and instructions. Size 14½x8¾x3⅛". Wt. 10 lbs.

95F418. T-LCM-8906. 6 Channel Master **169.50**
95F441. T-LCM-8912. 12 Channel Master **191.00**

Where some Wireless locations need not originate calls, but must reply when called. Staff Stations are available. Size 10½x8¾x3⅛". Shipping weight 12 lbs.

95F419. T-LCS-901. For Channel 1 only. **NET** **97.00**

Note: Staff stations for channels 2 to 6 available on special order.

2-STATION WIRELESS SYSTEM

A quality intercom system for Office, Factory, and Farm. No installation. Plug into 110V AC or DC electrical outlet on the same transformer. Uni-Trans gives you dictation and supervisory control. Provides continuous transmission when set for Uni-Trans. Cabinets are charcoal gray and brushed chrome. 10½x8¾x3⅛". Two Master stations. With tubes and instructions. 16 lbs.

95F413. Model T-LC-33. Two station system. **NET** **169.50**
95F414. Model T-LC-17. Additional single station. 8 lbs. **NET** **84.75**

2-STATION INTERCOMMUNICATION SYSTEM

Model K-LC-2, Transistorized Master Station and Sub-Station. With 50 ft. cable. For 110-120 volts, AC-DC. Master size: 10½x8¾x3⅛". Sub size: 7½x8¾x2⅞". Shpg. wt., 12 lbs.

95F412. NET **78.75**
36FX440. Type 5303. Extra 3-cond. cable. **NET per ft.** ..... .06
36FX449. 6303. 3-cond. shielded cable. **NET per ft.** ..... .08

COMBINATION SYSTEMS

For the more flexible type of system requiring the operation of more than one Master, along with Sub-Stations which need not originate calls. Masters may talk to each other and to each Sub in the system selectively; or, one or more Subs can be exclusive to only one Master. Masters can switch themselves "private" so that other Masters cannot listen in to them, or "non-private" at will. Masters in charcoal gray and brushed chrome cabinets. 10½"x8¾"x3⅛". Sub-Stations; 7½"x8¾"x2⅞". With instructions. Transistorized. Masters operate on 110-120 volts AC-DC. Electric curr. not needed for Sub-Stations. Shpg. wt. 7 lbs. K-AC-605 and K-AC-610 operate on 120 volts, AC only. Masters K-AC-610 and K-AC-605 may not be intermixed with any other Master.

95F408. K-CL-5. Master for 5 stations. **NET** **88.50**
95F409. K-CL-10. Master for 10 stations. **NET** 108.50
95F410. K-LR-2. Sub-Station (in same deluxe finish as Masters) for use with either of above Masters. Shpg. wt. 4½ lbs.
NET 32.50
95F411. K-LR-2M. Sub-Station (as above, but in grained, baked enamel finish) for use with either Master. Wt. 4½ lbs.
NET 26.00
95F442. K-LR-2R. Sub-station for flush, wall mounting. 26.00
95F443. K-SM. Surface mtg. accessory for K-LR-2R 6.75
95F439. Model K-AC-605. Hi-Volume, 5 stations **NET** 109.50
95F440. Model K-AC-610. Hi-Volume, 10 stations. 124.00
36F438. 6210. 5 pair cable for interconnecting K-CL-5 or K-AC-605. **NET per foot** ..... .24
36FX439. 6226. 13 pair cable for interconnecting K-CL-10 or K-AC-610. **NET per foot** ..... .57
36FX446. 6902. 2 conductor cable for substation. **NET per ft.** ..... .04
36FX448. 6202. (1 pr.) cable for substation. Overall jacket. **NET per ft.** .. .06

MASTER SELECTIVE INTERCOMMUNICATION SYSTEMS

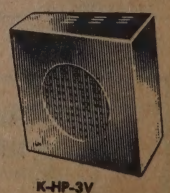
A system consisting of one Master Station and one to ten Sub-Stations. Only the Master Station plugs into an electrical outlet. System has optional feature whereby Sub-Stations can be connected "privately," or "non-privately" and still originate calls to the Master under either application. Cabinets are charcoal gray and brushed chrome, 10½"x8¾"x3⅛". Subs measure 7½"x8¾"x2⅞". With instructions, Transistorized. For 110-120 volts, AC-DC. HIGH VOLUME OUTPUT MASTERS K-AC-5406 and K-AC-5411 operate as above with the added feature of up to 10 times volume, for large areas or noisy locations. Operate on 120 volts, AC only. Note: Only one master station can be used in each Master Selective System. Weight: Masters—7 lbs. Sub-Stations—4½ lbs.

95F400. K-ML-5 Master. For up to 5 Subs. **NET** **75.50**
95F401. K-ML-10 Master For up to 10 Subs. **NET** 93.00
95F404. K-AC-5406. High Vol. Master. 5 Sub. capacity. 94.00
95F405. K-AC-5411. Hi Vol. Master. 10 Sub. capacity. **NET** 109.00
95F402. K-LR-3. Sub-Station (in same deluxe finish as Masters) for use with any of above Masters. **NET** 32.50
95F403. K-LR-3M Sub-Station (as above, but in grained, baked enamel finish) for use above Masters. **NET** 26.00
95F448. K-LR-3R. Sub-Station for flush wall mounting. **NET** 26.00
95F685. K-SM-L. Surface mfg. accessory for K-LR-3R. **NET** 7.80
36FX440. 5303. Three-cond. indoor cable. **NET per ft.** ..... .06
36FX449. 6303. Three cond. shielded cable. **NET per ft.** ..... .08

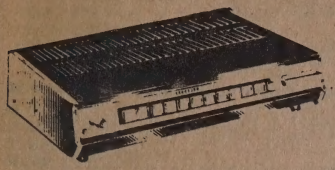
KC-20V

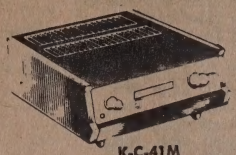
ADDITIONAL ACCESSORIES FOR COMBINATION & MASTER SELECTIVE SYSTEMS

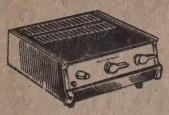
95F415. K-HP-3. Hi-Power Staff Station for wall mounting. Charcoal gray metal case. Wt. 9 lbs. Provides twice the volume of regular substation. **NET** **35.50**
95F444. K-HP-3V. Same as above, but with built-in volume control, adjustable to full output. Wt., 9 lbs. **NET** **42.80**
95F416. K-C-20. Nine inch weatherboard Re-entrant Horn. Charcoal gray color. Wt., 5 lbs. Provides over 4 times volume of regular substation.
NET **55.40**
95F446. KC-20V. Same as above, but with built-in weather resistant volume control, adjustable to full output. Wt., 5 lbs. **NET** **66.10**
95F417. K-S-100. Wall switch for origination of call through K-C-20 or K-HP-3 with Master Selective Systems. **NET** **8.50**

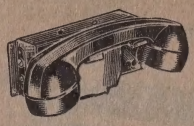

K-HP-3V

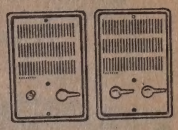
"CHIEF" SOLID STATE SYSTEMS


MASTER STATION


K-C-41M


K-C-42


K-S-111


K-C-41R K-C-42R

"CHIEF" MASTER STATIONS

Can be used in any combination—with all Masters—one Master and Staff Stations—or a number of Masters combined with Staff Stations. 6, 12, and 20 Station Masters, together with Staff Stations can be intermixed in same system. Masters can talk with any other Master, as well as with Staffs. Staff Stations can answer all Masters and can originate calls to one or two "private" Masters, depending upon Staff's capacity. Staff Stations are not connected to electrical outlets. Exclusive Features. (1) Dynasonic Design enables stations to perform "privately" (so no one can listen in) or "non-privately" (for reply without use of controls). The same master can be "private" to one or more Masters and "non private" to others. (2) Monitoring signal visually indicates to a "non private" station that it is being monitored. (3) Busy signal visibly indicates when station you call is "busy". All units have faclity to override "busy signal" for important calls. (4) Multi-magic station selector enables selection of up to 30 stations with only 12 push buttons. (5) Uni-trans dictation control. (6) External relay control enables Master to activate external relays for operating siren, gong, light, etc. (7) Reciprocal Power supply—Each Master operates on 120 volts AC only and should be plugged in. Where no electrical outlet is available up to 30% of the "Chief" Masters in the system can operate without being plugged in. (8) Noise-free voice range power. The exclusive patented circuit enables performance without noise, hum or distortion, when used with Talk-A-Phone cable. (9) Hi power staff stations and horns. K-HP-3 provides more than twice the volume of universal Staff. K-C-20 provides about 4 times greater volume . . . more with Redi Power Master. (10) Wall switch combines with Talk-a-phone Horn or Hi Power staff to add origination of call feature. (11) Incoming call chime. All "Chief" Master Stations come complete with junction box and built in power supply attached by 6' flexible cable. Master size: 14½" width, 3⅛" height, 8¾" depth. For 120 volts AC only. U.L. listed.

Model K-C-4906 Master for 6 stations. Shpg. wt., 15 lbs.
95F425. NET PER STATION **169.50**

Model K-C-4912. Master for 12 Stations. Shpg. wt., 15 lbs.
95F426. NET PER STATION **191.00**

Model K-C-4920. Master for 20 Stations. Shpg. wt., 16 lbs.
95F427. NET PER STATION **222.00**

CHIEF STAFF STATIONS AND ACCESSORIES

STAFF STATION. For use with "Chief" Master. Staff Stations may be connected "privately" or "non-privately". Connected "non-privately", Master can be answered at a distance from the Staff without operation of any controls. "Non-private" Staff may reply to all Masters in the system (whether connected directly to them or not) and can originate calls to one or two "Private" Masters, depending upon its capacity. Connected "privately" no one can "listen-in", but any Master can call. Private Staff can originate calls and reply to 1 or 2 "Private" Masters depending on its capacity. Staff Stations do not need electrical outlets.

Model K-C-41. Staff Originates calls to 1 Master. Gray leatherette and brushed chrome. Size 7½x8¾x2⅞". 5 lbs. **44.50**
95F428. NET PER STATION .....

Model K-C-41-M. Same as K-C-41 but with painted finish. 5 lbs.
95F429. NET PER STATION **37.50**

K-C-41R. Same as K-C-41, but for flush wall mounting. Stainless steel front panel. 4 lbs.
95F433. NET PER STATION **37.50**

CABLE FOR CHIEF SERIES

36FX477. Type 6206. 3-pair cable for connecting K-C-20, K-C-41, K-C-42, and K-HP-3 with call origination. **Net per foot** .....**.14**

36F437. Type 6214. 7-pair cable to interconnecting K-C-4906 Masters. **Net per foot** .....**.29**

36FX439. Type 6226. 13-pair cable for interconnecting K-C-4912, K-C-4920 for K-CRP-5912 Masters. **Net per foot** .....**.57**

36FX446. Type 6902. Cable 2 cond. for connecting K-C-20, and K-HP-3 without origination of call. **Net per foot** .....**.04**

Model K-C-42. Staff originates call to 2 Masters. Gray leatherette and brushed chrome. Wt. 5 lbs. Size 7½x8¾x2⅞". 5 lbs.
95F430. NET PER STATION **55.50**

Model K-C-42M. Same as K-C-42 but with painted finish. 5 lbs.
95F431. NET PER STATION **51.50**

Model K-C-42R. Same as K-C-42 but for flush wall mtg.
95F445. NET PER STATION **51.50**

Model K-HP-3. Hi-Power Staff Station for wall mounting. Charcoal gray metal case. Size: 12x8x12". 5 watt capacity. Provides twice volume of regular staff. Shpg. wt. 10 lbs.
95F415. NET PER STATION **35.50**

Model K-HP-3V. As above, but with built-in volume control, adjustable to full output.
95F444. NET PER STATION **42.80**

Model K-C-20. Nine-inch Weatherproof Re-Entrant Horn. 15 watt capacity. W mounting bracket. Charcoal grey. Provides over 4 times volume to reg. staff. Shpg. wt. 6 lbs.
95F416. NET PER STATION **55.40**

Model K-C-20V. As above, but with built-in weather resistant volume control, adjustable to full output.
95F446. NET PER STATION **66.10**

Model K-S-101. Wall Switch for originating calls to one Master through K-C-20, or K-HP-3 in Chief Systems. Gray. Wt. 1 lb.
95F434. NET **15.75**

K-S-102. Same as K-S-101, but for call origination to 2 Masters.
95F435. NET **25.50**

K-S-111. Wall Mounted Cradle Phone. For use with K-HP-3(V) or K-C-20(V).
95F447. NET **78.00**

K-W-1. Wall mounting brackets for K-C-41, K-C-41M, and K-C-42, and K-C-42M.
95F436. NET per pair ..... **.62**

BOGEN PHONE INTERCOM SYSTEMS

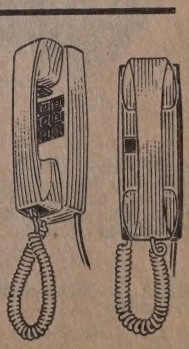
Stock No.	Type	Description	Each	Uses Cable	Stock No.	Per 100'
96F600	TQ1B	2 station system	24.75	7SC	96F787	16.50
96F601	TQ4B	up to 4 stations	33.75	12SC	96F788	21.75
96F602	TQ8B	up to 9 stations	40.50	12SC	96F788	21.75
96F603	TQ12B	up to 13 stations	45.00	16SC	96F789	28.45
96F606	PRS4A*	Power supply	37.50	—	—	—
96F607	TPA	PA tie-in	36.00	—	—	—

Stock No.	Type	Description	Each	Uses Cable	Stock No.	Per 100'
96F604	TSL12A	Master station	48.00	20SC	96F791	33.75
96F600	TQ1B	Remotes	24.75	20SC	96F791	33.75
96F606	PRS4A*	Power supply	37.50	—	—	—
96F607	TPA	PA tie-in	36.00	—	—	—

* One required per system.

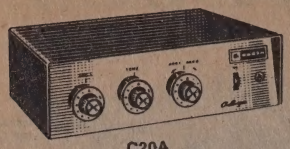
SERIES TQ COMMON LINE WIRED TELEPHONE INTERCOM
System permits up to 13 stations with 1 intercom channel shared by all stations and allows selective ringing at each station. It also offers conference call usage since all stations share the same line. Size: 8¾"L x 3¼"W x 3¼"H.

TSL SERIES SEPARATE LINE WIRED TELEPHONE INTERCOM
Two intercoms per channel, thus, 6 separate conversations may occur simultaneously in a 12 station system. Paging permitted through existing PA system from any station if TPA adaptor is added. Up to 12 stations of masters and remotes may be mixed together.


TSL12A TQ1B

BOGEN

Amplifiers, Preamplifiers



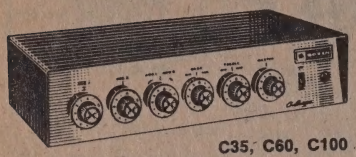
C20A

"C" SERIES SOLID STATE AMPLIFIERS

C-20A, C-35, C-60, C-100; 20, 35, 60, 100 watts:

2 microphone inputs high impedance—MCIF connector
C20A have one mike input and one aux
2 auxiliary inputs on fader control
Outputs balanced 25 and 70 volts, 4, 8, 16 ohms, tape booster
2 loudspeaker quick connect sockets
All silicon solid state, special circuits protect amplifier against overload or short circuits

97F802	**C-35**	35 watt amp. **Net**	**149.85**
97F801	**C-60**	60 watt amp. **Net**	**176.95**
97F800	**C-100**	100 watt amp. **Net**	**209.85**
97F803	**C-20A**	20 watt amp. **Net**	**104.85**

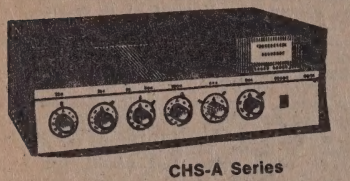


C35, C60, C100

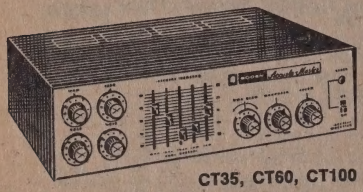
FLEX-PAK CHS-A SERIES

Four popular priced P.A. amplifiers offer advanced operating features.
2 microphone inputs, high impedance low impedance unbalanced-XLR-311 connector. (CHS-20A has one microphone input) 2 separate aux. inputs with 2 separate controls.
PMM-2 optional panel mounting preamp adds 2 mic inputs to any CHSA amp.
Microphone inputs convertible to low impedance balanced with plug in transformer
1 mic. channel convertible to mag phono (two with optional PMM-2)
1 microphone can be remotely controlled (2 with optional PMM-2)
Outputs: 8, 16 ohms, 25 and 70 volts balanced lines, tape booster

96F500	**CHS-20A**	20 watt amplifier. **Net**	**149.25**
96F501	**CHS-35A**	35 watt amplifier. **Net**	**179.85**
96F510	**CHS-60A**	60 watt amplifier. **Net**	**209.85**
96F503	**CHS-100A**	100 watt amplifier. **Net**	**247.35**



CHS-A Series

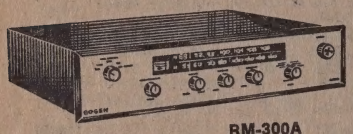


CT35, CT60, CT100

ACOUSTA MASTER CT SERIES

4 microphone inputs high impedance convertible to low with plug in transformer
Five equalizer filters provide anti-feedback and tone control circuit
Built in adjustable electronic compressor
3-conductor broadcast type connectors for each mic input
Remote control 2 mic and one aux
Outputs: balanced 25 and 70 volts, tape, booster, bridging, 4, 8, 16 ohms
Auxiliary input for record player, tuner or tape recorder

96F511	**CT35.**	35 watt amplifier. **Net**	**269.90**
96F512	**CT60.**	60 watt amplifier. **Net**	**299.90**
96F513	**CT100.**	100 watt amplifier. **Net**	**329.90**

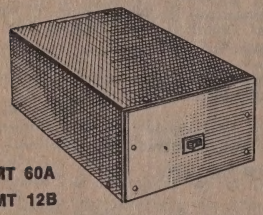


RM-300A

RM-300A; 35 W. FM/AM RECEIVER (TUNER-AMPLIFIER)

FM-AM high fidelity monophonic broadcast reception
Microphone input for paging converts to low impedance with TM-200
Automatic mic precedence over music (requires SPST switch in mic)
Facilities for connecting tape or record player
25 and 70 volt outputs 4, 8, 16 ohms
Telephone input for paging Bogen phones (requires power supply and paging adapter)
All solid state circuitry
Radio Frequency Range: FM 88-108 MHz, AM 550-1640 KHz

96F514. Net **344.90**

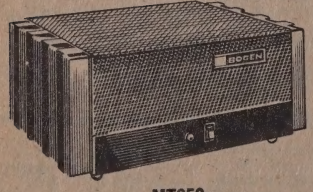


MT 60A
MT 12B

BOGEN BOOSTER AMPLIFIERS

Designed for use in quality sound reinforcement systems.

TYPE	MT250*	MT125B	MT60A
Power Output	250 watts	125 watts	60 watts
Freq. Response	±2 db, 20 Hz to 20kHz.	±2 db, 40 Hz to 20 kHz.	±2 db, 30 Hz to 20 kHz.
Rated Sensitivity (for rated Output)	Hi Z: 0.3 v. Lo Z: Balanced with TL600 Xfmr: .075 v.	Hi Z: 0.2 v. Lo Z: Balanced with TL600 Xfmr: .045 v.	Hi Z: 0.2 v. Lo Z: Balanced with TL600 Xfmr: .045 v.
Output Connections	1Ω,25v.(2.5Ω,4Ω,8Ω,16Ω, 70v.(20Ω),120v.(57.5Ω).	8Ω,25v.c.t.,25v., 16Ω,70v.,120v.	8Ω,25v.c.t.,25v., 16Ω,70v.
Power Consumption	120 v AC, 50/60 Hz, 600 w, ±24 v DC, 10 amps.	120 v AC, 50/60 Hz, 300 w, 48-56 v DC, 2.25 amps.	120 v AC, 50/60 Hz, 168 w, 48-56 v DC, 1 amp.
Dimensions	17"W x 12¼"D x 7"H	8"W x 13"D x 6½"H	8"W x 13" D x 6½"H
Shipping wt.	60 lbs.	28 lbs.	22 lbs.
Stock No.	96F551	96F837	96F515
Price	540.00	285.00	210.00



MT250

ACCESSORIES FOR BOGEN AMPLIFIERS

Models TM50, TM200, TM500 low impedance plug in mike transformers for CHSA, CT Series, 500 ohms, 200 ohms, 50 ohms.
TM-500. 500 ohm impedance.
95F539. Net **16.45**

TM-200. 200 ohm impedance.
95F538. Net **14.65**

TM-50. 50 ohm impedance.
95F542. Net **15.75**

WMT-1—connects any Bogen amplifier to telephone line through aux input mic input.
96F516. Net **13.45**

PMM-2—provides 2 additional mic channels for CHSA line. Panel mounted complete with all mounting hardware.
96F518. Net **38.95**

LPC-4A—Three speed AC operated phono top complete with all hardware, tone arm and cartridge. Will mount on all Bogen amplifiers except C10, C20A.

96F519. Net **48.75**

CON-1—microphone connector for CHSA and CT amplifiers.
96F520. Net **2.95**

MC1F—microphone connector for "C" amplifiers.
39F000. Net **1.45**

Baffles, Speakers, Headsets

SOUNDOLIER SPEAKERS AND BAFFLES

MODEL 164-8 BAFFLE

Accommodates 8″ speaker. Baffle is 12⅝″ square. Projects ½″ from surface. Finished in hard baked semi-gloss white enamel.
80W477 NET 9.28

MODEL 210-8 BAFFLE

14⅜″ dia. Accommodates 8″ speaker. Wide-angle surface baffle projects 4¼″ from surface. Outer enclosure is baked semi-gloss white enamel, inner is brushed aluminum.
80W478 NET 21.78

ENCLOSURES

191-78. 11^{1}/$_{16}$″ square, 4″ deep. Adjustable mtg. flange 1/16-¾″. Made of heavy gauge CRS, rust-preventative ctg.
80W479 NET 8.03

198-8. 10^{1}/$_{16}$″ square, 3¾″ deep. Undercoated to prevent metallic resonance.
80W480 NET 6.35

95-8 ROUND RECESSED ENCLOSURES

Upper enclosure: 10⅛″ dia; lower ring 9^{3}/$_{16}$″ inner dia, 11¾″ outer dia. Undercoated and patch jute lined. Rust preventative coating.
80W481 NET 6.35

TRIM-RING BAFFLES

Baffles are one-piece recessed. 12¾″ dia, accommodate 8″ speaker. Project ¼″ from surface. Use 95-8 enclosure. 51-8 is steel. **51-8** Finished in hard baked semi-gloss white enamel. 60-8 Aluminum.
80W489 Type 51-8 NET.....3.82
80W490 Type 60-8 NET.....4.42

PLASTIC TRIM RINGS AND SQUARES

Model P900 trim ring. 12¾″ dia, accommodates 8″ speaker. Uses 95-8 enclosure. **Model P912 trim square.** 12½″ square, accommodates 8″ speaker. Uses 198-8 enclosure. Both project ⅜″ from surface. Molded in polar white high impact polystyrene plastic. Acoustical louvers provide maximum sound transmission and dispersion. Speaker mounting screws are hidden for cleaner appearance.
80W491 Type P900 NET.....2.98
80W492 Type P912 NET.....3.18

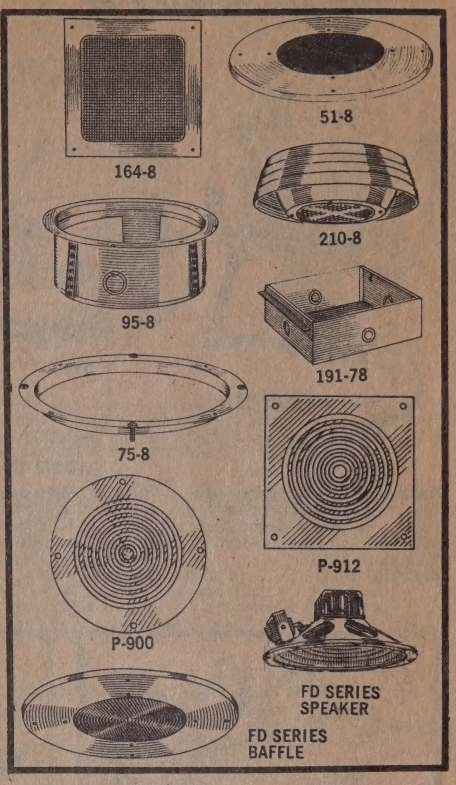
75-8 PLASTER RINGS

Outer dia. 11¾″, Inner 9⅞″.
80W482 NET 3.08

FD SERIES — PRE-ASSEMBLED

Baffle, speaker, and transformer preassembled. Speaker 8″ round. 3.16-oz: alnico V magnet. V.C dia. ¾″ impedance 8 ohms. Flux density 9,200 gauss. Sensitivity 96 dB. Power handling capacity 15 W. program. Freq. response 30-15K Hz.

Stk. No.	Type	Trim Ring	Xfrmr. Volts	Each
80W483	FD70A	60-8	70.7	11.53
80W484	FD25A	60-8	25	
80W485	FD70W	51-8	70.7	
80W486	FD25W	51-8	25	
80W487	FDP900-70	P900	70.7	
80W488	FDP900-25	P900	25	



TELEX HEADPHONES AND HEADSETS

Type CS-7. Dual 600 ohm phones. No mike.
27F388. NET 49.00

Type CS-78. With 50 ohm carbon mike and single 600 ohm receiver. 2 plugs.
27F389. NET 57.50

Type CS-75. As above, but with 150 ohm noise-cancelling dynamic mike.
27F1063. NET 57.50

Type CS-11. As above, but with no mike. Single 2-circuit plug.
27F1064. NET 35.00

Type CS-45. Carbon boom mike. Imp: 600 Ohms; mike 20-50 Ohms. Sens. 105 ±5 dB at 1 kHz; mike −18 dB. Freq.: 20-20,000 Hz: mike 500-6000 Hz. 5′ cord. Shpg. wt. 12 oz.
27F1066. NET 70.00

Type CS-61. Imp. 275 ohm. Sensitivity boom mike. Imp: 600 ohms; mike, 150 ohms.
27F1065. NET 70.00

Type CS-83 Imp. 275 ohm. Sensitivity 113 dB above .0002 dynes/cm² @ 1kHz. Carbon boom mike, imp. 20 ohm.
27F421. NET 89.00

Type 2400-42. 300 ohm mike, 600 ohm hdst.
27F442. NET 42.95

Type 600-1. 600-ohm dual phones w/ mike.
27F1062. NET 24.95

Type 610-1. 600-ohm dual phones, no mike.
27F426. NET 7.90

Type HTX-2. 1000 ohms.
27F406. NET 24.50

Type 1210-04. No mike, 600 ohm headset.
27F412. NET 28.50

Type HTW-2. 500 ohms. Std. phone plug.
27F404. NET 24.50

HF Series. Freq. response 60-4000Hz. With 5 foot cord and phone plug.

Stk. No.	Type	Ohms	NET
27F390	HFR-91	15	9.40
27F437	HFV-91	125	
27F375	HFW-91	500	
27F376	HFX-91	1000	
27F391	HFY-91	2000	

HM Series. Featherweight under-the-chin headset. Complete with 5′ cord with ¼″ phone plug. Features adjustable tonearms and removable eartips. 5 oz.

Stk. No.	Type	Ohms	NET
27F373	HMV-2	125	15.50
27F374	HMY-2	2000	

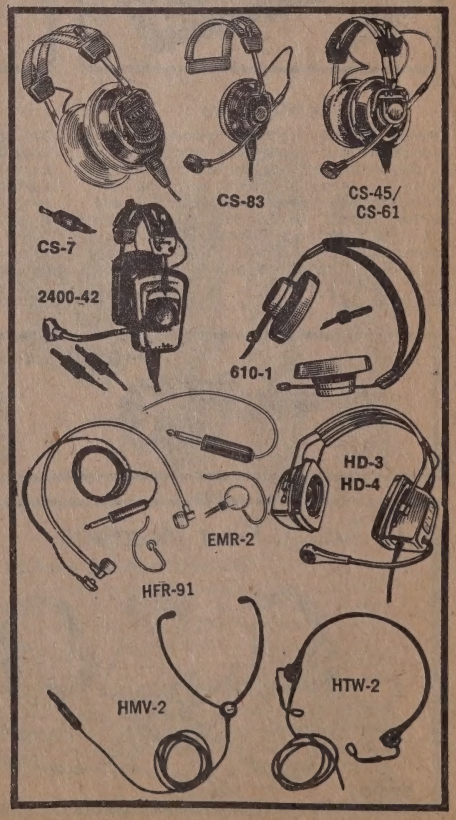
EM Series Earsets. Complete with nylon earloop, 5 ft. cord and std. phone plug. 4 oz.

Stk. No.	Type	Ohms	NET
27F379	EMR-2	15	9.50
27F381	EMW-2	500	
27F382	EMX-2	1000	
27F383	EMY-2	2000	

HD Series. For clear two-way communications in noise filled environments.

Stock No.	Type	Each
27F407	HD-1 Passive	17.50
27F408	HD-2 Dynamic, 600 ohm	52.50
27F438	HD-3 as above (*)	80.00
27F439	HD-4 as above (†)	115.00

*With Dynamic boom mike.
†With Electret boom mike.



David Clark Communications Systems

MODEL H3330

Headset/Microphone Over-the-head style with boom mounted noise canceling microphone. 600 ohms impedance for noise levels to 125dB.
02F1230. NET 138.00

MODEL H3340

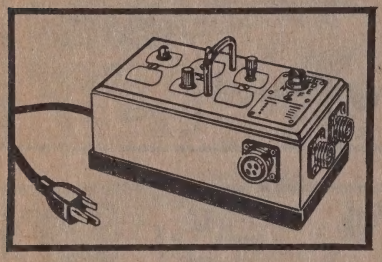
Headset/Microphone Behind-the-head version for use with safety cap. Noise canceling boom mounted microphone for noise levels to 125dB.
02F1231. NET 136.00

MODEL H3370

Lightweight Headset/Microphone Over-the-head style with boom mounted noise canceling microphone. **Not to be used in noise levels above 90dB.**
02F1232. NET 109.50

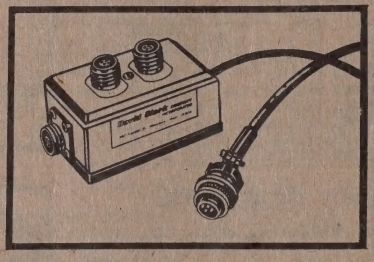
MODEL H3390

Lightweight Headset/Microphone Single ear version with boom mounted noise canceling microphone. **Not to be used in noise levels above 70dB.**
02F1233. NET 94.75



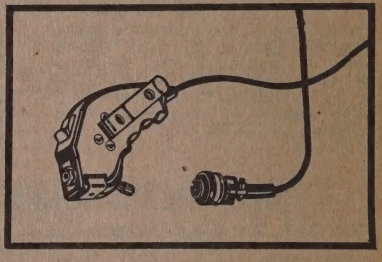
MODEL U3400

Master station contains power supply, amplifier, and impedance selector in a sturdy metal box. Has four output connectors, 12 ft. grounded power cord, roll bar/carry handle, master volume control, and system on/off switch. Belt stations can be connected to four Master stations outputs. Input: 110-125 VAC, 50-60 Hz. Output: 24 VDC. Max. current: ½ amp. Size: 5¾" x 9½" x 4¾".
02F1234. NET 352.50



MODEL U3410

Belt stations serves as preamplifier and interface between headset and system. Every headset must be plugged into belt station for system to operate. Belt station connects to master or remote either directly or via extension cords. Unit features headset jack, individual earphone volume control, push-to-talk/push-to-lock microphone button, belt clip, and 12 ft. cord with connector.
02F1236. NET 104.25

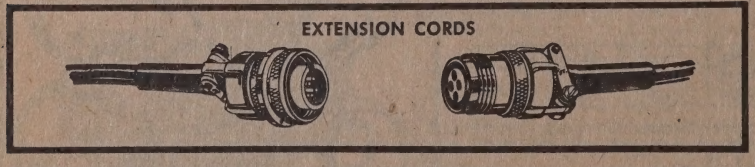


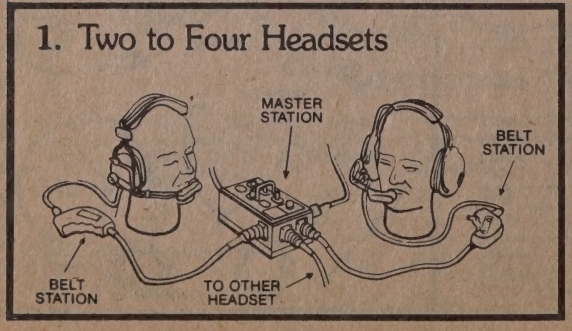
MODEL U3401

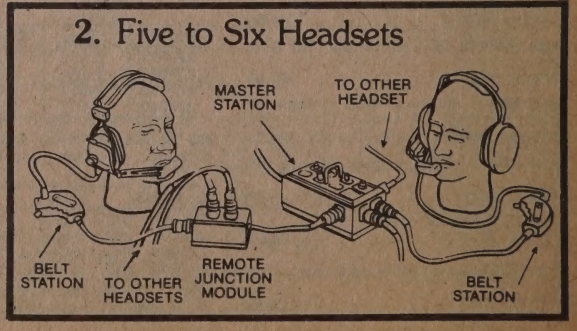
Remote junction modules are used to provide additional belt station connections. Each can accommodate three belt station connections or two belt station connections and one junction box.
02F1235. NET 112.50

EXTENSION CORDS

Extension cords with screw-on type connectors used to expand system to cover larger area. Cords can be used to connect all components-master station, remote module, and belt stations.
C34-12; 12 ft.
02F1237. NET 47.50
C34-25; 25 ft.
02F1238. NET 57.50
C34-50; 50 ft.
02F1239. NET 77.50
C34-100; 100 ft.
02F1240. NET 126.50

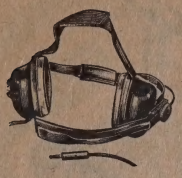






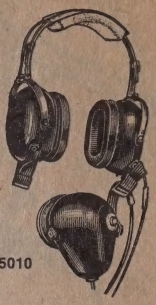
DAVID CLARK SOUND-POWERED SYSTEMS

H5020


H5040

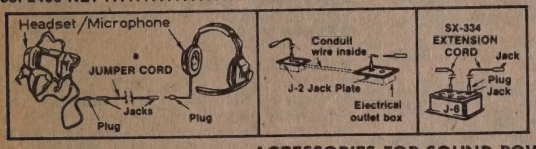
H5090

H5030


H5010

Type H5010. Noise shielded microphone held in talking position by straps for ease of use. Push-to-talk switch on microphone shield. Clear, reliable communication to 130 dB. Padded headband to ensure comfort. Replaceable foam filled ear seals. Adjustable to fit any head contour. Two conductor 30" cord with PJ-055 plug.
35F2402 NET **179.75**

Type H5030. Lightweight acoustic boom rotates to allow easy adjustment. Eliminates heavy microphone element. No push-to-talk switch, your voice activates system. Clear reliable communications in noise to 100dB. Padded headband and replaceable foam filled ear seals ensure comfort. 30" two conductor cord with PJ-055 plug.
35F2400 NET **144.25**



Type H5090. Single ear model used in low noise area to 70dB. Lightweight, durable construction for maximum comfort. Boom microphone rotates to permit wearing on either left or right side. No push to talk switch necessary. Foam filled ear seal. 30" two conductor cord with PJ-055 plug.
35F2435 NET **97.25**

Type H5020. Has all the features of the 15SM-A but designed to be worn in the behind the head position so as not to interfere with safety hats or face shields. Has soft, pliable, adjustable overhead strap to allow proper fitting. Two conductor 30" cord with PJ-055 plug.
35F2403 NET **177.50**

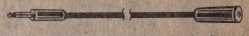
Type H5040. Has all the features of the 10SB-A but is in the behind the head configuration. Adjustable overhead strap and nape spring for firm comfortable fit under safety headwear. Lightweight, durable and recommended for use in noise areas to 90dB. 30" two conductor cord with PJ-055 plug.
35F2401 NET **142.25**

ACCESSORIES FOR SOUND POWERED COMMUNICATIONS GEAR

M5002. Jack Plate. Has two jacks with weather-proof covers in standard outlet faceplate.
35F2405. NET **16.25**

M5006. Junction Box. 6 weatherproofed jacks in 2x4x2" heavy-duty box.
35F2404. NET **69.25**

C52-12/C52-25. Jumper Cord. Headsets plug directly into #88 jack at each end.
35F2410. 12 feet. **NET** **19.25**
35F2411. 25 Feet. **NET** **24.75**



C51-12/C51-25. Extension Cord. Has #88 phone jack one end, PJ-055 plug other.
35F2406. 12 Feet **19.25**
35F2407. 25 Feet **24.75**

ARGOS

WALL BAFFLES

Type WB-4/5D. For 4/5" speaker, max. speaker depth 2¾". Capacity 100 cubic in. Wt. 1½ lb. Walnut vinyl finish.
86F401 NET **6.50**

Type WB-8D. For 8" speaker, max. speaker depth 4⅜". Capacity 400 cubic in. Wt. 4 lb. Walnut vinyl finish.
86F402 NET **7.55**

Type WB-12D. For 12" speaker, max. speaker depth 6⅜". Capacity 1180 cubic in. Wt. 6¾ lb. Walnut vinyl finish.
86F403 NET **11.50**

"THINLINE" SPEAKER SYSTEMS

Type WB-408CS. 4.8 oz. ceramic magnet, 10 W capacity, 8 ohm imped. 9¾x12¼x4⅜". Wt. 4½ lb. Walnut vinyl finish.
86F404 NET **16.95**

Type WB-408CSVT. Same as WB-408CS, except has volume control and 70.7 V transformer. Wt. 5¼ lb. Wlanut vinyl finish.
86F405 NET **24.30**

Type WB-212CS. 12" speaker w/10 oz. ceramic magnet. 18W capac. 8 ohm imped. 14x16¼x6¼". Walnut vinyl finish.
86F406 NET **25.90**

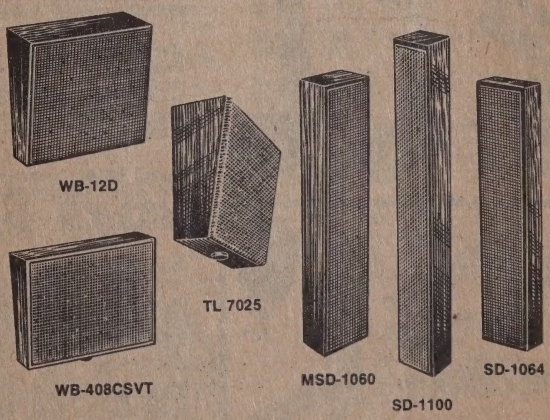
Type WB-212CSVT. Same as WB-212CS, except has volume control and 70.7 V transformer. Wt. 9¾ lb. Walnut vinyl finish.
86F407 NET **33.75**

8" BAFFLE/SPEAKER WITH DUAL VOLTAGE TRANSFORMER

General purpose music/PA speaker for both 25 and 70V systems. Walnut finish on white birch cabinet. Prewired to 7 tap terminals for instant installation. 8" speaker, 4.8 oz. magnet, 10W impedance. Walnut vinyl finish. Size 12¼"x9¾"x4¾". Shipping weight 4¾ lbs.
86F408 TL-7025(ST). Baffle, speaker, transformer. **NET** **25.75**
86F409 TL-7025(SVT). As above, w. volume control. **NET** **27.75**

MSD-1060 SOUND COLUMN

Provides uniform sound level and intelligibility in areas where baffles, horns, or ceiling speakers fail. Response: 70 to 15,000 Hz, power 60 watts. Six 8" speakers, 16 ohms. Vertical sound projection angle is 30°. Two 1060's will cover the largest indoor areas with ease. Includes mounting clips for instant installation. Walnut wood grain vinyl finish, cane grill. Dimensions: 10¾" wide x 50½" high x 8¼" deep. Shipping weight 48 pounds.
86F400 MSD-1060. NET **118.50**



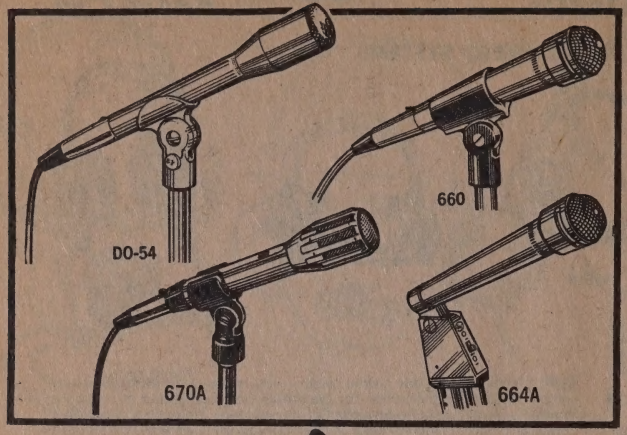
SD-1064 SOUND COLUMNS

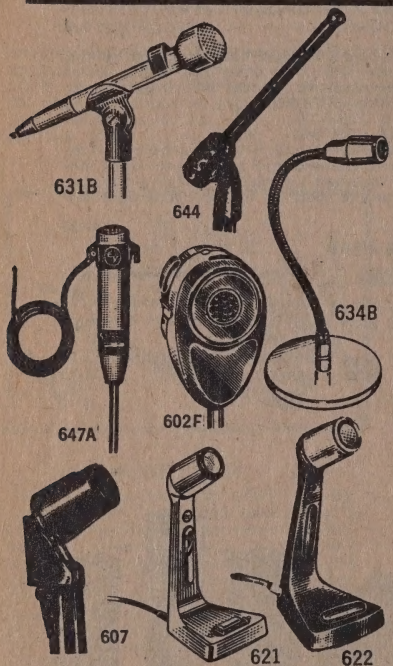
Designed for use in areas where feedback or reverberation is a problem. Has six 5½" 30 watt speakers, for small rooms up to 60 feet long. Input impedance 16 ohms, freq. response 200-10,000 Hz. Vertical sound projection angle 30°. Size 30¼"x7"x3⅛". Ship. wt. 9 lbs.
86F410 SD-1064. NET **59.95**

SD-1100 SOUND COLUMNS

Designed to work under adverse acoustic conditions. Ten 5½" 50-watt speakers prevent high frequency beaming and control feedback. Vertical angle adjustable from 15° to 25°. Walnut wood grain vinyl finish; cane grille. Response 200-10,000 Hz. Impedance 16 ohms. Size 49¼"x7"x6". Wt. 22 lbs.
86F411 SD-1100. NET **103.50**

Microphones





Model DO54. Omnidirectional. Dynamic element. 50-18,000 Hz. —58 dB.
61FX783. NET.....105.00

Model 670A. Cardioid directional. Dynamic element. 60-14,000 Hz. —61 dB. Hi-Z or Lo-Z selectable.
61FX614. NET.....84.00

Model 631B. Omnidirectional. 4 stage filter allows close-up use. Dual Z 80-13,000 Hz. 6″ x 1⅜″ dia. —56 db. Wt. 6 oz.
61FX593. 631B. Dual Z. **NET.....57.00**
Model 631BP. Like 631B with phone plug.
61FX597. 631BP. Dual Z. **Net.....60.00**

Model 644. Directional P.A. High rejection of noise. 40-12,000 Hz. —53 dB. Dual Lo-Z and Hi-Z. Wt. 2 lbs., 9 oz.
61FX567. NET.....139.50

Model 647A. Lavalier delivers big microphone performance. 60-12,000 Hz. —60 dB. Accoustalloy diaphragm. Non-reflecting gray finish. Wt. 2 oz.
61FX535. 647AH. Hi-Z. **NET.....75.00**
61FX536. 647AL. Lo-Z. **NET.....75.00**

Model 602F. Noise cancelling dynamic. Rejects sounds originating more than ¼″ away. Cycolac case. 200-5,000 Hz. —60 dB. 2½″ x 4″ H x 1¾″ D. Wt. 10 oz.
61FX537. 602FH. Hi-Z. **NET.....51.00**
61FX538. 602FL. Lo-Z. **NET.....51.00**

Model 634B. Dynamic paging. Less stud and on/off switch. 70-10,000 Hz. —57 dB.
61FX586. 634BH. Hi-Z. **NET.....33.00**
61FX587. 634BL. Lo-Z. **NET.....33.00**

Model 607. Noise cancelling dynamic. For use in areas with exceptionally high background noise. 300-4,000 Hz. —54 dB. With cable. 4⅛″x1¾″x3¼″. Wt. 12 oz.
61FX609. 607L. Lo-Z. **NET.....54.00**

Model 660. Super Cardioid directional. Dynamic element. 90-13,000 Hz. —56 dB.
61FX784. NET.....78.00

Model 664A. Similar to 660 except stud mounted w/impedance selection switch.
61FX546. NET.....79.50

Model DS35. Single-D cardioid dynamic recording mike. "Volumetric" hologram-developed foam diaphgram provides exceptionally wide linear response. Built-in pop filter. Cable and mounting clamp included. 60-17,000 Hz. Lo-Z. —60 dB.
61FX616. NET.....108.00

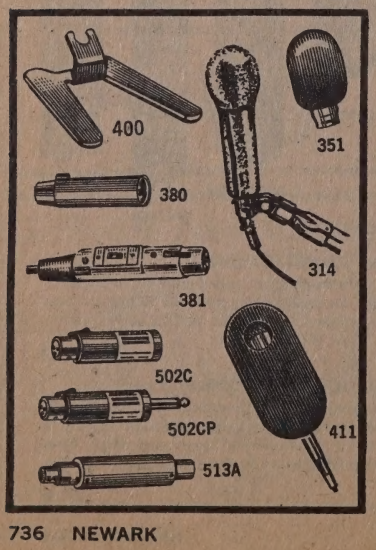
Model RE10. Lo-Z output. 90-13,000 Hz. —56 dB. 2-cond. broadcast cable and Switchcraft A3F contacts furnished. 6⅝″ long. Wt. 6 oz.
61FX601. NET.....120.00

Model RE11. Similar to RE10 except with integral blast and pop filter around head. Metal screen on filter. 7⅜″ long. Wt. 6 oz.
61FX602. NET.....132.00

Model 635A. Omnidirectional microphone for hand and stand. Built-in four stage pop and breath blast filter eliminates need for wind screen. 60-13,000 Hz. Lo-Z output. —55 dB. 5 15/16″x1 3/32. Wt. 6 oz.
61FX504. NET.....66.00

Model 621. Press to talk dynamic. For base station paging and two-way. Switch in base movable to upper stand for grip-to-talk. Has locking "on" position. 70-10,000 Hz. —57 dB. Wt. 2 lbs., 4 oz.
61FX514. 621 H. Hi-Z. **NET.....55.50**
61FX515. 621 L. Lo-Z. **NET.....55.50**

Model 622. Similar to 621; noise cancelling base station. Perfect for paging or communication in noisy environments. 200-4,000 Hz. —57 db. with 7 ft. 5 cond. cable. Shpg. wt. 2 lbs. 4 oz.
61FX611. Lo-Z. **NET $60.00**



ACCESSORIES

Model 400. Gray desk stand with rubber base pad, fits most mikes whether clamp mounted or with switch stud.
83F016. NET.....13.50

Model 314. Windscreen for RE10 and RE15 mikes. Zippered for easy installation. Rear portion can be used on RE11 for wind protection.
83F011. NET.....11.25

Model 351. Windscreen for 670A microphone.
83F012. NET.....5.95

Model 411. Floor-mount "mike-mouse" for medium and long-distance pickup. Uses reflected sound wave for increased gain before feedback. Recommended for use with RE10, RE15 mikes.
86F666. NET.....11.95

Model 380. Attenuator for use in mike line. Reduces signal 10 dB, does not affect response. Mates with A3 Type, professional connectors.
86F663. NET.....19.50

Model 381. Switch/connector and cable. SPST switch built-in. Mates with all E-V professional hand-held mikes. 15′ cable.
86F664. NET.....22.50

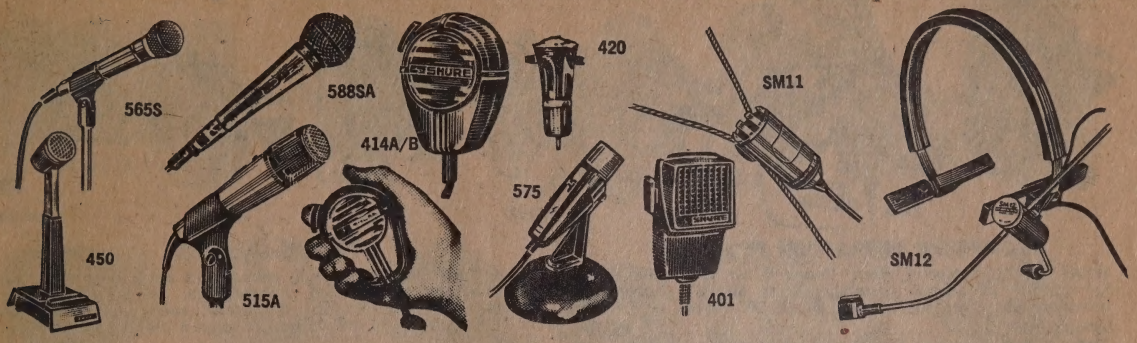
Model 502C. Matching transformer Lo to Hi Z.
61FX617. NET.....19.50

Model 502CP. Same as 502C but with ¼″ phone plug output.
61FX618. NET.....19.50

Model 513A. Low-frequency cutoff filter.
61FX619. NET.....58.95

Microphones and Accessories

SHURE®



Model 565. Unisphere I. Unidirectional dynamic. Wind and pop filter. Solves feedback problems. Dual impedance. 50-15,000 Hz.
61FX196. 565SD. **NET**.....89.40
61FX162. 565 No Switch. **NET**.....85.20

Model 515. Unidyne B. Includes On-Off switch. Ideal for low-budget sound systems. 80-13,000 Hz. High impedance. —58 dB. 1½" diameter. 6$^{7}/_{16}$" long. Includes 15-foot one-conductor non-detachable cable.
61FX112. 515SA HI-Z. **NET**.....36.30
61FX113. 515SB Lo-Z. **NET**.....36.30
515SB-G18. Same as above except 18' gooseneck, 51" cable.
61FX195. 515SB-G18. **NET**.....42.45

Model 401. Controlled magnetic microphone ideal for outdoor-indoor communications activity. Free from undesirable peaks. 200-4,000 Hz.
61FX215. 401A. Hi-Z. **NET**.....19.80
61FX153. 401B. Lo-Z. **NET**.....19.80

Model 522. Base station microphone suppresses unwanted background noise and eliminates feedback. Dual impedance. Press-to-talk switch. Locking or nonlocking, actuates microphone and external relay. 60-10,000 Hz.
61FX186. NET 56.85

Model 450. For dispatching and paging use. Telescoping height adjustment. Hi or Lo-Z. Push-to-talk switch bar activates both microphone and relay circuits. 100-10,000 Hz.
61FX172. NET 44.85

Model 414. Switch controls microphone and external relay. Ideal for miniaturized or portable communications systems. 40Q-4,000 Hz.
61FX216. 414B Lo-Z. **NET**.....30.00
61FX217. 414A Hi-Z. **NET**.....,30.00

Model 404. Hand-held. Ideal for outdoor use. Designed for high speech intelligibility. Push-to-talk leaf switch. 400-4,000 Hz.
61FX103. 404B. Lo-Z. **NET**.....30.60
61FX104. 404C. Hi-Z. **NET**.....30.60

Model SM11. Dynamic miniaturized lavalier microphone. Flat natural frequency response ideal for broadcasting, motion pictures, and sound reinforcement. 50-15,000 Hz.
61FX777. NET 63.60

Model SM10 and SM12. Lightweight, unidirectional, head-worn microphone. Minimizes stray sounds. Windscreen. Lo-Z. 50-15,000 Hz.
61FX778. SM10. **NET**.....80.40
61FX779. SM12 With monitor. **NET**..107.40

Model 575S and 575SB. Versadyne Dynamic Microphones. Lightweight for tape recording, general public address, etc. Built-in filters. Slide-to-talk locking switch, lavalier cord, and stand adapter are included. 40-15,000 Hz.
61FX148. 575S Hi-Z. **NET**.....22.20
61FX149. 575SB Lo-Z. **NET**.....20.10

Model 420. Commando Microphone. Omnidirectional, magnetic lavalier microphone. Polar pattern. 60-10,000 Hz. Dual impedance.
61FX128. NET 27.90

ATTENUATOR

Model A15A. Microphone attenuator. Inserts a 15 dB loss.
83F069. NET 20.10

FILTER

Model A15HP. High pass filter. Reduces unwanted low frequency noises.
83F072. NET 20.10

STANDS

Model S33B. Modern desk stand. Black.
83F078. NET 14.40

Model S37A. For use with microphones with swivel connector assemblies or swivel adapters. Non-reflective, textured gray finish
83F077. NET 7.50

Model S38B. Round stand. Black.
83F066. NET 4.35

Model S39A. Vibration-isolation stand.
83F079. NET 22.50

ADAPTER

Model A15LA. Line input adapter. Converts balanced low impedance microphone input to bridging line level input.
83F076. NET 20.10

LINE TRANSFORMERS

Makes it possible to connect low impedance lines to high impedance, or vice versa. Designed to mate with Cannon XL, Switchcraft X3, equiv.

Model A95U. Three-pin Male input.
83F080. NET 18.45

Model A95UF. Three-pin Female input.
83F081. NET 21.00

Model A95A. Three-pin Male input.
39F950. NET 16.95

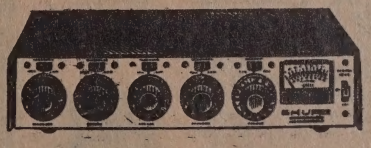
Model A95F. Three-pin Female input.
83F070. NET 19.20

Model A95P. Three-pin male input. High impedance output terminates in removable locking phone plug adapter.
83F055. NET 18.45

Model A95FP. Three-pin female input. High impedance output terminates in removable locking phone plug adapter.
83F068. NET 21.00

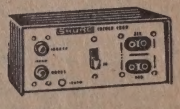
M-68
MICROPHONE MIXER

Model M68. Four microphone inputs, one auxiliary input. Outputs: high or low impedance microphone level and high impedance, high level output for power amplifier requiring .5 to 2 V. Comes with Cannon. XLR-3-14 type input connectors.
61FX171. NET 126.60
Model M68FC. Same as M68 but with female input connectors.
61FX774. NET 136.20



PROFESSIONAL MICROPHONE MIXER/REMOTE AMPLIFIER

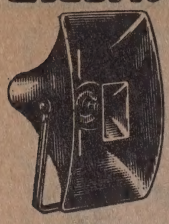
Model M67. Individual gain controls for 4 microphone inputs, master volume control, tone oscillator, headphone jack illuminated VU meter. 600 ohm balanced line output (+18 dbm), 150 ohms low impedance balanced line. Microphone level output. Freq. resp. ±2dB 20-20,000 Hz. Gain: 90dB Max. Noise: —126dBv. Distortion: under 1%, 20-20,000 Hz. Size: 11⅜"w. x 7½"d. x 2⅝"h. Wt. 4 lbs., 3 oz.
61FX191. NET 232.80

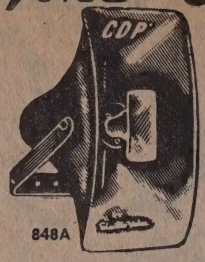


M64
STEREO PREAMPLIFIER

Fully transistorized. Inputs for tape heads and magnetic phono cartridges. Outputs for high or low level auxiliary. Freq. Resp.: ±2 dB from 20 Hz to 20 kHz. Less than 1% total harmonic distortion for 2 volts output at 1 kHz. Operating voltage: 120 v ±10%, 50/60 Hz or 30 VDC. Size: 2$^{15}/_{16}$" x 5⅝" x 4½". Shpg. wt. 2½ lbs.
61FX173. NET 70.00

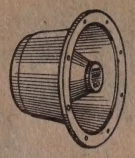
Electro-Voice® Sound Projectors and Speakers

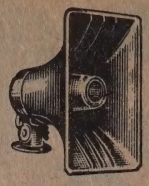

FC100

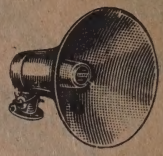


848A

PA12


PA12F


PA30A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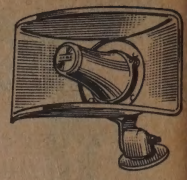

PA15A

COMPOUND DIFFRACTION PROJECTOR

Model FC-100 Projector Horn. Provides two diffraction horns for uniform wide-angle coverage. Uses any E-V convertible driver. Mouth size 10½"x20½", depth 20". Shpg. wt. 13 lbs.
88F180. NET **60.00**

Model 848A. Combines FC100 compound diffraction horn plus 1828C compound driver for fine wide angle sound, low distortion, and highest quality of any projector. Freq. response 107-13.5K Hz.; Imp., 8 ohms; Dispersion, 90°x120°. Power Cap. 30 watts. Size, 10½"x20½"x20". NET WT. 15½ lbs.
88F152. NET **90.75**

CONVERTIBLE DRIVERS

1828C

1828T

1829

1829T

1823

Peak free response with max. efficiency. Easily adapted for use with all Re-entrant-type horns.

Stk. No.	Type	Dim.	Watts	Imp. Ohms	rreq. Resp. Hz.	NET
88F195	1828R	4"x2¾"	30	8	170-13.5 KHz	33.00
88F184	1828C	4"x3¼"	30	8	170-13.5 KHz	33.00
88F185	1828T	5"x4"x5¼"	30	8	170-13.5 KHz	42.00
88F191	1829	5 5/16"x4 1/16"	60	16	140-11 KHz	52.50
88F192	1829T	5 5/16"x6⅜"	60	16	140-11 KHz	69.00
86F668	1823	4"x3"	90	7	200- 6.4 KHz	52.50

PAGING SPEAKERS

Model PA12. Power handling capacity 12 watts, with voice coil impedance 8 ohms. Wide dispersion of 130°. Frequency response: 440-11.5 KHz. Swivel bracket easily removable from horn for convenient mounting. 7½" Dia. x 7⅛" Deep. Shpg. wt. 5 lbs.
88F196. NET **24.00**

Model PA30AT-7. This 30 watt paging projector features easily selected line power taps at 30, 15, 8, 4, and 1 watts. Rectangular horn designed for wide dispersion. Frequency response: 340-11 KHz. Dispersion: 105° x 72°. Sound pressure level: 125 db. 11" x 6½" x 8½". Wt. 7¾ lbs.
88F190. NET **53.40**

Model PA30A. Same as above, without line matching transformer.
88F173. NET **39.60**

Model PA30R. Similar to the PA30A, except that this model features a round spun-aluminum bell, instead of the rectangular horn. 82° dispersion. Shipping wt. 6½ lbs.
88F194. NET **39.60**

Model PA15A. Rectangular projector. Handles 15W program power. Tan, die-cast aluminum. Speech/music. Universal bracket. Freq. Response: 360-12 KHz. Sound Pressure Level: 117 dB. Dispersion: 80° Horizontal.
83F015. NET **35.10**

Model PA12F. Paging projector rated at 12 watts. Frequency response: 620-16 KHz. 140° dispersion. with voice coil impedance of 8 ohms. Sound pressure level: 115.5 db. Dimensions: 6" x 3⅝" x 3½".
86F669. Wt. 1 lb. 10½ oz. **NET** **28.50**

UNIVERSAL PA TRANSFORMERS—70.7 or 25 V

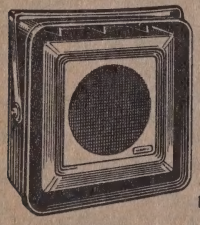
Model TM5. 5 watt line transformer with taps for .62, 1.25, 2.5, 5 watts. Shpg. wt. 1 lb.
54F1000. NET **11.10**

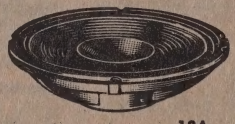
Model TM15. 15 watt transformer with taps for 1.87, 3.75, 7.5, 15 watts. Shpg. wt. 1½ lbs.
54F1001. NET **12.75**

Model TM30. 30 watt transformer with taps for 3.75, 7.5, 15, 30 watts. Shpg. wt. 2 lbs.
54F1002. NET **14.40**

Model TM60. 60 watt transformer with taps for 7.5, 15, 30, 60 watts. Shpg. wt. 2½ lbs.
54F1003. NET **17.40**

LOUDSPEAKERS AND SPEAKER SYSTEM


IA & IIA


12A

Model IA. Compact, integrated loudspeaker system with dual cone 12" driver. Frequency response: 50-11,500 Hz. Dispersion: 80°. Power handling capacity: 30 watts continuous, 60 watts peak. EIA pressure rating: 49db and sound pressure level 111 db (500 to 1500 Hz at 4' on axis with 30 watts input). Nominal impedance: 8 ohms. Mechanical crossover at 4,000 Hz. Mounting bracket is a Universal "U" bracket (housing designed to stand stably on any flat surface) and easily converts to a carrying handle. Rugged construction uses a one-piece compression molded housing of highly resilient glass-filled polyester. Dimensions: 21½H.x21½W.x8½D.
80W404. Wt. 29 lbs. **NET** **144.00**

Model IIA. Same as Musicasfer IA with addition of Model T35A VHF compression driver. Frequency response: 50-21 KHz. Electrical crossover at 5,000 Hz. Dimensions are 21½"x21½"x 8½". Shipping weight 31 lbs.
80W403. NET **176.25**

Model MC12A. 12" Loudspeaker. Frequency response in recommended vented enclosure: 25-12 KHz. 8 ohms impedanc **45.00**
86F339. NET .....

Model MC8A. 8" diameter. Frequency response 35-20,000 Hz. 8 ohms impedance.
86F338. NET **34.00**

Model LR4SA

Model LR2SA

ELECTRO-VOICE LINE RADIATOR SPEAKER SYSTEM

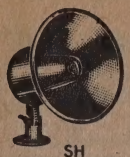
Model LR4SA. Straight line radiator utilizing six 5x7 cone speakers. Feedback resistant. Freq. resp. 105-14,000 Hz with 8 ohms nominal impedance. Power handling capacity of 40 watts for program material and 80 watts peak. With line radiator mounted on long vertical dimension, dispersion is 160° horizontal and 30° vertical. EIA pressure rated at 53 db and sound pressure level at 116 db (at 4' with 40 watts input between 750 and 1250 Hz.). With 460 stand mount and universal bracket with chain. Weatherproof. Size: 48⅜"x6 3/16"x4 1/16". Wt. 25 lbs.
80W405 NET **144.00**

ELECTRO-VOICE PORTABLE LINE RADIATOR SPEAKER SYSTEM

Model LR2SA. All-weather speaker system designed to solve the more difficult sound reinforcement problems where the substantial length and weight of other Electro-voice Line Radiators is not acceptable. 20-watt power handling capacity: 40 watts peak at 8 ohms impedance. Smooth frequency response from 105-14,000 Hz, with dispersion of 45° vertical and 160° horizontal (line radiator mounted with long dimension vertical). Two Model 460 mtg. brackets and hardware incl.; Self supporting. Size: 24½"x6 5/8"x4⅞". Wt.: 11 lbs.
86F327. NET **84.00**

UNIVERSITY SOUND Speakers

COBREFLEX II & III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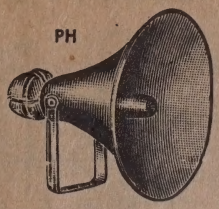
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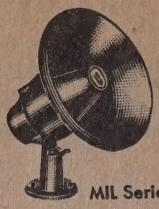
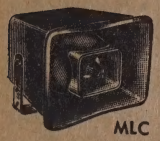
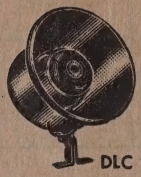
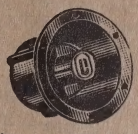

MIL Series

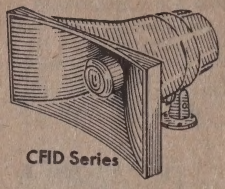
IB Series

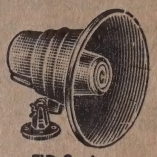

MLC

ID40B-8


DLC Series


MIS-8


CFID Series


FID Series

TRUMPETS, PROJECTORS AND DRIVERS

Reflex Trumpets, Wide-Angle Horn. Weatherproof. Model SMH is directional type. Model SH is high power, compact unit. Cobreflex features high efficiency, wide dispersion.

Stk. No.	Type	Cutoff	Bell Dia.	Horn Lgth.	Wt. lbs.	Net
88F233	PH	150 Hz	20⅜"	15¾"	11¾	49.80
88F075	SH	350 Hz	8¾"	7"	3¼	43.20
84F112	CBFLX-II	200 Hz	18½x9¼"	10¼"	10¼	52:80
88F230	CBFLX-III	250 Hz	14½x27½"	15"	18	52.80

DRIVERS

Drivers. ID40B and ID60B series. University's 40 and 60 watt drivers. 1" throat (inside dimension) provides higher efficiency and broader frequency response than older .7" throats. Screwdriver operated transformer tap switch. Weather-proofed hinged cover. Cycolac housing. Field replaceable parts. Tropicalized.

Stock No.	Type	Power Rating	In. Dia.	Wt. lbs.	Net Each
88F141	ID-20	20 Watts	3½	2½	33.60
88F142	ID-30	30 Watts	4⅛	3	36.60
88F143	*ID-40B-8	40 Watts	4½	4¼	45.00
88F144	*ID-40BT	40 Watts	5	4	62.00
88F145	*ID-60B-8	60 Watts	4 1⁄16	5¾	59.00
88F146	*ID-60BT	60 Watts	6¾	6¾	73.00
88F138	ID-75	75 Watts	4¼	5	63.60

*1" Throat

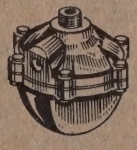
MULTI-DUTY SPEAKERS

Model MLC. Weatherproof, hi-fi, 2-speaker system with high output. 150-15,000 Hz. 15 watts. 8 ohms. 120° dispersion. Size: 12¾x9⅛x10⅝". Wt.: 10¾ lbs.
88F135. NET..... 72.00

Model MLCT. Same as above, but with 70V adjustable transformer.
88F228. NET..... 79.80

Model MM-2. Rugged speaker immune to salt spray, gases, live steam, fungus and harmful dusts. 350-10,000 Hz 25 watts. 16 ohms. 150° dispersion. 6" o.d., 5" deep. UL Listed. Wt. 5¼ lbs.
88F108. NET..... 59.40

7110X EXPLOSION-PROOF DRIVER (.7" Throat)



Meets and surpasses UL standard classifications for use in hazardous areas (Class I, Groups B, C, D, plus Class II. Groups E, F, G.) Constructed of die-cast aluminum casing with sintered bronze acoustic screen. Can be combined with any University Sound reflex trumpet. University Sound Model 5436B Transformer and Mounting bracket Kit needed for 70V line matching.
88F231. NET..... 118.20

LINE-MATCHING TRANSFORMERS

Model 5433 Transformer. 30 watt capacity. Wide selection of impedances and constant voltage power taps. 1 lb.
88F128. NET..... 10.80

Model 5434 Transformer. 15 watt capacity. ¾ lb.
88F129. NET..... 8.40

Model 5436B Transformer Accessory Kit. Includes 60 watt transformer, mtg bracket, all hardware. 1½ lbs.
88F232. NET..... 21.00

PAGING/TALKBACK SPEAKERS

Model IB-A8. 105° dispersion angle. With adjustable wall mounting bracket. Wt., 4½ lbs.

Model MIL-A8. Reflex type speaker for low-power use. High efficiency and inelligibility at speech frequencies. Dispersion angle, 120°. Wt. 3¼ lbs.

Model MIS-8. Compact, weatherproof low-power reflex speaker. Dispersion: 150°. Wt., 2½ lbs.

Model DLC-8. Low cost reflex speaker for indoor/outdoor paging. Dispersion: 120°. **DLC-45** has 45-ohm voice coil impedance. Wt., 1¾ lbs.

Model DLCT. Has 70V line transformer.

Model CFID15-8. Rectangular, reflex exponential horn, with matching throat and driver unit. 8 ohm impedance. Dispersion: 120°H x 80° V. Virtually indestructible cycolac material. Wt. 3.75 lbs.

Model CFID15-T. Similar to CFID15-8, but includes a 70V and 25V line transformer w/6 screwdriver selectable wattage taps. Wt. 4.25 lbs.

Model CFID32-8. Similar to CFID15-8 but 32 watts.

Model CFID32-T. Similar to CFID15-T but 32 watts.

Model FID15-8. Round reflex horn speaker. Dispersion: 120°—all planes. Weatherproof, virtually indestructible cycolac material. Easy installation with Uni-Lok swivel mount. Wide frequency response and unusually low distortion. Shpg. wt. 3¼ lbs.

Model FID15-T. Similar to FID15-8, but includes a built-in 70V and 25V transformer, 6 screwdriver selectable taps. 3¾ lbs.

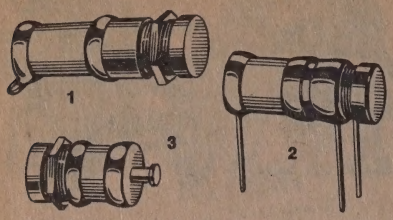
Model FID32-8. Similar to FID15-8 but 32 watts.

Model FID32-T. Similar to FID15-T but 32 watts.

Stk. No.	Type	Response	Mic. Sens.	Power	Size	Net
88F110	IB-A8	250-13K	—20 DBM	30W	10½x9"	45.00
88F079	IB-T	250-13K	—20 DBM	30W	10¼x11 7⁄16"	56.40
88F111	MIL-A8	350-13K	—23 DBM	10W	7 13⁄16x6⅞"	36.60
88F220	MIS-8	500-13K	—22 DBM	7.5W	5½x4 7⁄16"	38.40
88F221	DLC-8	400-10K	—30 DBM	7.5W	5⅞x4"	21.00
88F222	DLC-45	400-10K	—30 DBM	7.5W	5⅞x4"	21.60
88F223	DLC-T	400-10K	—30 DBM	7.5W	5⅞x6⅛"	37.80
88F082	FID15-8	260-14.5K	—28 DBM	30W	9x8¾"	33.00
88F083	FID15-T	260-14.5K	—28 DBM	30W	9x8¾"	43.20
88F112	FID32-8	220-14.5K	—26 DBM	32W	10½x10⅞"	42.00
88F113	FID32-T	220-14.5K	—26 DBM	32W	10½x10⅞"	51.60
88F226	CFID15-8	220-14.5K	—26 DBM	15W	6¾x11⅞x10⅜"	33.60
88F227	CFID15-T	220-14.5K	—26 DBM	15W	6¾x11⅞x10⅜"	43.20
88F114	CFID32-8	220-14.5K	—26 DBM	32W	7⅛x14⅜x12½"	45.00
88F115	CFID32-T	220-14.5K	—26 DBM	32W	7⅛x14⅜x12½"	55.20

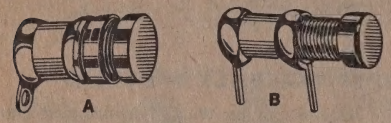
Make NEWARK your one point source for all your electronic needs

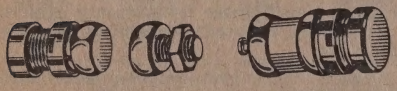
Johanson Capacitors

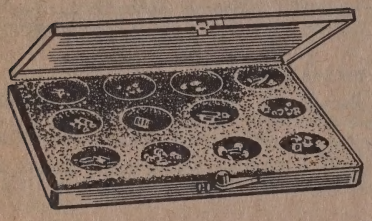


STANDARD VARIABLE AIR CAPACITORS

These capacitors are designed for UHF and VHF applications. They feature excellent tuning stability and very low dynamic noise. Working voltage: 250 VDC. Test voltage: 500 VDC. Temperature coefficients PPM/°C: 5200, 0±15; 5400, 0±25; 5450, 0±50; 5500 and 5600, 0±30.







STANDARD VARIABLE AIR CAPACITORS

Stk. No.	Type	Fig.	Q Factor @ 100 MHZ	Capacitance Range	Size L x D	1-24	25-49	50-99	100-299
17F153	5200	1	>5000	0.8-10.0 Pf	.500 x .285				
17F154	5201	2	>5000	0.8-10.0 Pf	.500 x .285	5.35	4.45	3.65	3.05
17F155	5202	3	>5000	0.8-10.0 Pf	.500 x .285				
17F159	5400	1	>3000	1.0-14.0 Pf	.500 x .285				
17F160	5401	2	>3000	1.0-14.0 Pf	.500 x .285	6.65	5.85	5.10	4.40
17F161	5402	3	>3000	1.0-14.0 Pf	.500 x .285				
11F460	5450	1	>3000	1.0-16.0 Pf	.500 x .285				
11F461	5451	2	>3000	1.0-16.0 Pf	.500 x .285	7.65	6.75	5.90	5.10
11F462	5452	3	>3000	1.0-16.0 Pf	.500 x .285				
17F165	5500	1	>1500	1.0-20.0 Pf	.734 x .285				
11F463	5501	2	>1500	1.0-20.0 Pf	.738 x .285	8.25	7.35	6.45	5.75
17F167	5502	3	>1500	1.0-20.0 Pf	.734 x .285				
19F001	5600	1	>800	1.0-30.0 Pf	.921 x .285				
19F002	5601	2	>800	1.0-30.0 Pf	.926 x .285	11.50	9.35	8.45	7.65
11F464	5602	3	>800	1.0-30.0 Pf	.921 x .285				

MINIATURE VARIABLE AIR CAPACITORS

The miniature air series of variable capacitors are a size reduction of the standard series and are for use in microwave, VHF and UHF applications. They offer fine tuning resolution; .35 pf per turn, 10/1 capacitance ratio, low temperature coefficients and sizes compatible for hybrid circuits as well as standard applications. Working voltage: 250 VDC. Test voltage: 500 VDC. Temperature coefficients PPM/°C: 5700 and 5800, 0±15, 5750 and 5850, 0±50.

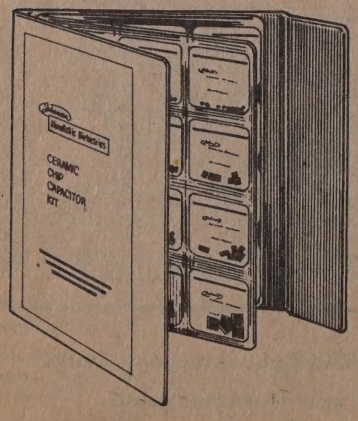
Stk. No.	Type	Fig.	Q Factor @ 100 MHZ	Capacitance Range	Size L x D	1-24	25-49	50-99	100-299
11F465	5700	A	>10000	0.6-6.0 Pf	.484 x .220				
17F182	5701	B	>10000	0.6-6.0 Pf	.484 x .220	7.85	6.90	6.10	5.45
17F183	5702	D	>10000	0.6-6.0 Pf	.484 x .220				
19F008	5750	A	>7500	0.8-10.0 Pf	.484 x .220				
17F213	5751	B	>7500	0.8-10.0 Pf	.484 x .220	8.15	7.35	6.60	5.95
17F214	5752	D	>7500	0.8-10.0 Pf	.484 x .220				
17F173	5800	C	>10000	0.35-3.50 Pf	.484 x .145				
17F174	5801	B	>10000	0.35-3.50 Pf	.484 x .145	7.15	6.40	5.70	5.15
17F175	5802	D	>10000	0.35-3.50 Pf	.484 x .145				

JK-500 VARIABLE AIR CAPACITOR PROTOTYPING KIT

Contains 3 each of standard air capacitor models 5201 and 5202 and 3 each of miniature models 5701, 5702, 5801 and 5802. Also includes 2 special adjusting tools.

11F466. JK-500 NET.....70.00

JOHANSON DIELECTRICS



CHIP CAPACITOR PROTOTYPING KITS

Designer kits contain standard size chips in popular capacitance values and dielectric characteristics, with palladium silver terminations. Kits are supplied in a special vinyl cover for convenient shelf storage with each chip value individually packaged for easy access.

S-900 NPO/COG Kit

300 ceramic NPO/COG capacitor chips. Includes 10 chips each of 30 different values from 1.0 pf to .01 mfd with tolerances from ±.5 pf to ±5% at 50 VDCW. Sizes included are from .050" x .040" x .040"T to .125" x .095" x .065"T.

17F149. S-900 NET.....75.00

S-905 BX/X7R, Z5U and Y5V Kit

400 ceramic BX/X7R and High K (Z5U and Y5V) capacitor chips. Kit includes 10 chips each of 20 BX/X7R types with values from 390 pf to .22 mfd with tolerances of ±10% at 25 and 50 VDCW and 20 High K (Z5U/Y5V) types with values from .012 mfd to 1.0 mfd with tolerances to +100%, —0% at 6 and 12 VDCW. Sizes included are from .050" x .040" x .040"T to .125" x .095" x.065"T. in all dielectrics.

17F150. S-905 NET.....75.00

S-910 CERAMIC CAPACITOR WAFERS KIT

500 single layer ceramic capacitor wafers are ideal for microwave circuit applications. Kit includes 125 pieces each of 4 sizes from .020" x .020" (U02) to .050" x .050" (U05). Each size group includes 5 different capacitance values ranging from 0.3 pf to 50.0 pf in the U02 size to 1.0 pf to 1000 pf in the U05 size. Electrodes are high adhesion precious metal alloy which provides easy attachment to circuitry with solder, epoxy or wire bonding techniques.

11F467. S-910 NET.....75.00

Complete Product Index

— A —

Adapters
Connectors 397, 406-408, 440, 445, 447, 453, 454, 458, 486, 501
Cord/Receptacle 649
Instrument 447, 451
Socket 447, 453, 501
Test 447, 451
Adhesives 661, 662
Alignment Tools 640
Alligator Clips....447, 460, 478
Amateur Radio Accessories
BNC Connectors 403, 405, 410, 451, 454, 509
Buzzers 121, 122
Coax Relays 323, 324, 330, 365
Filters 221-223
Headphones 733-735, 737
UHF Connectors 404, 405, 410, 451, 509
Amplifiers
Microphone Mixer ..732, 737
Preamplifiers 732, 737
Public Address 732
Antenna Accessories
Coaxial Relays 306, 323, 324, 330, 365
Coaxial Switches 371
Appliance Cords 525-527
Arrestors 335
Audible Signal Device 121, 122

— B —

Ballast Tubes 365
Batteries 663-666
Battery
Chargers 646, 663, 665
Connectors 667
Eliminators 711
Holders 502, 667
Plugs 667
Power Packs 663
Sockets 667
Testers 699, 713
Belts, Electrician 638
Black Boxes 455
Binding Post (See Connectors)
Blowers 655-659, 686
Boards
Bread 461, 484, 493, 552
Integrated Circuit 483-485, 490, 552
Microprocessor 489
Photo-Sensitive 493, 504
Printed Circuit 491, 493, 502, 506, 684
Terminal ...483-485, 502, 507
Books (See Publications)
Boxes (See Cabinets, Cases & Enclosures)
Electrical Outlet 650, 651
Brackets 479
Braiding Copper (See Wire and Cable)
Breakers, Circuit (See Circuit Breakers)
Bulbs (See Lamps and Lights)
Buzzers 121, 122

— C —

Cabinets, Cases and Enclosures
Index 675
Blowers 655-659
Boxes, Die Cast..... 647, 681, 682, 688, 689, 693
Brackets 681
Carrying Case 491, 686, 687
Carts 653
Casters 691
Chassis 682, 685, 690
Chassis Slides 681, 682
Desks and Accessories...680
Desk Top 675, 677, 678, 682, 685
Doors 676
Drawers ...483, 678, 682, 692
Edge Connector 684
Handles 691
Inclined Panel 677, 678, 685, 687
Instrument 685-687, 693
Levelers 691
Meter 687
Modular Packaging Systems 489, 493, 683
Modular Work Stations 686
Panels 489, 683, 684, 689
Panel Chassis ..682, 685, 690
Parts Bins 511, 692, 693
PC Board Enclosures 382, 491, 493, 684, 693
Plates, Bottom 690
Power Outlets 652, 653, 681
Portable 491, 685, 686, 690, 692
Racks 676, 678, 683, 688, 693
Rack Panels 689
Relay Racks.....681, 682
Shadow 681, 690
Shelves 689
Slides 681, 682
Sloping Panel 681, 688
Small Cabinets and Cases 190, 491, 679, 681, 687, 692
Storage Bins 511, 693
Sub Racks 683, 684
Temperature Control....686
Upright 675-678
Utility 688, 690, 693
Video Tape Recording ...679
Cable (See Wire and Cable)
Cable Binding Machines and Accessories 562
Cable Clamps 380, 441, 451, 477, 479, 510, 511, 562-564
Cable Strippers, Coax.....462
Cable Ties ..451, 477, 562, 563
Caddy, Fuse 371

International Shipments Special Information on Page 752

For Manufacturers Index See Pages 750-751

Capacitor Chip Prototyping Kits 740
Capacitors
Capacitor Index 169
AC Line 221
Accessories 202
Air Variable 740
Aluminum ..176-184, 191, 198-201, 204, 205, 208, 209
Assortment 190, 200, 203, 208, 215, 740
Ceramics 175, 184-186, 194, 195, 212, 214-219, 740
Chips 740
Disc. 184, 185, 212, 214, 215, 219
Doorknob 184
Feed-Thru 219
Monolithic (DIP) ..185, 186, 212, 216, 217
Radial Lead 184-185
Transmitting 216
Trimmers 216
Tubular 216, 217
Commutation 170
Computer Grade 178, 191, 198, 199, 204, 208
Decade Boxes ..190, 210, 711
Difilm Dipped 186, 210
Disc 184, 186, 187, 212, 214, 215, 218
Electrolytic 171-184, 189, 191-193, 196-202, 204, 205, 208, 209
Aluminum ...176-184, 191, 198-201, 204, 205, 208, 209
Low Leakage 178, 180-182, 189, 193, 200, 208
Miniature ...180, 182, 189, 190, 200, 201, 208, 209
Radial 180, 196, 208
Subminiature 171, 193
Tantalum 171-173, 175, 192, 193, 196, 197, 205
Tubular 176-184, 191-193, 198, 201, 202, 208, 209
Film 186, 189, 190, 210
Filters 179-181, 188, 204, 205, 210, 211, 215, 218, 219, 221
Glass 220
Hardware 202
High Capacitance 179, 185, 191, 198, 199, 217
High Voltage 183, 184, 187, 215, 220
Low Voltage 190, 200, 212, 214
Metalized 184
Mica, Dipped ..206, 207, 213
Mica Mil Spec ..206, 213, 218
Miniature 171, 174, 185, 186, 189-201, 206, 207, 210-212, 214, 219, 740
Molded 196
Mounting Hardware 202
Mylar 210
Mylar-Paper 220
Oil Filled 220
Orange Drop..184, 186, 187
Paper-Oil 170
Capacitors (Cont.)
Polyester Film 187, 189, 207, 211
Polystyrene 203
Printed Circuit 208
Prototyping Kits 740
SCR Commutation 170
Silver Mica 207
Sockets 427
Substitution Box 190, 740
Tantalum 171-175, 192, 193, 196, 197, 205
Transmitting 216
Trimmer 216, 219
Card Guides 499
Carts 653
Cases (See Cabinets, Cases & Enclosures)
Casters 691
Cements 661, 662
Chart Recorders 711, 712
Chassis (See Cabinets Cases & Enclosures)
Chemicals
Adhesive 661, 662
Anti-Static 660
Cement 661, 662
Cleaners
Contact and Motor 660, 661
Electric Motor 660
Plastic and Glass 660, 661
Relay and Contact 660, 661
Tape Head 660
Tuner 660, 661
Cooling 661
Etching 504
Insulating 661
Lubricant 660-662
Mil Spec 660-661
Printed Circuit 661
Silicones 661, 662
Wrinkle-Finish 660, 661
Chokes
Adjustable 594
Filters 578
Fixed 593
Form, Adjustable Ceramic 594
Hash 594
High Current 574
Hybrid & Repeat.....579
Iron Core 594
Mil Spec 578, 593
Miniature 578, 579
Molded 594
RF 594
Smoothing 574
Sub-Miniature ..578, 593, 594
Variable 578, 579, 593
Circuit Boards (See Printed Circuit)
Circuit Breakers
Magnetic 367
Thermal 368
Circuit Cards
Card Cages 382
Card Cases 382, 491, 493
Integrated Circuit 506
Microprocessor 491
Universal 506

Complete Product Index

See Pages 4 and 5 for Terms and Conditions of Sale and Shipping Information

Clamps
Cable 380, 477, 479, 510, 562-565, 649
Component 499
Hose 563
Scissor 632, 636
Cleaners
(See Also Chemicals)
Ultra-Sonic 626
Clips
Alligator 447, 460, 478
Battery 478
Cable 479, 551, 563, 564
Capacitor Mounting 202
Crocodile 478
Fuse 497
Miniature 447, 478
Test 261, 448, 449, 552
Coaxial Cable
(See Wire and Cable)
Connectors 410, 451
Switches 365
Coaxial Black Boxes 455
Coil
Forms 594
Permeability Tuned 578, 579, 593, 594
Coils (See Also Inductors)
Adjustable 578, 579, 593, 594
High Q 579
Hybrid 579
Mil Spec 578, 593
Miniature 578, 579
Molded 594
Repeat 578
RF 594
Toroidal 578
Variable 578, 579, 593
Computer (See Integrated Circuit Listing)
Condenser (See Capacitors)
Connectors
Connector Index 376
AC 440
Accessories 396, 421, 423
Adapters 397, 406-408, 440, 445, 447, 451, 453, 454, 458, 486, 501
Alligator Clips..447, 460, 478
A-Mode 431, 508
Assembly Tools 383, 410, 431, 473, 481, 497
Audio 401, 402, 410, 440-442, 445, 447-451, 467
BNC 403, 405, 410, 451, 454, 509
Back Panels 409
Banana 447-449, 451, 454, 456, 457, 464, 465
Bantam Jacks 466
Barrier Terminal Block 412, 413, 436, 437
Battery 667
Binding Post 261, 447, 449, 457, 458, 464, 465
Block Terminals 553
Box Mounting Receptacle 386
Bushings, Rubber 390
Connectors (Cont.)
C Type 405
Cable 386, 401, 407, 408, 410, 416-418, 431, 451, 456, 553
Cable to Cable 410, 422, 431, 451, 472, 473
Cable Clamp Assemblies ...390, 399, 415, 441, 649
Capacitor Sockets 427
Card Edge 397, 543
Chassis 400, 422, 431
Coaxial 406, 410
BNC 403, 410, 451
C 405, 406
HN 405
N 404, 406
Crimp Type 396
Sub Miniature 416
TNC 403
UHF 410, 451
Commercial Nylon 462
Contact Arrangements 384, 385, 387-390
Contact Socket Strip 484
Cord Connectors 441, 649
Crimping Tool 392, 393, 396, 410, 421, 431, 463, 473
D Type 420, 421
Dust Caps 390
Edge 423-425, 439, 494, 684
Electrical 399, 410, 431, 451, 465, 468-473, 648
Environment Resistant ..391
Fanning Strips 414, 430
Fastfit 410, 509
Fit-Boots 421
Flat Cable 418, 486, 543
Grip Caps 648
Grounding Adapter 648
Grounding Receptacle 399, 648
Hardware ..390, 392, 477-481
Header 486, 543, 553
Hex 394
High Amperage 431
Housings, Nylon 462
HN Type 405
IC Socket 398, 426, 428, 482, 487, 488, 490, 495, 496, 501
Contact Arrangements 384, 385
Insertion/Extraction Tools 383, 392, 393, 421, 422, 431, 463, 487, 493
Jack Panels 446
Jumpers 415, 435, 438, 460, 461, 487
Kits 411, 484, 508, 509, 512
Lead Assemblies ...451, 456
Locks 416
Long Frame 466
Logic 553
Marker Strips 411, 414
Micro-Ribbon 395
Microphone 401, 402, 441
Microphone Jacks 402
Midget 450
Mil Spec 378, 392, 410, 427, 451
Connectors (Cont.)
Mil/Amphenol RF Cross Reference 402, 403
Min-Rac 396
Miniature ...391, 399, 400, 405, 419, 427, 443, 444, 450, 454, 502
Modular Plug-in Units 431, 492
MS Connectors 387, 391
Contact Arrangements 384, 385, 387-390
Shell Types 404
N 404
Panel 400, 401, 466
Panel to Cable 410, 431, 451
Patch Cord 446, 451, 456, 460, 466, 467, 501, 502
Phone Jacks 442, 444, 446, 449, 450, 457
Phono Jacks 427, 445, 450
Phone Plugs 427, 441, 444, 445, 450, 457
Phono Plugs ...427, 445, 450
Phone Tip 448, 449
Phono 441, 450
Pin 431
Pin and Socket 431
Pin Insertion and Removal Tool 451, 492
Plugs (See Plugs)
Plug in Housings 507
Poke-Home 396
Polarized ...394, 431, 451, 494, 648
Power 431
Printed Circuit 426-428, 449, 497
Card Edge 337-339, 383, 543
Metal to Metal 431
Terminals 468-473 479, 482, 497, 500, 553
Wire Wrap 482
RF 405, 410, 440, 451, 454, 455
Cross-reference 402
Rack and Panel ...380, 381, 431, 483, 484
Receptacle, Power 531
Relay Sockets 400, 429, 439, 453
Ribbon 377, 395, 422, 423, 487, 553
Shells and Receptacles..385
Sockets (See Sockets)
Solder Eyelet ..398, 424, 451
Solderless 395, 410, 431, 468-473, 497
Spade Lugs 449
Strip 430
Subminiature 380, 406, 420, 421, 426, 438, 443, 444
T-Bar 366
TNC 403
Telephone 408, 444, 450
Terminal Strips 411, 415, 419, 430, 436, 437
Terminal Blocks....412, 413, 415, 432-434, 438, 466, 553
Connectors (Cont.)
Terminations 399
Terminator 395, 422
Test Clip 447, 451-453
Test Kit 431, 460
Tip Jack ...449, 457, 464, 465
Tip Plugs 428, 448, 449, 464, 465
Transistor Socket 261, 383, 426, 487, 667
Twist Lock 648
TV 410, 451
UHF ..404, 405, 410, 451, 509
Varicon 378, 379
Wall Mounting Receptacle 386, 648, 649
Waterproof 393
Wire Wrap 397
Controls (See Potentiometers, Rheostats)
Converter/Battery Charger 646
Cooler, Circuit 660, 661
Cooling Units
Semiconductor 111-114
Cords (See Wire and Cable)
Counter Dials 150, 168
Counters
Electro-Mechanical 289, 724
Electronic 290, 697, 708, 717
Mechanical 289
Couplings, Shaft 161
Crystals
Microprocessor 103
Liquid Displays 280
Cutters (See Tools)

— D —

Decade Boxes
(See Test Equipment)
Dial
Cord 640
Lights
(See Lamps and Lights)
Plates, Switch 161
Dial, Counter 168
Digital 168
Digital Integrated Circuits
(See Integrated Circuits, Digital)
Diodes (See Semiconductors)
Display Mounting Hardware 120
Displays, Readout 120
(See Semiconductors, LED's)
Crystal 280
Dollys 653
Drill, Hand (See Tools)
Drives, Ball Bearing
(See Tools)
Duplex Outlets 650, 651

— E —

Earphones
(See Headphones)
Elapsed Time Meters
(See Timers)
Electrical Accessories
AC Plugs and Sockets ..648
Carts 653

For Your Nearest NEWARK Location See Pages 2 and 3

Complete Product Index

Electrical Accessories (Cont.)
Convenience Outlets 648, 650-654
Ground Fault Interruptors 649
Outlet Boxes and Strips 650-654
Panels 650, 653, 654
Hospital Grade Wiring Devices 649
Line Cords 223
Master Power Controls 652, 653
Splices 471, 473, 509, 558
Strips 650, 651
Tape 559
Wall Plates 442, 649
Eliminators, Battery (See Batteries)
Engraver 561
Epoxy
Glue 661
Spray Paint 661
Etched Circuit Materials (See Printed Circuit)
Extension Cords (See Wire and Cable)

— F —

Fan Accessories 655, 659
Fan, Cooling 655-659, 686
Fanning Strips 430
Fiber-Optics 407, 488
Files (See Tools)
Filter Chokes (See Chokes)
Filters
Broad Band 222
EMI 222
High Pass 737
IF 211
Interference 211
Line 221-223
Mil Spec 219
Miniature 219
Noise 221
Power Line 221-223
RFI 221-223
Foot Switches (See Switches)
Forms, Coil (See Chokes, Coils and Inductors)
Fuses
Automobile 369
Blocks 371, 373, 374
Caddies 371
Ceramic Body ..321, 369, 372
Clips 371, 497
Dual Element 372
Fast Acting 372, 375
High Interrupting Capacity 374
Holders
Indicating 370, 373
Low Profile 369
Mounting 370, 371, 373, 374
Indicating 370, 373, 374
In-Line 370, 373, 374
Fuses (Cont.)
Instrument 369
Micro-Current 371
Pico 371
Pigtail 369, 372
Post 790
Puller 374
Rectifier 369, 375
Semiconductor 88
Slo-Blo 369, 370, 372
Subminiature 371, 373
Time Delay 372, 374

— G —

Gauges 642
Generator Noise Filters (See Filters)
Glue 661
Grommets 479, 565
Guns, Heat 509, 559, 561, 621, 644

— H —

Hacksaw 638, 644
Hammers 638
Hand Vise 633
Handles 502, 631
Hardware
Angle Brackets 479, 645
Assortment 643
Binding Post 447, 449
Blind Fasteners 113
Bolts 479, 480, 481
Bumpers 479
Brackets, Angle 479, 645
Cable Clips 463, 464, 479
Cable Clamps 477, 479, 510, 562-564
Cable Hangers 564
Cable Markers 551, 566
Cable Ties 477, 511, 562, 563, 566
Mil Spec 551
Capacitor 202
Clip, Snap-in 564
Clip, Spring 479
Clip, Tension 564
Connector 390
Cord Strain Relief.....565
E-Ring 643
Fahnstock Clips 474
Fasteners 480, 634
Feet 479
Grommets 479, 565
Handles 691
Hole Plugs 481
Hole Punch 639
Hose Clamps 563
LED Mounting 120
Lock Washer 470, 480
Lug, Solder 479
Nuts 480, 481
Acorn 481
Hex 480, 481, 634
Switch Mounting.....481
Thumb 481
Panel Brackets 673

For Manufacturers Index See Pages 750-751

Hardware (Cont.)
Rivets 481, 634
Rubber Feet 479
Screws 480, 481, 643
Assortment 480, 481, 643
Shaft Lock 674
Snap Ring 634
Solderless Terminals 468-473, 634
Soldering Lugs 479
Spacers 459, 465, 498, 499, 507
Spade Bolts 479
Spiral Wrapping 565
Spring Clips 479, 564
Stand Offs 498, 499
Tension Clips 564
Thumbscrew 481
Washers
Compression 121
Finishing 481
Flat 480, 643
Insulating 113, 480
Fiber 480
Lock 480, 648
Nylon 480
Headphones
Boom Mike 733-735
Carbon 733
Communications 733-735
Dynamic 733, 734
High Fidelity 733-735
Magnetic 733, 734
Monaural 733-735
Plug (See Phone Plugs)
With Microphones ..733-735
Heat Guns & Accesories 509, 559, 561, 644
Heat Shrinkable Tubing 509, 554-559
Heat Sinks
Semiconductor 111-114
Silicone Compound 111, 113
Thermal Compound 113
Holders
Battery 502, 667
Fuse 497
Hole Plugs 481
Hole Punch (See Tools)
Housing, Plug-In 507

— I —

Incandescent Lamps (See Lamps and Lights)
Indexers, Motor 592
Indicator Lights (See Lamps and Lights, Pilot Lights)
Indicator Elapsed Time (See Meters, Timers)
Inductors (See also Coils & Chokes)
Audio 579
Ceramic Forms 594
Filters 578
Fixed 593
Frequency Selective 594
Hi-Q 594
Inductors (Cont.)
Hybrid 579
Mil Spec 578, 593
Miniature 578, 579
Subminiature 578, 593
Tapped 594
Toroid 578
Variable 578, 579, 593
Industrial & Special Purpose Tube Directory 115-120
Input/Output Modules 48-50, 102-105
Insulating Tubing 554-560
Integrated Circuits Directory 6-27
Integrated Circuit Accessories
Boards 483-485, 490, 552
Cards 506, 552
Connectors 398
Extractor 463, 476, 491, 492, 497, 642
Handles 502
Patch Cords 502
Sockets 398
Mil Spec 502
Tester 552
Tools 501
Intercom
Cable 731
Master Station 730, 731
Public Address Adapter 730
Remotes 730, 731
Systems 730, 731
Sound Powered 735
Telephone 731
Talk-Back Horn 731
Transistor 730
Wireless 730
Interconnection Devices 482, 488, 552, 553
Interference Filters (See Filters)
Inverter, Voltage 646

— J —

Jacks (Also See Connector Listing)
Banana 447, 449, 454, 456, 457, 464
Panels 446
Phone 442, 444, 446, 449, 450, 457
Phono 427, 445, 450
Test 458
Tip 449, 457, 464, 465
Jumpers 451

— K —

Kits
A-Mode Connector 508
Cable Clamp
Adhesive Back 510
Ratchets 511
Screw Mounted 510
Capacitor Sample Kits 190, 200, 203, 208, 215

International Shipments Special Information on Page 752

Complete Product Index

See Pages 4 and 5 for Terms and Conditions of Sale and Shipping Information

Kits (Cont.)
Coaxial Cable Connector 509
Connector 512
Cord Strain Relief.....510
Etching Kit 505
Grommet 512
Hardware, Screws and Washers 481
Hose Clamps 511
PC Board, Photoblue 493, 504, 506
Printed Circuits 402, 505, 507
Resistor 132
Shrink Caps 509
Shrink Tubing 509
Solderless Terminal 508, 512
Spacer 510
Tool 508-511, 631, 632, 635, 636, 642
Wire, Caps 512
Wire Ties 511
Knives.....632, 636, 638, 644
Knives, Electrician 632
Knobs
Accessories 672-674
Aluminum 669, 671, 673
Control ..668, 669, 673, 674
Crank 673
Locking 671, 673, 674
Mil Spec 673
Plastic 668, 670, 672, 673
Pointer 268, 668, 669, 673, 674
Skirted 668, 669, 673
Lever 669, 673
Pushbutton 673
Wing 673
Finger Grip ...668, 669, 673
Concentric 670, 671, 673

— L —

Lacing Cord and Tape 402
Lamps and Lights
Index 595
Accessories 596, 645
Annunciator 612
Base Assemblies 601-603, 615
Bi-Pin 605, 608
Brackets 645
Bulb Remover 599, 603
Cartridge 596, 597, 606, 611, 614
Chemical Sticks 647
Color Caps 596, 600-603, 608, 611, 616
Data 596-598
Desk, Adjustable 645
Drop Lights 647
Edge Lighting 600
Filters 281
Flashlight Bulbs 604, 605
Fluorescent 645
General Service 604, 605
Halogen 613, 615
Holder 599, 600, 603, 606, 610, 614, 615
Incandescent 246, 248, 265, 266, 597, 600, 606, 610, 614, 616, 617
Incandescent Tube Displays 120
Indicator 598-603, 605-609, 611, 614-617
Instrument 607
LED (See LED Listing)
Lens End 608
Lenses 255-258, 271-273, 599, 601, 603, 606, 608, 611, 612, 614
Machine Tool 645
Magnifier 645
Mil-Spec 607
Miniature 246, 248, 599-604, 608, 612, 615, 616
Neon 597-600, 603, 605, 610, 616, 617
Oil Tight 603
Panel Light 600, 611, 612
Photo Conductive Modules 123
Pilot 248, 609, 611, 612, 616
Pilot Bulb Remover.....599
Press-to-Test 601
Quartz 613, 615
Reels 647
Sockets 602, 611, 612, 615
Solid State 596, 598, 609
Stick, Chemical 647
Subminiature 246, 598, 600, 604, 608, 609, 615, 617
Switchboard 611
Switches 234, 246-248, 255-259, 263, 265-267, 272, 273, 617
Telephone 611
Telephone Slidebase 601, 605, 612
Transformer-Adapter 648
Water Tight 600
Wedge Base 613
Leader Tape (See Tape Nonrecording)
Leads, Test 447-449, 451, 452, 460
LEDs
Bezels 108
Displays 97, 108, 109
Hardware 120
Indicators 598, 609, 614, 617
Readouts 108
Switches 259, 278
Light Sensitive Devices..28, 98
Lights (See Lamps and Lights)
Linear Integrated Circuits (See Integrated Circuit Directory)
Loudspeakers (See Speakers)
L-Pad 163
Lubricants 660
Lug, Spade 449

— M —

Magnetic Tape (See Tape, Tape Recording Accessories)
Markers, Wire ...551, 566, 567
Meters Panel (See Test Equipment)
Microphones
Adapter 737
Attenuator 736, 737
Base 736
Cardioid 736
Communications 733-735, 737
Desk 736
Dynamic 736, 737
Filter 736, 737
Hand-Held 736
Horn 731
Lavalier 736, 737
Magnetic 737
Noise Cancelling 736
Omnidirectional 736, 737
Paging 736, 737
Push-to-Talk 736
Stands 736, 737
Transformer....732, 736, 737
Unidirectional 736, 737
With Headset 733-735
Microphone Accessories
Attenuators 736, 737
Base 736, 737
Cable 539, 731
Mixers, Remote 732, 737
Stands 736, 737
Transformer....732, 736, 737
Windscreens 736
Microprocessors
Books 107
Card Cage 50
Central Processing Unit.. 48
Chassis 50, 64
Communications Interfacer 47
DIP IC
MPU 51, 64, 65, 67
Memory 43, 51, 64-67
Display Console 47
Floppy Disc 47
Kits 50
Modules 48-50, 64
Power Supply 48-50
Printers 47
Programmer 47
Servicing Modules 47
Sockets 495, 496
Software Development Systems 48
Systems 48, 64
Modular Circuits (See Integrated Circuits Listing)
Mos Devices (See Integrated Circuit Directory)
Motors
Hysteresis 585
Indexers 592
Instrument 585
Stepping 591, 592
Synchronous 585, 591
Translators 592

— N —

Name Plate Kit 505
Neon Indicators (See Pilot Lights)
Neon Lamps (See Lamps)
Nibbling Tools (See Tools)
Noise Filters (See Filters)

— O —

Ohmmeters (See Test Equipment)
Oil, Machine.....661
Opto-Electronic Devices
BCD Decoder Drivers ... 28
Light Detectors 28, 98
Light Emitting Diodes 96, 109, 110
LED Readouts 108
LED-Photoconductive Modules 123
Optically Coupled Isolators 28, 63, 77, 98
Optically Isolated Triac Driver 28
Photo Transistor ..28, 77, 123
Relays 311, 316, 344, 364
Visible Displays ..62, 97, 108, 280
Oscilloscopes (See Test Equipment)
Dollys 653
Outlets
Boxes and Strips 455, 650-654, 681
Convenience 650, 651
Grounding 650-653
Power Line 650, 651

— P —

PA Systems (See Public Address)
Paints
Acrylic 660
Color Coding 661
Epoxy 661
Federal Spec 660
Insulating 660
Mil Spec 660
Plastic 660
Resistance Moisture 660
Spray 660
Sealant 660
Varnish 660
Fungus Resistant 660
Wrinkle Finish 660
Panel Brackets 655
Panels, Rack (See Racks & Accessories)
Parts Bins 511
Patch Cords 451, 460, 487
Phone Jacks 450
Phone Plugs 450
Phono System Equipment..732
Amplifiers 732
Jacks 450
Plugs 450
Preamplifier 732

For Your Nearest NEWARK Location See Pages 2 and 3

Complete Product Index

Photoelectric Control 282
Photocells 123, 155
Phototransistors 28, 77, 123, 155
Pilot Lights
(See Lamps and Lights)
Plastic Repair Kit 661
Plates
Dial 161
Name 505
Pliers (See Tools)
Plug, Hole 481
Plugs
(Also See Connector Listing)
Banana 447, 448, 451
Battery 667
Cable 431
MS Mating 387, 391
Phone .....
427, 441, 444, 445, 450, 451
Phono 427, 445, 450
Power 281
Rectangular 426-428
Shorting 451
Tip ...428, 448, 449, 464, 465
Post, Binding
.....449, 457, 458, 464, 465
Potentiometer
Accessories 139
Assortments 162
Bushing Mount
140-143, 147, 148, 150, 151, 154-160, 162, 163, 167, 168
Carbon 140, 143, 144, 147, 154, 157, 162
Cermet 140-142, 144-146, 148, 149, 151-154
Composition 139, 140, 143, 144, 147, 154, 157
Conductive Plastic
.....141, 148, 151, 156-159
Dials, Turn Counting
....150, 151, 157, 159, 168
Digital 157
DIP 148, 149, 153
Dual 139, 142
Industrial Grade
142, 143, 163, 164, 167, 168
L Pad Controls 140
Mil Spec
....142, 143, 145, 149, 150, 152-156, 158, 159, 164, 165
Miniature 147, 160, 166, 167
Mod Pot 140, 141, 157
Molded.....139, 141-144, 148
Mounting Hardware 139
Multi-Turn 140, 141, 143, 146, 148, 150, 153-159, 164-168
Power 135
Printed Circuit
..... 144-146, 148, 149, 152-154, 159, 162, 164, 165
Precision 150, 167, 168
Single Turn 139-149, 151, 152, 154-158, 160, 164-167
Subminiature 162-164
Switch Combination
....140, 143, 147, 148, 162
T-Pad 140
Trimmers 143-148, 152-157, 159, 162, 164-166
Potentiometers (Cont.)
Wire Wound
.....135, 147, 148, 150, 154-156, 160, 163, 166-168
Pots, Solder 626
Power Cord
(See Wire & Cable Listing)
Power Line Filters
(See Filters)
Power Outlet Boxes & Strips 650-654
Power Supplies
AC 577, 579, 581, 582, 586, 589, 717
AC/DC Converter 589
Battery Eliminator 711
Computer Grade 588-708
Constant Voltage 583
High Power 586
High Voltage 586
IC Regulation 588
DC 82, 577, 582, 586, 588, 589, 592, 708, 717
General Purpose.....579
Isolated AC/DC 577, 579, 582
Industrial 579, 708, 717
Laboratory 708, 717
Microprocessor 582, 708
Miniature 586
Packs 220
Printed Circuit Mount ...583
Regulated 579, 582
Regulators 584, 586
Special Purpose 592
Soldering Iron 618
Solid State 82, 708
Switching 587, 589
Voltage Protection Device 586
Voltage Regulators 586
Power Stats
(See Transformer, Variable)
Preamplifiers
Mixer 732
Printed Circuit
Accessories 382, 497, 499
Adhesive-Backed Copper Patterns 505
Board Holders 493, 499
Boards 502, 504, 506, 552, 684
Buses and Strips 493
Card Enclosures 382, 493
Card Guides 382, 499
Cards 506, 552
Cases 491, 493
Chemicals 505
Coater, Control Withdrawal DIP.....504
Component Clamps 499
Connector 494, 497, 542
Developer 504
Disconnect Tabs 497
Drills 505
End Plates 382
Exposure Frame, Tab....504
Extender Cards 506, 552
Fuse Clips 497
Insertion Tools 487, 497
Kits 492, 505, 510
Laminates 505, 506

Semiconductor Listings Begin on Page 6

For Manufacturers Index See Pages 750-751

Printed Circuit (Cont.)
Nameplate & Panel Kit...505
Oven, Infra-Red 504
Photo Kit 505
Photosensitive Boards 493, 504, 506
Racks 493
Rinse Unit 504
Shear 504
Silk Screen Kit 505
Sockets (See Socket and Connector Listings)
Spacer/Stand-Offs/ Supports 459, 465, 498
Supports 499, 507, 510
Spray Etcher 504
Stacking Plates 693
Terminal Installing Tools 492, 497, 507
Terminals 484, 497, 500
Test-Jacks 449, 673
Tin Plating Kit 505
Vises 637
Wire Wrap Connectors..482
Probe (See Test Equipment)
Public Address (Refer also to Phono System Equipment)
Amplifiers 732
Speakers 738, 739
Systems 732, 737-739
Publications
Digital IC Circuit 107
Heat Shrink Tubing Manual 559
Linear IC Circuits 107
Programming 107
Semiconductor Data.....107
Solderless Terminal Manual 473
Punches (See Tools)
Pyrometers
(See Test Equipment)

— R —

Racks and Accessories
(See Also Cabinets, Cases and Enclosures Listing)
Add-A-Rack 678
Angles 689
Blowers 655-659, 686
Brackets 653, 681, 689
Casters 691
Cabinet 676-693
Chassis, Brackets ..682, 690
Chassis Slides.....681, 682
Connectorized Back Panels 409, 677, 678
Desk Top 653
Enclosed ..483, 489, 681, 688
Handles 502, 691
Inclined Panel Racks 677, 678
Logic Board Racks and Panels ...483-485, 489, 493
Modular 485, 681
Open 681
Panels 483, 484, 489, 653, 683, 684, 689
Parts Racks 511, 682
Racks and Accessories (Cont.)
Power Outlet Strips 650-653, 681
Relay 484, 681
Shelves 689
Reactors
(See Filters, Chokes)
Readouts, LED (See LED's)
Readouts, Tube 136
Receiving Tube Directory 115-120
Recorders, Chart.....711, 712
Rectifiers (See Semiconductors)
Regulator (See Transformers, Power Supplies and Zener Diodes)
Relay Cleaning & Adjustment Tools 642
Relay Sockets (See Sockets)
Relays
Relay Index 291
Accessory Listing Chart 310
Amplifier Driven 310
Antenna Switching 306
Arrestors 335
Buzzers 306
Coaxial....323, 324, 330, 365
Computer 303
Cover 296, 301
Crimping Tool 366
Crystal Can 293, 352
Current Adjusted 350
Dry Reed Switches 279, 303, 332
Dual Coil, Latching 308
Encapsulated 263
Enclosed 102, 249, 306, 315, 318, 325, 346
Enclosure..483, 489, 681, 688
Ground Line 301
General Purpose 292-296, 298-300, 322, 323, 327, 336-341, 346, 347, 353-356, 358, 359, 366
Heavy Duty 102, 295, 297, 315, 330, 352, 359
High Voltage...321, 323, 324
Hybrid 310, 324, 326, 327, 343, 356
Illuminated Neon 322, 340, 346
Impulse Sequence ..308-310
I/O Switches 103
Interlocking 314
Isolation 249, 364
Latching 303, 308, 309, 317, 321, 323, 347, 351, 352, 354, 366
LED 299
Mercury Wetted Contact 279, 302, 320, 324, 328, 332-334, 355, 360, 362, 364
Mil Spec 352
Miniature 301, 303, 309, 315, 318, 324-326, 338, 345, 347-349, 352, 353, 355, 362, 364
Motor Starting 102, 301
Mounting Accessories 293, 294, 296, 299, 310, 312

Complete Product Index

See Pages 4 and 5 for Terms and Conditions of Sale and Shipping Information

Relays (Cont.)
Mounting System 294
Multi-Pole 293, 366
Open 303, 314, 323, 347-349, 352, 355, 364
Opto-Electronic 311, 316, 344, 364
Photo-Electric 344
Plug-In 102
Power 296, 297, 301, 314, 326, 330, 348, 355, 358, 359
Printed Circuit 102, 263
Pulse 311
Ratchet Impulse 308
Reed..247, 279, 302, 303, 310 320, 321, 328, 329, 332-336, 339, 348, 349, 360-362, 364
Retainer & Holder 299, 351, 353, 354, 362
Reversing 348
RF 324
Sealed 306, 322, 324, 337, 340, 365
Sensitive 306, 324, 341, 342, 347, 350, 352
Sequencing 317, 346, 348, 349
Slimline 300
Sockets 292, 294-296, 299, 300, 307, 315, 318, 322, 325, 327, 336, 337, 339, 346, 347, 351, 353, 354, 429
Solenoids 312, 313, 331, 359, 365
Solid State 102, 263, 307, 310, 311, 316, 319, 326, 327, 343, 346, 352, 356, 357, 361, 363, 364
Solid State/Reed Hybrid 310
Stepping 317
Subminiature ..309, 338, 362
Telephone 306
Thermal Time Delay.....365
Time Delay 304, 305, 307, 316, 324, 326, 327, 345, 356, 357, 363
Voltage Adjusted ...350, 351
Voltage Sensors.....310

Resistors
Resistor Index 124
Adjustable Dividers....135
Assortments 132
Carbon Film 132
Cermet Film, Fixed 126, 127
Color Code Paint 661
Decade Boxes (See Test Equipment)
DIP 127, 129
Fixed Composition 125, 129, 132
Fixed Power 134
Industrial Grade 125, 132, 133
Metal Film 129, 130, 132
Mil Spec 125, 126, 130
Molded Composition 125
Networks 127, 129
Power 134, 135
Precision 127, 130

Resistors (Cont.)
Printed Circuit 125-134
Radial Lead 133-135
Rheostats 160, 161
Dial Plates 161
Knobs 161
Temperature Sensitive (See Thermistors)
Thermistors 136-138
Varistors 87, 95
Vitreous 131-135
Wire Wound 128, 130-135

Rheostats
Dial Plates 161
Hardware 161
Knobs 161
Miniature 160
Power 160
Tandem Coupling Kit ...161

Rivets (See Hardware)
Riveters (See Tools)
Rulers (See Tools)
Running Time Meters (See Timers)
Rust Resistant Sprays 660

— S —

Scissors (See Tools)
Screws 480, 481
Screwdrivers (See Tools)
Sealants, Silicone 660
Sealing Screws (See Hardware)
Seals, Switch.....281

Semiconductor Accessories
Cooling Units 111-114
IC Sockets 428, 667

Semiconductors
Crystals 103, 487
Data Books 107
Dicrete Directory.....14-27
IC Directory 7-13
Diode Selection Guides
Avalanche ..29, 54, 55, 63
Bridges 36, 94
Contact Protectors 95
DIAC's 34, 73
High Voltage 38
Light Emitting (See LED Listing)
Multicell 35
Photo 28, 58, 63
Rectifiers, Selenium... 95
Rectifiers, Silicon ..35, 36, 56, 57, 73, 78, 80, 82, 93
Zeners 29, 54, 55, 89
Fuses 88
Hardware 113
Ignitron 88
Infrared Emitters 28, 63, 98
Microprocessors 43, 51, 64-67
Opto-Isolators & Couplers 28
Silicon Bidirectional Switches (SBS) 34, 86
Silicon Unidirectional Switches (SUS) 86
Solar Cells 106, 123
Thyristors
Photo SCR's 77

Semiconductors (Cont.)
SCR's 33, 34, 72, 73, 81, 90, 101
TRIAC's 33, 34, 70-72, 79, 90
Transistor Selection Guides
Darlingtons 30, 41, 69, 83, 85, 99
Duals 58
FET's 57, 77
General Purpose ...41, 59
Germanium 100, 101
High Frequency 41, 59
High Gain 41
High Voltage..... 59
Low Noise 41
Power, Silicon 31, 32, 68, 69, 83-85
Photo Darlingtons ..27, 77
Photo Transistors 28, 77, 123
Programmable Unijunction ..33, 34, 86
Quads 41, 58, 99
Small Signal 41, 83
Switching 30, 85, 86
Unijunctions 33, 34, 86

Shafts
Locks 674

Shelves, Rack 511
Shunts 724
Signal Device, Audible 121, 122
Silicon Controlled Rectifiers (See Semiconductors)
Selection Guide 80-82

Silicone
Adhesive 661, 662
Lubricant 660, 662
Molding 662
Potting Compound 662
Sealers 662

Silk Screen Kit 505

Sockets, Receptacles
(Also See Connector Listing)
Adapters ..447, 453, 501, 648
Breadboard 428, 429, 447, 449, 450, 453
Cable 428, 429, 447, 449, 450
Capacitor 427
Convenience Outlets 650, 651
Crystal 427, 487
DIP 251, 428
Grounding Adapter.....648
I. C. Strip 430
Insertion Extraction Tool 383, 392, 393, 421, 422, 431, 463, 487, 493
Integrated Circuit 426, 428, 489
Lamp (See Lamps) 261
Mica-Filled 426
Mil Spec 427
Miniature ...391, 399, 400, 405, 419, 427, 443, 444, 450, 454, 502
Polarized 394, 431, 451, 494, 648
Power 431
Printed Circuit 426-428
Rectifier 667

Sockets, Receptacles (Cont.)
Relay 292, 294,-296, 299, 300, 307, 315, 318, 322, 325, 327, 336, 337, 339, 346, 347, 351, 353, 354, 427, 429, 453
SCR/Triac 667
Shielded Base 427
Solder 381, 495
Steatite 427
Subminiature 380, 406, 420, 421, 426, 438, 443, 444
Test/Adapters 398, 447, 451, 724
T. O. Can 398
Transistors 261, 383, 426, 487, 667
Tube 426, 427
Turrets 437
Wire Wrap 397

Socket Punch 639
Solar Energy Cells...106, 123
Electric Generating Systems 106

Solder 627
Braid 628
Desoldering Aids 626
Desoldering Braid.....628
Solder Sponge 621

Soldering Equipment
Adapters 619
Aids 621, 628
Anti-Seize Lubricant 621
Cleaning Sponge 621-628
Cords 621
Desoldering Adapters, Bulbs 622, 625
Desoldering Aids 626
Desoldering Braid.....628
Desoldering Tips & Tools 622, 625, 626, 628
Guns 621, 623, 624
Handles 619, 620
Heat Guns 509, 559, 561, 621, 624
Heating Units ...618-621, 626
Holders 621, 623, 624
Irons ...618, 620, 623, 624, 626
Kit 618, 620, 621, 623-625, 628
Low Voltage 624
Pots 626
Solder 627
Sponge Tray 621
Temperature Controlled Irons 618, 624
Tip Cleaners 626, 628
Tips 618-621, 623-626

Soldering Terminals..479, 500

Solenoids
AC 313, 331, 365
DC 313, 331
Tubular 312, 331

Solvents
Cement Solvents 661
Contact Cleaner 660, 661
Cooling 660
Dope 661
Paint 660, 661
Silicone 661
Rust 660, 661

NEWARK Locations Nation Wide
See Pages 2 and 3

Complete Product Index

Spacers
...459, 465, 498, 499, 507, 510
Speakers
Baffles 733, 734
Driver 738, 739
Extension 734
General Purpose ...738, 739
Horn 738, 739
Intercom 730, 731
Outdoor 738, 739
Paging 738, 139
Projector 738, 739
Reflex Trumpet 739
Replacement Speakers..738
Talk-Back 739
Transformers 738, 739
Trumpet 739
Weatherproof 738, 739
Splices, Electrical..471, 473, 509, 558
Standoff Insulators
...459, 465, 498, 499, 507, 510
Stands, Microphone
Desk 736, 737
Stepping Motors
(See Motors)
Stock Carts 653
Storage Bins 511
Strippers, Wire
...473, 546, 573, 632, 638, 639
Strips
Fanning 430
Substitution Boxes
Capacitor 190, 210, 711
Resistor 133, 210, 711
Switches
Switch Index 224
Accessories 248, 265
AC Power ..230-232, 235, 254
AC-DC Power.. 230, 233, 253, 286
Actuators 242, 259
Aircraft 284
Antenna 371
Bezels 271, 272
Button Guards 246, 261
Button Switches 246, 272
Caps 245, 246, 255-258, 271-273
Ceramic 268-270, 277
Coaxial 365
Dial Plates 245
DIP 229, 251, 263
Environmental Seal 236
Feed Through 649
Foot 271
Gang 270
Guards 237
Ham 270
Hardware 241, 245, 254, 255, 258, 261, 268, 270, 273
Hesitation 230
High-Capacity AC 279
Illuminated 234, 246-248, 255-259, 263, 265-267
Incandescent 272, 273
LED 259, 278
Interlocks 230, 238
Keyboard 241, 278
Switches (Cont.)
Keylock 247, 248, 278
Knobs, Actuator 249
Lever 227, 236, 237, 240, 242-245, 260, 266, 269, 271, 274, 275
Lock 227, 245, 251, 254, 266, 267
Magnetically Actuated..280
Mercury 362
Mil Spec 231, 236, 277
Military Switch Guards 237
Military Switch Seals...237
Miniature 225-229, 233, 235, 237, 243, 245-247, 249, 252, 255, 260, 265, 267, 270, 271, 274, 275, 277, 279
Modules 263, 264
Momentary Contact 227, 229, 231, 232, 246, 254-258, 261, 265, 267, 271-275
Motor Start 248
Mounting Hardware 226, 230, 245, 254, 255, 258, 261, 271
Mounting Wrenches 273
Multi 249, 268, 270, 276
Oil Tight 248
Paddle 228
Phenolic 268-270, 277
Pendant 649
Power 248, 254, 262, 269, 276, 279
Programmable PC 251
Proximity 247, 280
Push-Button 227, 229, 234, 235, 238, 243, 245, 246, 248, 252, 254-259, 261, 263-265, 267, 271-273, 276
Reed 247, 279, 280, 302, 303, 310, 320, 321, 328, 329, 332-336, 339, 348, 349, 360-362, 364
DIP 328, 329, 360
Dry 279, 303, 332
Magnetic 247, 279, 334
Mercury Wetted ...279, 302, 320, 332-334
Rocker Action 228, 230, 231, 234, 236, 247, 255, 263, 267, 271, 274, 275
Roller Action 240, 242, 243, 247, 259, 260, 266
Rotary 231, 247, 248, 254, 262, 268-270, 277
Seals 245, 258, 259
Slide 249, 250, 253, 267, 277
Snap-Action 238, 239, 242, 243, 246, 253, 254, 259-261, 271
Subminiature 225, 226, 229, 238, 242, 244-246, 250, 254, 259, 260, 265, 268, 269, 277, 279
Thumbwheel 225, 240
Toggle 226, 227, 229, 232, 233, 244, 245, 250, 253, 254, 271, 274-276
Ultra Miniature 235, 260, 279
Waterproof 244, 246
Switches (Cont.)
Wiping Action 238, 255, 260, 261, 264
Switch Seals 245, 259, 281
Synchronous Motors
(See Motors)

— T —

T-Pads 163
Tape
All Weather 559, 653
Color Coded 653
Copper, Tinned 653
Electrical 559, 653
Glass Cloth 653
Heat Shrinkable 559
Lacing 402
Shielding 653
Silicon Rubber 653
Telephone
Headsets 733
Jacks 450
Intercom 731
Plugs 450
Television Accessories
(See Also Transformers, Test Equipment)
Alignment Tools 640
Studio Cable (See Wire and Cable)
Temperature
Controllers 686
Pyrometers 724, 727
Recorders 711, 712
Terminals
Assortments 512
Barrier Strips 430
Binding Post 261, 447, 449, 457, 458, 464, 465
Blocks 461, 475, 493, 553
Boards 483, 484, 491, 502, 552
Mil Spec 502
Butt 470, 471, 634
Crimp-Type 463, 468-473, 508
Crimping Tools 463, 473, 634
Fanning Strip 430
Feed Through 500
Fork Tongue 469, 470, 474, 475
Hook Tongue 473
Installation/Removal Tools 463, 476, 491, 492, 497, 642
Insulated 468-473, 500, 503, 508, 634
Jumpers 461, 487
Kits..... 461, 507, 508, 634
Lugs 466-473, 479
Marker Strip 551, 566
Parallel 436
Pin, PC 438
Printed Circuit 463, 491, 497, 500
Quick Disconnect 472, 476, 508, 578, 579
Ring-Tongue 468, 469, 473-475, 634
Soldering ..463, 479, 500, 503
Spade Tongue..469-471, 634
Splices 471, 473, 476
Terminals (Cont.)
Staking Tool 507
Strips 493, 552
Turret 500
Wire Nuts 473
Wire Wrap 491, 500, 503
Solderless 468-473, 508
Terminal Junctions 507
Test Clips....441, 448, 449, 451
Test Equipment
Accessories 724
Adapter 447, 451, 724
Alignment Generator....709
Ammeters 705, 719-724, 726-729
Ampere (AC Adapters) 695, 702, 715
Appliance Tester ...634, 699
Audio Generators...701, 717
Battery Eliminator & Charger 711
Battery Tester 699
Capacitor Decade and Substitution Box 190, 210, 211
Cases 190, 694, 699, 700, 702, 703
Capacitance Meter 709
Chart Paper 711, 712
Chart Recorders 711, 712
Circuit Testers 501, 552, 561, 634, 649, 715
Circuit Tracer 636
Clamp-On Meters 713, 715, 716
Clips.. 261, 447-449, 451, 552
Continuity Tester 634, 636, 639
Converter, Temp. to DC Millivolt 699
Counters, Digital 290, 697, 723
Covers, Protective 700
Curve Tracers, Semiconductor 710
Decade Box, Capacitor 190, 210, 711
Decade Box, Resistors 133, 210, 711
Dolly 653
Electrical Circuit Tester 649
Event Recorder 711, 712
FET Tester 710
Foot-Candle Meter 715
Frequency Counters, Meters & Scalers 697, 707, 723, 728
Function Generator 709
Ground Fault Indicator..649
Illumination Level Meter 715
Indicator, Digital 726
Jacks 447, 449, 450
Kits 711
Leads 447-449, 451, 634, 700
Lead Tester 634
Leakage Tester (Refrigerant) 728
Light Meters 715
Loop Tester 701
Milliammeters 694-699

For Manufacturers Index See Pages 750-751

International Shipments Special Information on Page 752

Complete Product Index

See Pages 4 and 5 for Terms and Conditions of Sale and Shipping Information

Test Equipment (Cont.)
- Multimeters (See VOM and Multimeters Listing)
- Multitester 712
- Neon Tester 634
- Ohmmeters .....694, 699, 712, 713, 728 (Also See VOM)
- Low Range 699
- Ohmmeter Battery Attachment 713
- Oscilloscopes...700, 706, 717
- Outlet Tester 561
- Panel Meters (See Specific Types) 719-723, 725-729
- Picoammeter (See Ammeters and VOM's)
- Power Line Monitors....716
- Probes 447-449, 451, 453, 456, 634, 697-700, 704, 710, 719
- Prods 447-449, 451
- Pyrometers 724, 727
- RC Substitution Box (See Decade and Substitution Box)
- RF Signal Generators 709, 717
- Recorders, Chart ...711, 712
- Resistance Decade and Substitution Box 133, 210, 711
- Semiconductor Analyzer 710
- Semiconductor Curve Tracers 710
- Sine/Square Wave Generators 701, 717
- Signal Generator
  - Audio 701, 717
  - RF 709, 717
- Signal Tracer 710
- Sweep Marker Generators 709
- Telephone Tester 701
- Temperature Meters 697, 707
- Test Leads 460, 634, 713
- Thermometer 697, 719
- Timer, Digital Counter.....290, 697, 723 (Also See "Timers" and "Counters" Listings)
- Transducers.....725, 728
- Transistor and Diode Tester 501, 710
- Tube Testers 710
- Volt-Amp-Ohmmeter 713, 715
- Voltage Tester 634, 712, 713
- Voltmeters 694, 696, 705, 715, 719-723, 725, 728, 729
- VOM's and Multimeters 694, 696, 698, 699, 701-705, 707, 709, 711, 712, 714-716, 718, 725, 726, 728
- Adapters and Accessories 697-700, 702, 703, 712, 722, 724
- Digital 716, 718, 726
- FET 716
- VTVM's 698, 707
- Watt Meter 715, 723

Test Equipment (Cont.)
- X-Y Recorder 711, 712

Test Accessories
- Adapter 454, 460
- Clips 452, 453
- Jacks 458
- Leads 460, 634, 713
- Lead Holder 456
- Probes.....453, 460, 461
- Prods 460
- Socket Adapter 454
- Solderless Tip 460

Testers, Appliance (See Test Equipment)

Testers, Battery.....699

Thermal Compound 113

Thermal Photo Controls....282

Thermal Delay Relays (See Relays)

Thermistors 719
- Accessories 137, 719
- Assemblies 136
- Beads 138
- Discs 138
- Engineering Packing ...138
- Hermetic 137
- Mounting Hardware 139
- Probes 137, 719
- Washers 139
- Varistors 139, 143

Thermocouples 724, 727

Timers
- Automatic Reset 282, 284-287, 290
- Cam Recycling 283, 288
- Digital 284, 287, 290, 697
- Delay 284
- Elapsed Time 283, 285, 287, 723, 728
- Intervals 282-286
- Manual Reset 287
- Panel Mount 283, 284
- Photo Control 282
- Programmable 282, 287
- Programmed 282
- Solid State.....285, 286, 290
- Stop Clock 286, 287
- Tandem 286
- Thermal Control 282
- Time Delay 286
- Time Switch 282
- Wall 282

Toggle Switches (See Switches)

Tools
- Aligment 640
- Allen Hex Sets 629-631
- A-Mode Crimp Tool..431, 508
- Anti-Wicking 629
- Boxes 641
- Brush and Scraper.....640
- Burnishing 642
- Cabling Tool 562
- Caliper 633
- Center Punch.....633, 639
- Chassis Layout 633
- Chassis Punch 639
- Chests 641
- Circle Cutter 633

Tools (Cont.)
- Circuit Building 492
- Circuit Testers 634
- Clamps, Scissors....632, 636
- Cleaner, Ultrasonic 626
- Close Cutting 632
- Connector 410, 431
- Contact Burnisher 642
- Contact Insertion & Removal 383, 451
- Continuity Testers...634, 639
- Crimpers 366, 383, 410, 431, 473, 634
- Cutters 473, 632, 633, 636-638
- Desoldering 622, 625, 626, 628
- Dividers 633
- Drill and Wire Gauge...633
- Drill, Hand 633
- Electrician's Belt 638
- Engraver, Electric 561
- Extraction Tool 383
- Fastfit Crimp 410, 509
- Files 636, 644
- Gauges, Dial 161, 168
- Hack Saw 638, 644
- Hammers 638
- Handles 631
- Heat Gun ..509, 559, 621, 644
- Heat Sinks 636
- Heat Sink Tool 639
- Hex Drivers 631, 635
- Hex Wrenches 628
- Holders, PC Board 637
- Hole Cutters 633
- IC Removal Tool 501
- Insertion Tools 383
- Inspection Magnifiers 633, 644
- Inspection Mirrors ..628, 633
- Kits, Serviceman's 508-512, 631, 632, 635, 636, 642
- Knives 632, 636, 638, 644
- Magnifiers 633, 644, 645
- Markers 561
- Metric 631
- Mirrors, Inspection..628, 633
- Multipurpose 636, 637
- Nibbling 628, 653
- Nut Driver 630, 631, 634-636, 642
- Sets 635, 636
- PC Board Terminal Installation Tools 640
- Pilot Bulb Remover.....599
- Pliers
  - Chain Nose 632, 637
  - Cord Strain Relief 565, 632
  - Diagonal 632
  - Electronic 632
  - Flat Nose 632
  - Kits 638, 642
  - Long Nose ...632, 637, 639
  - Needle Nose 632, 637
  - Round Nose 632
  - Side Cutting 632
  - Spring 632
  - Snap Ring 632, 634
  - Utility 632
- Pouch 638

Tools (Cont.)
- Punches
  - Center 633, 639
  - Chassis 639
  - Relay Punch 639
  - Socket 639
- Push Pull Gauge 642
- Radio & TV Kits.....640
- Reamers 631, 640
- Relays 639, 642
- Riveters 634
- Rules 633, 638, 644
- Serviceman's Tool Kits 508-511, 631, 632, 635, 636, 642
- Scissors 629, 630
- Scissors Clamps 632, 636
- Screw Drivers
  - Blades 631
  - Extensions 631
  - Hex 631, 635, 636, 642
  - High Torque 636
  - Jewelers 629, 633
  - Kits 629, 631, 635, 642
  - Launchers 635
  - Neon Tester 634
  - Offset 630
  - Phillips 629-631, 635
  - Reversible 630, 644
  - Sets 629, 630, 633, 635, 644
  - Screw Holding....636, 644
  - Slot 630, 631, 636
- Scribers 629, 633
- Seizers 632
- Slug Tuner 661
- Snap Ring Pliers 634
- Snips 629, 632
- Socket Sets.....629
- Solder Pots 626
- Soldering Aids 636
- Soldering Guns 621, 623, 624
- Soldering Iron 618, 620, 623, 624, 626
- Temperature Regulating 618, 624
- Soldering Kits 618, 620, 621, 623-626, 628
- Solder Pots 626
- Spring Adjustment 642
- Spring Tension Gauge ..642
- Staking Tools 507
- Stock Carts 653
- Tap Wrench 633
- Tape Rules 638
- Tension Gauge 642
- Tool Set 631, 632, 635
- Jewelers 629
- Subminiature 629
- Tube Caddy 718
- Tube Socket Punches 633, 639
- Tuning 640
- TV and Radio Kits 640
- Tweezers.....629, 636, 644
- Vises
  - Bench 633, 637
  - Hand 633, 637
  - Pin 629
  - PC Board 636
  - Vacuum Base 633, 637
- Waist Belt 638

Call Your Nearest NEWARK Location—See Pages 2 and 3

Complete Product Index

Tools (Cont.)
Wire Cutters 573, 629, 638, 639
Wire Strippers 473, 546, 573, 632, 638, 639
Coaxial 638, 639
Wire Tie Tensioning Tool 540
Wire Wrapping 642
Work Positioner 633
Wrenches
Adjustable 632, 638
Hex 628
Kit 628
Open End 629
Ratchet 633
Spline 628, 631
Transformers
Audio 570, 573, 579
Autotransformer 571, 576, 580
Capacitor 574
Computer 575, 580, 581
Converters 646
Constant Voltage 573, 575, 580
Control 569, 572-574
Driver 578
Filament 572-574, 578
Filter 569, 578
Harmonic Neutralized ..580
Hermetically Sealed.....578
High Current 574
Hybrid 578, 579
IF 578
Inductor 578, 579
Input 574, 578
Inverters 646
Interstage 578
Isolation 571, 576-578
Line to Grid.....581
Line to Line 581
Line to Voice Coil ..573, 575
Line Filters 581
Line Matching 578
Low Current 570, 574
Low Voltage 569
Microphone 579
Mil Spec 570, 578, 593
Miniature 570, 578, 579
Multiple Secondary.568, 573
Output 570, 578
Pilot Adapter 248
Plate 574
Plug-In 570, 571, 573
Portable 577
Power 568-570, 573, 574
Printed Circuit 571, 573
Pulse 578
Rectifiers 569, 572-574
Regulators 580, 581, 584, 586, 590
70.7 Volt Transfomer 575
Step-Down 571, 576
Step-Up 576
Transistor
Audio 570
Driver 578
Inductor 578
Input 578
Interstage 578
Transformers (Cont.)
Transistor (Cont.)
Output 578
Rectifier 575
Power 575
Pulse 578
Universal 574, 575
Variable Voltage ...577, 590
Voltage Stabilizers 590
Transistor Accessories
Heat Sinks 111-114
Testers (See Test Equipment)
Thermal Compounds....113
Transistors
(See Semiconductors)
Translator, Motor 592
Triacs/Directional
(See Semiconductors)
Trimmers (See Potentiometers and Capacitors)
Tube
Caddy 136
Cooling Fans ...655-659, 686
Directory 115-120
Displays 120
Listings 115-120
Sockets 427
Testers (See Test Equipment)
Tubes (See Tube Directory, pages 115-120)
Tubing
Heat Shrinkable 509, 554-559
HST Tape 559
Kynar 555
Meltable 556
MLC 558
Neoprene 556
Polyolefin 555
PVC 556, 560
Shrink Caps 509, 558
Tape 559
Teflon 557-560
Kit 509
Mil Spec 555
Tefzel 558
Tuner Cleaner.....661
Turret Terminals 500
Tweezers 636
Twine (Lacing) 402

— U —

Ultra-Sonic Cleaners 566
Utility Cases and Cabinets (See Cabinets, Cases & Enclosures)
Utility Cord (See Wire and Cable)
Unijunction Transistors (See Semiconductors)

— V —

Varistors 87, 95
Varistor Sel. Guide 87
Varnish (See Paint)
Vises 629, 633, 636, 637
Voltage Regulators 365
Voltage Stabilizers 590
Voltmeters (See Test Equipment)

— W —

Waist Belt 638
Washers 480, 481, 643
Wire and Cable
Index 513
AC Power 515, 527, 529, 532, 533, 546
Air Conditioning 532
Appliance Cords....529, 530
Audio 441, 514, 517-519, 527, 540, 541, 550
Bare Wire 528, 546
Braid 541
Braided 516, 539, 540
Burial, Direct 519
Bus Bar 528, 546
Business Machine 532
Cable Clamp 380, 441, 447, 479, 510, 511, 562-564
Cable Clips 479, 551, 563, 564
CATV 525, 545
CCTV 525, 545
CRT 526
Coaxial....524, 525, 545, 548
RF 545, 548
TV Lead-in 525
TV Studio 525
Coaxial Jackets.....526
Coiled 441, 527, 528, 546
Communication 537
Connector.....421, 512, 561
Connector, Flat Cable....543
Computer 535, 544, 549
Control 517, 527, 537, 539, 549
Cords .441, 513, 529, 530, 546
Receptacle 531
Corona Resistant 549
Data 519, 537, 541
Dial Cord 640
Electrical Power Cords 529, 532, 533
Electronic Line Cords 529-531
Extension Cords 441, 532, 533
Fiber-Optic 58
Fire Alarm 520
Flat 486, 513, 520, 542, 563
GPIB 528
Grommet Strips 551, 565
Ground 521, 546
Headphone 441
Hi-Fi 517
High Temperature..526, 547
High Voltage 526, 549
Hook Up 521-523, 529, 544, 545, 547
Hook-Up Kits 547
Hospital Grade 533
Instrumentation 518, 521, 538
Intercom Cable 540
Irradiated 523, 545, 547
Kynar 544, 549
Laminated Flat 520, 542
Low Leakage 533
Low Noise.....524
Magnet 526
MATV 525, 545
Microphone 441, 517, 527, 539
Mil Spec 515, 524, 539, 544, 545, 548
Miniature Shielded..541, 549
Multi Conductor 514-517, 519, 529, 531, 533, 534, 536, 537, 539, 550
Wire and Cable (Cont.)
Neoprene 515, 527, 539
Patch Cord 446, 451, 456, 460, 466, 467, 501, 502
Polyethylene...545, 548, 550
Portable 533, 534
Power 515, 527, 529, 532, 533, 546
Precut & Stripped Kit....501
Primary 529
PVC 523, 525, 535-538, 540-542, 544
Retractile 526-528, 532, 546
RF 548
RG/U 548
Ribbon ...487, 492, 540, 553
Rubber 539, 546
Shielded 516-519, 521, 524, 526, 527, 529, 531, 535-540, 550
Shielding & Bonding 521
Speaker 514
Special Use 519
Spiral Wrap Shielded ..540
Stereo 441, 517
Teflon 521, 524, 539, 544, 545, 547
Telephone 527
Test Lead 546
Test Prod 528
Tool Cord 525-527
Transmission Line 515
Tray 520
Triaxial 524
TV Interlock Cord.....526
TV Studio Cable 525, 526
Twin Axial 524
Video 526
Vinyl 523, 527, 529, 533-535, 544
Wiring Accessories
Cable Clamps ..510, 562-564, 649
Cable Clip 551, 563, 564, 579
Cabling Tool 562
Crimp Tool 562
Cutters 561
Ducts 551
Flat Cable Mount 551
Grommets 512, 551, 565
Heat Shrinkable Tubing 508, 554-559
Insulating Tubing.....475, 558, 559
Lacing Cord 551
Markers 551
Property Chart 554
Spiral Wrapping 551
Splices....471, 473, 509, 558
Strain Relief 510
Straps 477
Strippers.....475, 546, 561
Ties 511, 551
Tools 475, 492, 501
Tubing Kit 509
Wrap 551
Wrapping Tool 475, 492, 501
Wrap, Lacing 551

— Z —

Zener Diodes (See Semiconductors)

International Shipments
Special Information on Page 752

Manufacturers Index

— A —

A-MODE (See SPC Technology)
ADC
Audio Connectors.....467
Audio Jacks and Panels 466
Patch Cords 466, 467
Terminal Blocks.....466
AP PRODUCTS
Breadboard Terminals...552
Connectors 553
Test Clips 552
API (LFE)
Panel Meters 726, 727
Relay Controllers.....726
APM
Filters, Seals 281
ADEL
Nibbling Tool 653
ADTECH
Power Supplies 586, 587
AGASTAT
Relays 357
AKRO-MILS
Drawer Cabinets 692
Storage Bins 693
ALCO
Knobs 670-673
Lamps 610
Relays 249
Sockets 251
Switches 244-252
ALLEN-BRADLEY
Networks 127
Potentiometers
139, 140, 142, 143, 145
Resistors 125, 126, 141
Trimmers 143-146
ALLIED CONTROL
Relays 350-352
ALPHA
Cable, Wire 535-546
Cable Index 535
Connectors 421, 543
Wire Tools 546
AMERICAN BEAUTY
Soldering Equipment ...626
AMERLOCK (See SPC Technology)
AMPERITE
Relays 365
AMPHENOL
Coax Switches 365
Connectors ..384-400, 402-409
Sockets 398, 400
Telephone Products..408, 409
Tools 393
AMPROBE
Chart Recorders 712
Test Equipment 712, 713
ARCO
Capacitors 212, 213
ARGOS
Communication Systems 735
Tube Caddies 718
ARROW HART & HEGEMAN
Switches 253-255
AUGAT
Adaptor Plugs 486, 487
Dip Sockets 482, 483
Plug Boards 484, 485
Socket Terminals 488

— B —

B&K/DYNASCAN
Test Equipment 706-710
BEAU (VERNITRON)
Connectors, Terminal
Strips 436, 437
BELDEN MFG.
Cable Index 513
Cable, Wire 514-534
BOGEN
Accessories 732
Intercoms 731
P.A. Amplifiers 732
BOURNS
Networks 149
Potentiometers ..148, 150-157
BUD
Blowers 686
Cabinet Accessories. 686, 689
Cabinets, Boxes
.....676-682, 685-688, 690
Cases 686, 687
Casters, Levellers 691
BUD (Cont.)
Chassis 682, 690
Chassis Slides 681
Circuit Boards 684
Desk Tops 677, 678
Drawers 678, 682
Edge Connectors 684
Handles 691
Index 675
Miniboxes 681, 688
Modular Work Stations..680
Modular Packaging
Systems 683
Power Outlet Strips 681
Printed Board Units 684
Racks and Accessories
.....676-678, 681-683, 689
Temperature Control
System 686
VTR System Cabinet ...679
BUSSMANN MFG.
Fuses 372-375

— C —

C. P. CLARE
Arresters 337
Relays 332-336
CAMBION
Battery Holders 502
Connectors 502
Handles 502
IC Accessories 501
PC Boards 502
Patch Cords 501
Sockets 501
Soldering Terminals 503
Tools 501
CENTRALAB
Capacitors 147, 214-217
Potentiometers 147
Switches 268-270
CHERRY ELECTRIC
Keyboards 241
Switches 238-241
CHICAGO MINIATURE/DRAKE
Lamps 604-609
LED's 110, 609
CINCH (TRW)
Connectors 413, 420-425
Plugs, Sockets
.....416, 417, 426, 427
Terminal Blocks 412, 414, 415
CLARK, DAVID
Intercoms 734, 735
CLAROSTAT
Potentiometers 158, 159
Resistors 128
CLAUSS TOOLS
Scissors, Tweezers 629
CONTROLS COMPANY OF AMERICA (Singer)
Solenoids 365
CONVERTIKIT
Desoldering Aids 626
CORCOM
Connectors 221
Filters 221-223
CORDOMATIC
Powercord Reels 647
CORNELL-DUBILIER
Capacitors 206-211
Decades 210
Filters 211
CRAMER CONTROLS
Timers 285
CRYDOM
Solid State Relays 102
Switches 102, 103
CUTLER-HAMMER
Guards 237
Seals 237
Switches 226-237
CYALUME
Light Sticks 647

— D —

DALE ELECTRONICS
Networks 129
Resistors 129, 130
DANA
Test Equipment 718
DAVIES, HARRY
Knobs 669
DEARBORN
Cable Wire 402, 548-550
DEARBORN (Cont.)
Coaxial Cable 549, 550
Nylon Lacing 402
DELTA-T (See Wakefield)
DIALIGHT
LED's 108, 109
Lights 596-603
Sockets, Switches
.....272-275, 596
DIXON
Tools 644
DRAKE (See Chicago Miniature)
DUNCO (See Struthers-Dunn)
DYNASCAN (See B&K)

— E —

EICO
Test Equipment 711
ELCO
Connectors 377-383
ELECTRO-VOICE
Microphones 736
Speakers 738
ELECTROVERT INC.
Duct Cable Accessories..551
Terminal Blocks 411
ELMENCO (See ARCO)
ELPAC/ELEXON
Power Supplies 588, 589
EPSCO
Power Supplies 579
ERICSSON
Buzzer 121
ERIE
Capacitors 218
Filters 219
Trimmers 219
ERSIN/MULTICORE
Solder 627
ESICO
Soldering Pots 626
ESSEX/STANCOR
Relays 358, 359
Transformers 572-576
EVEREADY
Batteries 664, 665

— F —

FASTFIT (See SPC Technology)
FENWAL
Thermistors 138

— G —

GC ELECTRONICS
Chemicals, Service Aids 661
Inverter 646
Tools 628, 640
GENERAL ELECTRIC
Batteries 663
Capacitors 170
Panel Meters 729
Relays 357
Selector Guide 77-87
Selector Index 77
Semiconductors 77-87
Silicones 662
Tubes 115-120
GENERAL HARDWARE
Tools 633
GENERAL INSTRUMENT
Semiconductors 13-27
GENERAL TIME
Elapsed Time Indicators 283
Timers 283, 284
GORDOS/GRIGSBY-BARTON
Relays 360, 361
Switches 362
GRAYHILL
Hardware 261-263
Relays 263
Switches 261-263
GREENLEE TOOLS
Punches 639
GTE SYLVANIA
Audio Visual Lamps.....613
Lamps, Sockets 611-613
Tubes 115-120
GUARDIAN ELECTRIC
Relays 314-318
Solenoids 312, 313

— H —

HAMLIN
Liquid Displays 280
Magnetic Reed Switches
.....279, 280
Relays 364
HAMMOND
Plastic Cases 647
HERZOG
Lamps 609
HUBBELL, HARVEY
Electrical Devices ..648, 649
HUNTER TOOLS
Assorted Tools, 636, 637, 643
HURST
Motors 585

— I —

IDI
Semiconductors 101
IEE
LED Display Mounting
Hardware and
Assemblies 120
Numitron Tubes 120
IMC
Fans 658, 659
ITT GENERAL CONTROLS (See Redington Counters)
IDEAL
Connectors 561
Wire Strippers 561
IMLEC (Inter-Market)
PC Thumbwheel Switches
.....225
Indicator Lights 614
INDUSTRIAL TIMER
Controls 286-288
Elapsed Time Meters....287
INTER-MARKET (See Imlec)
INTERMATIC
Timers 282
INTERNATIONAL RECTIFIER
Discrete Devices.....88-95
Selector Guide 88-95
Selector Index 88

— J —

J.B.T. (See Cutler-Hammer)
JOHANSON
Capacitors 740
JOHANSON DIELECTRIC
Chip Capacitor Prototyping kits 740
JOHNSON, E. F.
Plugs & Jacks 464, 465
JONARD INDUSTRIES
Tools 642

— K —

KEPRO
PC Materials 505
KESSLER ELLIS
Digital Electronic Counters
.....290
KESTER
Solder 627
KEYSTONE ELECTRONICS
Battery Holders 667
Sockets 667
Terminal Boards 507
KEYSTONE CARBON
Thermistors 136
KLEIN & SONS
Tools 638
KULKA
Terminal Boards.....432-434
KURZ-KASCH
Knobs 668, 669

— L —

LANDSDALE
Semiconductors ...13-27, 100

Manufacturers Index

LEECRAFT
LED's 617
Lights 615-617
Switches 617
LFE (See API)
LICON
Switches 256-260
LINEMASTER
Foot Switches 271
LITTELFUSE
Fuses 369-371
LUXO LAMPS
Adjustable Lamps 645

— M —

MACHLETT (RAYTHEON)
Tubes 115-120
MACROMATIC
Relays 363
MADISON EQUIPMENT CO.
Tools 639
MAGNECRAFT
Relays 319-330
MALLORY
Audible Devices 121, 122
Batteries 666
Capacitors 194-205
Controls 162, 163
Hardware 202
Lab Sample Kits 200
MASTER APPLIANCE
Heat Guns 644
MEPCO
Capacitors 191-193
MIDTEX
Microprocessors I/O Modules 104, 105
Relays 353-356
MILLER, J. W.
Chokes & Coils 594
MINNESOTA MINING & MANUFACTURING
Electrical Tape 653
MODUTEC
Panel Meters 719
MONSANTO
Displays 97
LED Lamps 96
Opto Electronics/Infrared Devices 98
MOODY TOOLS
Subminiature Tools 629
MOTOROLA
Books 107
Integrated Circuits 42, 44-46
Microprocessors 51
Microsystems 47, 50
Relays and IO Modules 48-50
Power Supplies 47, 50
Selector Guide 28-51
Selector Index 28
Semiconductors 21-41
MUELLER
Clips 478
MULTICORE/ERSIN
Solder 627

— N —

NATIONAL ELECTRONICS
Tubes 115-120
NO NOISE
Tuner Cleaner 657
NYTRONICS
Inductors 593

— O —

OAK MANUFACTURING COMPANY
Keyboard Switches 278
Rotary Switches 277
OHMITE MANUFACTURING COMPANY
Resistor Assortments ...132
Resistors 131-135
Rheostats 160-161
Solid State Controls 160
Switches 276

— P —

PAMOTOR INC.
Fans 655-657
PANDUIT
Wiring Accessories..566, 567
PLASTIC CAPACITORS, INC.
Capacitors 220
DC Power Packs.....220
POMONA ELECTRONICS
Adaptors, Housings.454, 455
Test Leads.448, 452, 453, 456
POTTER & BRUMFIELD
Circuit Breakers 367, 368
Relays 292-311

— R —

RBM/ESSEX CONTROLS (Relays, See Stancor)
RCA
Books 107
Integrated Circuits 74-76
Micro Processors 67
Selector Guide 67-76
Selector Index 67
Semiconductors 68-73
Tubes 115-120
R.D.I.
Relay Mounting Sockets 438-439
Terminal Blocks 438
RACAL-DANA
Digital Test Equipment ..718
RAYTHEON
Hardware 674
Knobs 673, 674
Switches 271
Test Jacks 673
Tubes 115-120
REDINGTON
Counters 289
REGDON
Solenoids 331
RUSTRAK
Chart Recorders 711

— S —

SPC TECHNOLOGY (VOLTREX)
A-MODE Hi Voltage Hi Current Connectors 431, 508
AMERLOCK Hardware 479-481
Bins 511
Chemicals 660
Connectors 410, 431, 468-476
Connector Kits 508, 509
Engineering Kits, ...508-511
FASTFIT Coaxial Cable Connectors 431, 509
Heat Gun 559
I.C. Sockets 428
Outlet Boxes 650, 651
Paints 660
PC Boards & Accessories 497-500, 506
Plugs, Jacks 447-451
Relay Sockets 429
Soldering Aids 628
SOLDER SPONGE Desoldering Braid 628
SPRAYTECH Paints and Chemicals 660
Terminal Strips 430
Tubing 468, 509, 554-560
VOLTREX Brands
Heat Gun 559
Heat Shrinkable Products 554-559
Insulating Tubing.559, 560
PC Board Accessories 497-500
Plugs, Jacks, Test Clips 447-451
Printed Circuit Cards..506
Solderless Terminals 468-473
Terminal Strips 430
Wiring Accessories ..562-565
SCHAUER
Battery Chargers 646
SCOTCH (See Minnesota Mining and Manufacturing)
SHURE BROTHERS
Audio Accessories 737
Microphones 737
SIGMA
Photoelectric Controls ...344
Relays 337-343
SIGNAL INDICATOR (See Dialight)
SIMMONDS
Tool Boxes and Chests...641
SIMPSON
Panel Meters 720-724
Test Equipment 694-700
Pyrometers 724
SINGER (Controls Company of America)
Solenoids 365
SOLAREX
Solar Cells and Panels..106
SOLDER SIPPER
Solder Remover 628
SMITH, H.H.
Connectors 458, 460
Leads, Probes 457, 460
P.C. Equipment 461, 693
Spacers 459
SOLDER SPONGE (See SPC Technology)
SOLA ELECTRIC
Power Supplies 581-583
Regulators 581, 584
Transformers 580
SOUNDOLIER
Baffles and Speakers 733
SPECTROL
Dials 168
Potentiometers 167, 168
Trimmers 164-166
SPRAGUE
Capacitor Analyzer 190
Capacitors 171-190
Filters 188
Resistors 128
Integrated Circuits 99
SPRAYTECH (See SPC Technology)
STACO
Regulators 577
Transformers 577
STANCOR/ESSEX
Relays 358, 359
Transformers 572-576
STRUTHERS-DUNN (Dunco)
Relays 345-349
SUPERIOR ELECTRIC
Connectors 465
Motor Drives 592
Motors 591
Regulators 590
Transformers 590
SWITCHCRAFT
Switches 264-267
Audio Connectors ...440-446
SYLVANIA (See GTE Sylvania)

— T —

T-BAR
Relays 366
Switches 276
TALK-A-PHONE
Intercoms 730, 731
TELEX
Headsets 733
TEXAS INSTRUMENTS
Connectors 494
Integrated Circuits..59-61, 66
IC Sockets 494-496
Microprocessors 64, 65
Selector Guide 53-66
Selector Index 53
Semiconductors 53-59, 62, 63
THOMAS & BETTS
Cable Straps 447
Cable Ties 477
Connectors 474
Disconnects 476
Splices 476
Terminals 449
Tools 475, 476
TRIAD-UTRAD
Converter/Battery-Charger 646
Transformers 568-571
TRIPLETT
Test Equipment 701
VOM's 702-705

— U —

U. S. CRYSTAL
Microprocessor Crystals 103
UTC/TRW
Miniductors, Transistor Transformers 578
Miniature Transformers and Inductors.....579
Filters 578
UNGAR ELECTRIC
Soldering Equipment 618-622
UNIMAX
Switches 242, 243
UNIVERSITY SOUND
Speakers 739

— V —

VACO PRODUCTS
Fasteners 634
Testers 634
Tools 634, 635
VACTEC
Photo Cells 123
VECTOR ELECTRONICS
Cases and Cages 493
Kits 492, 493
PC Boards 489-491, 493
Terminals 491
Tools 492
VERNITRON (BEAU)
Connectors, Terminal Strips 436, 437
VIZ/RCA
Test Equipment 716, 717
VOLTREX (See SPC Technology)

— W —

WAAGE
Soldering Pots 626
WABER
Carts 653
Outlet Boxes 652
Outlet Strips 654
WAKEFIELD
Brackets, Clamps ...113, 114
Heatsinks 111-114
Insulators 113
Thermal Compound 111
WALDOM/MOLEX
Connectors 462, 463, 512
Kits 512
WANLASS (See Adtech)
WD-40
Lubricants 629
WELLER
Soldering Equipment 623-625
WESTON
Panel Meters 725
Test Equipment 714, 715
WOOD (See Potter & Brumfield)

— X —

XCELITE
Tools 630-632

— Y —

YSI (YELLOW SPRINGS INSTRUMENTS)
Probes 719
Thermistors 137

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INDEX PAGES

PRODUCT	**741-749**	**MANUFACTURERS**	**750, 751**
CAPACITORS	169	RELAYS	291
CONNECTORS	376	RESISTORS AND CONTROLS	124
LAMPS	595	SWITCHES	224

SEMICONDUCTORS 6, 28, 53, 67, 77, 88

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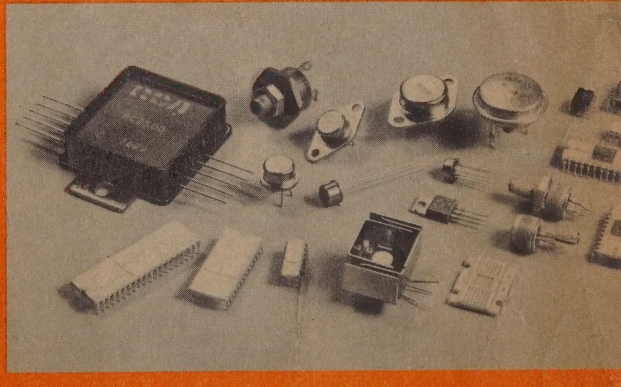

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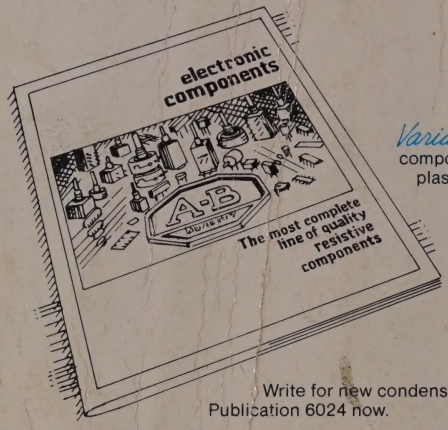

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